

U.S. Fish & Wildlife Service

National Marine Fisheries Service

Green Diamond Resource Company, Del Norte and Humboldt Counties, California

Final Environmental Impact Statement

For Authorization for Incidental Take and Implementation
of a Multiple Species Aquatic Habitat Conservation Plan and
Candidate Conservation Agreement with Assurances



Volume 2a

October 2006

prepared by

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Responses to Comments

This volume contains the responses to public comments on the Green Diamond Resource Company (Green Diamond) Draft Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances (AHCP/CCAA or Plan) and the associated Draft Environmental Impact Statement (DEIS), dated July 2002. It includes a set of 19 Master Responses to issues raised in the comment letters and it also includes individual responses to comments (Attachments 1 and 2). In its entirety, this volume is part of the Final Environmental Impact Statement (FEIS) for the Green Diamond AHCP/CCAA. FEIS Volume I contains revisions to the DEIS, and addresses the potential environmental effects that could result from implementing the Proposed Action and other action alternatives.

Attachment 1 to this volume includes copies of the individual comment letters and their responses, respectively. Each public comment or letter in Attachment 1 has numbered comments, with corresponding responses that answer the specific comments and issues raised in the letter. The comment letters and responses are preceded by an index that includes (1) the document identification number for each letter and (2) the name of the agency (federal, state, or local), organization, or individual that produced the letter of comment. To assist the reader in finding individual letters, the comment letters are organized in the following way:

- Individual Citizens - C
- Federal Agencies - F
- Groups and Private Organizations - G
- Jointly Administered Federal and State Agencies - J
- Local and Regional Agencies and Governments - R
- State Agencies - S
- Tribal Organizations - T

Attachment 2 provides a summary of oral comments received during the September 4, 2002, public meetings on the AHCP/CCAA and DEIS and their responses.

In reviewing the comments received on the DEIS, it was apparent that many commenters raised similar and overlapping issues. Consequently, to aid the decision makers and the reviewing public, the Master Responses have been developed to address key comments raised. The intent of the Master Responses is to provide background and concise responses on each of the commonly raised issues to support the more specific responses included in the response to individual comments. The Master Responses are intended to supplement, but not replace, specific responses to individual comments submitted. The responses are not intended to address every issue raised. The comments fall into the following general categories:

- Baseline Conditions (Master Response 1)
- The “No Action” Alternative and “No Take” (Master Response 2)
- Cumulative Effects (Master Response 3)

- Herbicides (Master Response 4)
- “Likelihood to Recruit” (Master Response 5)
- Relationship between this Plan and The Pacific Lumber Company HCP (Master Response 6)
- The Operating Conservation Program and the California Forest Practice Rules (Master Response 7)
- Permit Approval Criteria (Master Response 8)
- Quantifying Take (Master Response 9)
- Analysis of Alternatives in the Plan and EIS (Master Response 10)
- Disturbance Index/Rate of Harvest (Master Response 11)
- Biological Goals and Objectives (Master Response 12)
- The Role of Foresters and the Practice of Geology (Master Response 13)
- Plan Enforceability (Master Response 14)
- The Adaptive Management Reserve Account (Master Response 15)
- 70 Percent Effectiveness (Master Response 16)
- Road Density (Master Response 17)
- Riparian Widths (Master Response 18)
- Assurances and the No Surprises Rule (Master Response 19)

Introduction

The Services received many valuable comments and as a result of these many comments, as well as the Services’ continuing evaluation, changes were made to the EIS, although none altered the significant conclusions in the DEIS. Key changes include: revisions to reflect the change in listing of steelhead from the Northern California Evolutionarily Significant Unit to the Northern California Distinct Population Segment; refinements and clarifications to Green Diamond’s proposed Operating Conservation Program and corresponding changes to the discussion in the EIS; and additional information to explain and clarify in greater detail the basis for the cumulative effects analysis in Chapter 4, particularly those sections addressing geology and geomorphology (Section 4.2) and aquatic resources (Section 4.3).

As can be seen from the size of this Volume II, the Services received several thorough comments. Review and response to these comments and preparation of Master Responses were handled by more than one person. While the Services have endeavored to make sure that there are no inconsistencies, in the case where there is an inconsistency between an Individual Response and the Master Responses, the Master Responses reflect the Services’ official position.

Master Response 1: Baseline Conditions

Several comments were made regarding baseline conditions. Some comments focus on the EIS, suggesting that use of baseline conditions as the No Action Alternative provides an inappropriate point of comparison. Other comments focus on the Plan, suggesting that data are lacking or insufficient to adequately characterize the baseline conditions (i.e., current habitat conditions and species status). Other comments on baseline conditions do not specify whether the concern relates to the EIS or the Plan. Such comments suggest that, overall, the description of baseline conditions is improper because it identifies as the baseline certain conditions that the comments characterize as “degraded,” including some watersheds with impaired water quality and/or historically heavily managed landscapes. Still other comments assert that the document(s) portray overly favorable or optimistic current conditions and assert that the documents should have considered the die-off of fish in the Klamath River in September 2002.

1.1 Baseline Conditions under NEPA

A discussion of “baseline” is a legal requirement in National Environmental Policy Act (NEPA) environmental analyses, particularly in the evaluation of project impacts and alternatives to a Federal project or action. Baseline conditions often are used in NEPA analyses as a benchmark against which environmental consequences of agency action may be assessed. The courts and Council on Environmental Quality (CEQ) guidance recognize the importance of baseline conditions. *Half Moon Bay Fishermans’ Marketing Association v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988) (“[w]ithout establishing the baseline conditions which exist in the vicinity [prior to implementation of the Proposed Action], there is simply no way to determine what effect [the action] will have on the environment and, consequently, no way to comply with NEPA.”); Environmental Quality, Considering Cumulative Effects under the National Environmental Policy Act (visited January 28, 2003) (<http://ceq.eh.doe.gov/nepa/ccenepa/ccenepa.htm>) (noting the critical role that evaluation of baseline conditions plays in the NEPA process). In other words, baseline conditions can help to establish the degree and type of change in the environment that would result from the Proposed Action and other alternatives under consideration.

1.2 Relationship between Baseline Conditions and Conditions under the “No Action” Alternative under NEPA

The EIS includes a comparison of existing baseline conditions and the No Action Alternative. Under the No Action alternative in the EIS, the Services would not issue the requested incidental take permit (ITP) or enhancement of survival permit (ESP) and Green Diamond would not implement the Plan. This means that on-going activities would continue, and would continue to be subject to all applicable laws, including the Endangered Species Act’s (ESA) prohibition on unauthorized take of listed species. Since all of the action alternatives involve management that would occur over an initial 50-year term, conditions in the Action Area will diverge from existing baseline conditions over time. Therefore, the most meaningful comparison for this EIS is with the project (Permit issuance and Plan implementation) and without the project (the No Action Alternative: no Permits, no Plan) over time.

1.3 The Use of Best Available Scientific Information and Accuracy of Current Conditions in Satisfaction of ESA Requirements

Some comments assert that the data are lacking or insufficient in the Plan to adequately characterize baseline conditions in the Plan Area.

These issues are best addressed by reviewing the data that are presented in the aquatic habitat conservation plan (AHCP)/candidate conservation agreement with assurances (CCAA). The Plan represents an exhaustive chronicle of the best available scientific data known about the Plan Area. Baseline conditions within the Plan Area are described by HPA (Hydrographic Planning Area) in AHCP/CCAA Section 4. Full details of studies and monitoring are found in AHCP/CCAA Appendix C. AHCP/CCAA Section 4 describes and assesses geologic and geomorphic factors and the current status of the covered species, focusing on the following:

- Water temperature
- Instream channel and aquatic habitat conditions
- Instream and recruitment zone large woody debris (LWD)
- Sediment inputs from Class III watercourses
- Salmonid distribution across the Plan Area and abundance in key watersheds
- Headwater amphibian distribution, relative abundance and habitat associates

AHCP/CCAA Section 4 discusses characteristic habitat types in each of the areas as well as existing factors that appear to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystems. These data are the result of efforts that were initiated in 1993 and have continued until the present. The Services believe that the data presented represent the best available science for the purpose of characterizing baseline conditions across the landscape. Much of the data reflects conditions in watersheds that typically would be expected from historic timber harvest operations, e.g., depletion of LWD (especially in the larger size classes), excess coarse sediment, or a combination of the two was found to be the limiting factors. Water temperatures were generally good, and the covered species that should be most sensitive to water temperature, headwater amphibians, are reported to be well distributed throughout the Plan Area (Diller and Wallace, 1996 and 1999). The proportion of streams with populations of headwater amphibians was comparable to estimates from pristine old growth forests. Although the amount of habitat in individual streams has decreased relative to pristine conditions, the populations of amphibians have persisted despite past timber harvest practices. Apparently, a combination of a cool coastal climate and favorable geology in much of the Plan Area has allowed these species to persist. The Plan was developed consistent with the data demonstrating that conservation measures should be designed for site-specific conditions based on site-specific data where available.

In addition, the Services have reviewed the protocols set forth in Green Diamond's studies underlying the Plan measures. The protocols selected were the most current available and were scientifically sound. All of the studies and monitoring have been undertaken in consultation with local and regional experts in the respective fields of study. For example, Dr. Bill Trush of McBain and Trush was retained as a consultant to help develop the long-term channel monitoring protocol. Dr. David Hankin from Humboldt State University was consulted on juvenile salmonid population estimation and Dr. Eric Bjorkstedt from the

National Marine Fisheries Service (NOAA Fisheries) assisted with the development of coho salmon smolt estimates from out-migrant traps. Drs. Tom Lisle and Robert Ziemer from the Redwood Sciences Lab and Frank Ligon with Stillwater Sciences provided input on the Class III sediment monitoring. The headwaters amphibian studies and monitoring was done collaboratively with Dr. Richard Wallace from the University of Idaho. The critical steps of study design and statistical analyses were done with the assistance of Drs. Layman and Trent McDonald of WEST, Inc. In addition, numerous other individuals provided input to the design and analysis of the Plan's studies and monitoring program. The Services believe that care was taken to collect and analyze data in a scientifically valid and meaningful manner.

1.4 Relationship among Baseline, Legacy and Pristine Conditions under NEPA and the ESA

Some comments suggest that the use of a baseline that includes legacy conditions and water quality impairment is inappropriate and, therefore, that the subsequent comparative analysis of environmental effects is flawed.

Environmental conditions attributable to events or activities that occurred in the past also are known as "legacy" conditions. For example, the decline of a well established population of tailed frogs occurred as a result of a failure of a Humboldt crossing installed in the late 1950s or early 1960s on a seasonal road. A large 1996 storm event triggered the failure and large quantities of fine sediment were delivered to the watercourse and torrented down the channel, scouring cobble sized material and depositing fine sediment. The larval portion of this population of tailed frogs was likely extirpated from this watercourse and several years elapsed before tailed frogs were again commonly found in the stream. Current stream channel conditions can be considered to be part of the existing baseline because they can be expressions of legacy events such as this example of a failed Humboldt crossing.

Other comments suggest that the Total Maximum Daily Load ("TMDL") process was not adequately considered.

The Plan (AHCP/CCAA Section 4.3.6 and Table 4-3) recognizes that certain waterbodies within the Plan Area are listed as water quality impaired under the Clean Water Act and identified on the 303(d) list because of sediment or other pollution that has occurred in the past, and in some cases is continuing to occur. The Services' Permit issuance criteria require that authorized take occur pursuant to an otherwise lawful activity. As indicated in AHCP/CCAA Section 1.4.2, Green Diamond's activities in the Plan Area remain subject to all other applicable laws, including actions or restrictions that could result from the TMDL process under the Federal Clean Water Act and any other related water quality protection requirements under the State Porter-Cologne Water Quality Act.

Related comments suggest that "baseline" conditions that equate with "pristine" conditions (pre-commercial timber harvesting activity) or some future ideal condition would be more appropriate than the baseline conditions as described in the Plan and EIS.

The Services believe that it is appropriate to compare existing environmental conditions and conditions that would result over time under the No Action Alternative (see Master Response 1.2) to the environmental conditions that are expected to result from project implementation. The Services also believe that other characterizations of baseline would not

provide a useful measure for decision-makers to compare the environmental effects of other project alternatives in the EIS.

For more information regarding baseline conditions, see the discussion of the “limiting factors” analysis in Master Response 3, regarding Cumulative Effects.

1.5 Baseline Conditions are Degraded and therefore Requires Extraordinary Conservation Measures under the ESA

Some comments assert that baseline conditions are so degraded that extraordinary conservation measures must be taken to support viable populations of the covered species.

As summarized in the Plan, most of the streams in the Plan Area have been impacted by past timber harvesting and other land management activities. The greatest impacts occurred up to the mid-1970s when timber harvesting practices were less protective. Air photographs from that era and field inspection of channel conditions locally provide evidence of substantial past impacts. However, the evidence also indicates that most streams have shown improvement relative to sediment delivery and canopy closure. Full recovery of LWD recruitment rates is a much longer process, and without proactive steps, may take hundreds of years to achieve. Therefore, many of the streams in the Plan Area are recovering from the less protective practices that occurred prior to the 1970s. While many streams in the Plan Area continue to reflect the legacy of these past impacts as sediment gradually works through the larger stream reaches and large woody debris has yet to recruit, the greatest sediment-related impacts have likely already occurred.

Some reviewers use statistics on the drastic decline range-wide in the number of watersheds that currently support various salmonid species as evidence that the species are in perilous condition.

The data presented in AHCP/CCAA Section 4 indicate that all of the covered species are still well distributed across the Plan Area. While data are not available on population trends for many of the streams, Chinook salmon, coho salmon, and steelhead have been documented in 64, 97 and 137 watersheds and sub-basins, respectively, in the Plan Area. The difference in distribution among these salmonid species is primarily due to access. The more mobile and athletic steelhead are presumed to be absent (it is practically impossible to prove absence) from only nine sub-basins across the entire Plan Area, because streams in these sub-basins are generally small and of such high gradient that it is unlikely they ever supported anadromous fish populations. Evidence provided in the Plan suggests that Chinook and coho salmon occur in a smaller proportion of watersheds primarily because streams in these areas have natural barriers that limit anadromy to salmon, are too high gradient to have suitable habitat, or are simply too small for salmon.

The headwater amphibian covered species also are widely distributed within the Plan Area. Over 80 percent of the watersheds and sub-basins that have been surveyed have tailed frogs and 75 percent have southern torrent salamanders. The small proportion of watersheds and sub-basins that do not currently support populations of the covered headwater amphibians primarily occur in the southern portion of the Plan Area in regions with geologic conditions that are unsuitable for these species. Based on the lack of these headwater species in pristine sub-basins in the Headwaters Reserve with similar parent geology, it is likely that most of these regions did not support these species historically.

While most of the covered species have experienced declines in population size relative to conditions that existed before humans began active management of the landscape, monitoring data indicate that some watersheds still have robust populations of some of the covered species. This was not apparent until recently for the anadromous salmonid covered species; the cause of such prior declines is unclear but could include poor ocean conditions, as well as the quality of freshwater habitat as a result of timber harvesting and other human activities. However, as referenced in the Plan, since 2001, relatively large runs of salmonids have been documented in the South Fork Winchuck River in the Smith River HPA, Wilson and Hunter Creeks in the Lower Klamath HPA, Little River HPA, Sullivan Gulch in the Mad River HPA, and Ryan Creek in the Humboldt Bay HPA. These examples indicate that populations are variable, and these data (that vary from 1-6 years) reveal high numbers of covered fish species within many of the 11 HPAs. Recent reviews by NMFS (70 FR 37160, 71 FR 834) have determined that the NC steelhead DPS, CC Chinook salmon ESU, and SONCC coho salmon ESU remain threatened. There is limited monitoring data available on the covered headwater amphibians, but the data available for both tailed frogs and torrent salamanders indicate that they are found in many watersheds throughout the Plan Area.

In summary, the Services find that the environmental baseline is characterized accurately in the EIS and the Plan.

1.6 The Current Status of Covered Species, the September 2002 Klamath River Die-Off of Fish, and “New Information” under NEPA and the ESA

Some comments suggest that the September 2002 die-off of fish should be considered as part of the baseline.

As discussed above, the baseline as described in the Plan represents existing conditions as a point of comparison against which to measure changes caused by the Proposed Action and in the EIS as a point of comparison for the No Action and other alternatives. Under baseline and No Action conditions, some of the covered fish species are listed as threatened under the ESA (Southern Oregon/Northern California Coast coho salmon, California Coastal Chinook salmon, and Northern California steelhead) and others are not (Klamath Mountains Province steelhead, Southern Oregon and Northern California Chinook salmon, Upper Klamath/Trinity Rivers Chinook salmon, coastal cutthroat trout, and resident rainbow trout). The United States Fish and Wildlife Service (USFWS) estimates that a minimum of 34,056 fish perished during a die-off in the lower Klamath River between September 18 and October 1, 2002. Of these, approximately 97 percent were Chinook salmon, 1 percent were coho salmon, and 2 percent were steelhead (Guillen 2003a). More than 91 percent of the coho salmon were of hatchery origin. The Service concluded that the die-off was a result of a combination of factors including high density of fish, low river discharges, warm water temperatures, and possibly extended residence time of salmon (Guillen 2003b). These factors created optimal conditions for an epizootic of *Ich* and *columnaris*, which was the proximate cause of death. This information has been added to the baseline discussion in the EIS. However, this incident did not change the species' statuses, nor does it affect the analysis or the conclusions in the DEIS or the Plan.

In the Services' view, implementation of the Plan is not likely to jeopardize any of the covered species or adversely modify critical habitat. In the context of the ITP/AHCP, the Plan includes measures to minimize and mitigate the impacts of take to the maximum extent

practicable and to ensure that such take will not appreciably reduce the likelihood of survival and recovery of the species in the wild and that conclusion is not changed by the 2002 fish die-off. In the context of the ESP/CCAA, the 2002 fish die off has not affected the Plan's benefits that, when combined with the benefits that would be achieved if it is assumed that the conservation measures also were implemented on other necessary properties, would preclude or avoid any need to list the unlisted covered species. See AHCP/CCAA Section 1.4.1 and Master Response 8 regarding the criteria for issuance of the Permits.

Some comments suggest that effects of the die-off rise to the level necessary to trigger re-circulation of the Draft EIS under NEPA.

Re-circulation of a draft EIS is appropriate when "[t]here are significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts." 40 C.F.R. § 1502.9(c)(1)(ii). A supplemental statement is not necessary every time new information comes to light. *Marsh v. Oregon Natural Resources Council*, 490 US 360 (1989). The die-off has not resulted in a significant worsening of the covered species' condition over that considered in the Draft EIS, and has not changed the listing status of the covered species. Therefore, the new information does not provide a significantly different understanding of the environmental landscape or undermine the conclusion reached under NEPA.

Master Response 2: The "No Action" Alternative and "No Take"

Some comments suggest that the No Action alternative should include No Take.

The Services agree that the "No Action" alternative analyzed in the EIS and the Plan (the "No Action" alternative also is referred to in the Plan as "No Permits/No Plan"), must be a no take standard. Under the No Action alternative, unauthorized take of listed species would be prohibited.

2.1 The No Action Alternative under NEPA

The National Environmental Policy Act (NEPA) requires Federal agencies to consider "alternatives to the Proposed Action." 42 U.S.C.A. §4332(C)(iii). Regulations promulgated by the Council on Environmental Quality ("CEQ") provide guidance regarding the range of alternatives that agencies must consider, including a "No Action" alternative. 40 C.F.R. §§1508.25(b)(1), 1502.14(d). In a No Action Alternative, agencies consider the environmental consequences of not taking the Proposed Action and the resulting environmental conditions are the benchmark against which reviewers may compare the other alternatives. In the EIS, the Proposed Action is issuance of permits authorizing incidental take of listed species in accordance with the Federal ESA and Federal policies regarding conservation of unlisted species. Under the No Action alternative, the Services would not issue the requested permits, and Green Diamond would not implement the Plan. Under the No Action scenario, Green Diamond would remain subject to the Federal (and state) ESA prohibitions on unauthorized take of listed species, including all the species that would be covered by the Plan under the other alternatives. The EIS evaluated conditions that would be expected to result over time under the No Action (in relation to existing baseline conditions) and compares them with conditions that are expected to result over time under the Plan or the other three action alternatives described in the EIS.

2.2 No Action Alternative and the California Forest Practice Rules

Although the CFPRs expressly prohibit approval of a THP that could cause take, NOAA Fisheries' view is that it is nonetheless possible that the CDF could approve a THP that could result in take of a listed species. In contrast to the risks associated with generic application of the CFPRs, the track record and application of additional programmatic protection measures and site-specific species protection and take avoidance measures applied by the management team for this property, coupled with the NOAA Fisheries history of review of those THPs support the conclusion that it is not likely that take will result from Green Diamond's operations. Under these circumstances, NOAA Fisheries is not required to presume that Green Diamond is violating the ESA take prohibition under the No Action alternative as drafted.

Therefore, for purposes of this NEPA analysis and the internal Section 7 analysis that will follow, NOAA Fisheries makes the following assumptions:

- Green Diamond would continue to follow the practices outlined above
- NOAA Fisheries would continue reviewing THPs submitted to them by CDF (using established protocols for determining those THPs presenting the greatest risk of harm/take to listed salmonids), including THPs submitted by Green Diamond to CDF and would make recommendations to CDF and Green Diamond on measures to avoid the likelihood of harm/take
- Green Diamond and CDF would implement NOAA Fisheries recommendations in approved THPs

Master Response 3: Cumulative Effects

Some comments state that the cumulative effects assessment is inadequate in the Plan and EIS.

Cumulative impacts are relevant to the Services' issuance of the ITP/ESP as well as the NEPA obligation to prepare an EIS. Generally, cumulative impacts under NEPA and ESA 7 are the incremental impact which results from a Federal action, *i.e.*, approving the Permits under the conditions of approval described in the Plan, when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The two legal authorities that control here (ESA and NEPA) require slightly different analysis of cumulative effects, although the conclusions in this case are the same.

3.1 How Cumulative Effects are Addressed to Satisfy the ESA

The cumulative effects analysis looks at whether the incremental impacts of the Federal action will combine with incremental effects of other non-Federal actions to jeopardize the continued existence of any listed species that may be affected by the action. In other words, the relevant issue under Section 7 is whether cumulative impacts associated with Permit issuance will cause jeopardy to any federally listed species.

Section 3 of the AHCP/CCAA describes the covered species' biology and habitat needs. Each of the covered species has a variety of needs for habitat to carry out breeding, spawning, rearing, migrating, sheltering, and feeding activities during each of their life stages. Section 4 sets forth the baseline conditions that exist within the Plan Area. The Plan divides the Plan Area into 11 areas (Hydrographic Planning Areas or "HPAs") and discusses what types of habitat conditions appear to characterize each of the areas, and which may be lacking to assure healthy, functioning aquatic/riparian ecosystems.

Using the factual information developed as a result of the studies described in AHCP/CCAA Sections 3 and 4, the potential impacts of take, including cumulative impacts, are analyzed in Section 5. In order to frame that analysis, the Plan describes the possible environmental effects that could result from the covered activities (AHCP/CCAA Section 2). Some of those effects, individually, in combination, or cumulatively, could cause take to occur. Furthermore, impacts of the covered activities in addition to those that could cause take are addressed in the Plan. For example, lack of LWD inputs into an aquatic ecosystem could result in the failure to: (1) create new habitat, (2) mitigate or exacerbation of other adverse effects on the Species, or (3) declines in existing habitat conditions. LWD creates stream complexity including pool formation, which provides critical habitats for various salmonid life stages. For the amphibian covered species, the availability of LWD causes sorting of the stream substrate, which is important in the creation of riffle habitats, or, when perched above a streambed, it provides cover for the adults. Thus, a reduction in recruitment of LWD through harvesting close to a watercourse could result in delays in habitat formation, which would negatively affect the recovery of the habitat of the covered species within the affected aquatic system. Such impacts, when combined with the impacts that continue to affect the covered species from take authorized under the Plan, as well as past projects and similar projects in other areas in the future, would be expected to negatively affect the species at issue.

Section 5 of the AHCP/CCAA concludes that the effects of certain of the covered activities, without minimization or mitigation measures, could cause take, and that the impacts of such take and related impacts, as illustrated above, could limit or reduce local or regional populations, primarily by limiting the development of appropriate habitat conditions. The impact of unmitigated taking on the covered species in a cumulative sense would be a contribution to or a continuation of any existing threats to the species' survival and recovery. Specifically, AHCP/CCAA Section 5.7 summarizes the potential impacts of take, including cumulative impacts, and describes the cumulative effects analysis process employed.

This analysis of environmental effects of the covered activities which could cause take or other impacts to the covered species has been carried out over the Plan Area. To determine the effects of the covered activities that would be of significance in causing take and otherwise impacting the covered species, Green Diamond's team of biologists determined what types of habitat conditions appeared to be the primary "limiting factor" in assuring healthy, functioning aquatic/riparian ecosystems in each area. They found, generally speaking, that the input of sediment had perhaps the greatest negative effect on the covered species. Low rates of LWD recruitment tend to exacerbate sediment inputs, as would activities that alter hydrologic conditions and affect peak flow events. The goals of the Plan are to avoid or minimize and mitigate these and other environmental effects to the

maximum extent practicable wherever they could occur in connection with the covered activities, and to provide additional measures to improve habitat conditions as compensation for residual impacts, if there are any. Furthermore, to the extent compensation levels exceed residual impacts, an additional Plan goal is to promote recovery of the covered species.

The Plan applies each of the minimization and mitigation measures it identified to address the most significant issues to covered species' habitats across the entire Plan Area. To avoid and minimize individual or cumulative effects that could cause take or which could result in substantial impacts to the covered species, the Plan proposes to avoid, minimize and mitigate the individual environmental effects of the covered activities. As an example of an "avoidance" or "minimization" measure, the Plan's Operating Conservation Program measures relating to road construction, maintenance and upgrading will enable Green Diamond to avoid some road failures/mass wasting events (the environmental effect) that could otherwise occur as the result of faulty or outdated road design, thus avoiding taking that may occur as the result of such failures. As an example of a mitigation measure, the Plan proposes to provide for LWD recruitment by foregoing the harvest of trees that are judged likely to recruit to the watercourse: the input of large wood into a stream is expected to enhance habitat complexity and provide other beneficial effects to all covered species, listed and non-listed alike, including the mitigation of other environmental effects such as sediment.

In addition to the analysis described above, the following analytical mechanism was used to develop measures in the Plan that support the conclusion that the incremental effect of Plan implementation will be positive, and therefore, that implementation will not cause or contribute to negative cumulative effects. Relevant baseline environmental conditions of the 11 HPAs were analyzed and described. As part of this analysis, the habitat conditions or factors that are limiting for the covered species were identified in each of the HPAs. See AHCP/CCAA Table 7-1 and AHCP/CCAA Section 5.7. Measures then were designed to be implemented during the term of the Plan that will provide for significant improvements in each of those conditions (AHCP/CCAA Section 6.2). This limiting factor analysis is not a cumulative effects analysis, a substitute for one, nor are these limiting factors "existing cumulative effects." Instead, the limiting factor analysis provides an informed *baseline* of current conditions, identifies all of the significant habitat conditions that could be affected by timber operations, and allows the development of specific avoidance or minimization measures to improve or prevent decline of covered species and habitat conditions. Baseline conditions also are discussed in Master Response 1. In addition, Green Diamond is undertaking an extensive program to treat old road conditions that represent a current threat to habitat conditions. See AHCP/CCAA Section 6.2.3. Since these roads are legacy conditions, these conditions and their effect on the covered species and their habitats are not a cause of "take" or an "impact of take" by Green Diamond. Thus, the Services believe that these legacy road measures are accurately characterized as mitigation or compensation measures that go beyond "minimizing" the impacts of authorized taking. The obligation to "minimize and mitigate the impacts of take to the maximum extent practicable" and other ESA Section 10 requirements are discussed in Master Response 8.

Although different, HPA-specific limiting factors were identified for many of the HPAs, Green Diamond proposes to apply the conservation measures designed to address each

limiting factor to the entire Plan Area – not just those areas where that particular factor is, in fact, limiting. In other words, the conservation measures will be applied even in those places where the adverse habitat condition did not occur (e.g., the riparian management measures will be applied even with respect to streams where lack of LWD inputs is not noted as a habitat concern). Stated another way, instead of tailoring individual measures to individual problems, the Plan is designed to apply conservation measures Plan Area-wide to mitigate each type of individual and potential cumulative impact that could occur anywhere in the Plan Area. The basic premise is that each individual impact of take and of the Plan generally is completely and fully mitigated, that, because the measures are applied even where they are not needed to mitigate any impact of take, net positive effects will result, and thus cumulative impacts to the species logically will not occur.

3.2 How Cumulative Effects are Addressed in the EIS to Satisfy NEPA

Under NEPA, the cumulative effects analysis looks at whether the incremental impacts of the covered forest management activities as conducted under the proposed action (permit issuance) will interact with the incremental impacts from other actions to result in cumulative impacts on the environment as a whole – not just the listed species. Under NEPA, cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action (permit issuance) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 CFR §1508.7. The EIS performs a very similar analysis to that conducted in the Plan and reaches a similar conclusion as to potential environmental impacts of implementing the Proposed Action, i.e. the Plan. An overview of the methodology in the EIS’s cumulative effects analysis is in EIS Section 4.1. A summary of the analysis conclusions is presented in EIS Section 4.13. Overall, the EIS concludes that the cumulative result of implementing the resource management programs associated with any of the alternatives, including the No Action Alternative, on public and private lands would be to protect and/or improve aquatic resources and riparian habitat conditions relative to current conditions over time in each of the HPAs.

3.3 Geographic Scope of the Cumulative Effects Analysis in the EIS and the Plan under NEPA and the ESA

Some comments suggest that the geographic range of potential cumulative effects analyzed should be both larger (e.g., the salmonid covered species’ entire range, Humboldt Bay, adjacent parks) and smaller than the area studied. The evaluation of environmental effects assesses impacts throughout the HPAs, on Green Diamond-owned and non-Green Diamond-owned land, and supports the Plan’s provisions allowing for additions and deletions of lands from the Plan Area over the term of the Plan and Permits. These boundaries were selected as large enough to be meaningful to the resources at risk, and small enough not to dilute potential effects. The inclusion of all commercial timber lands in the Primary Assessment Area reasonably extended the direct, indirect, and cumulative effects analysis beyond Green Diamond’s ownership to include areas within the 11 HPAs that are subject to a similar management regime (i.e., commercial forestry activities) and that Green Diamond might manage per the AHCP/CCAA during the term of

Permits, should they purchase these properties or the right to harvest timber on them. The area addressed by the cumulative effects analysis was extended further to encompass the 11 HPAs, including other lands that are predominately either privately owned, administered by a Federal-resource management agency, or are State or Federal park lands. This extension allowed the cumulative effects analyses to incorporate qualitative assessments of those areas subject to significantly different land management regimes, as in the case with RNSP and FS lands, within the 11 HPAs. In some cases, quantitative cumulative effects assessments were possible at the scale of the Primary Assessment Area and beyond, but these assessments were subject to the increasing limitations of data extrapolation. It is also noted that the Plan's contribution towards cumulative effects within any given HPA is significantly influenced by the percentage of the HPA managed under the Plan. In those cases where Green Diamond does not own a significant proportion of the HPA, the effects of implementing the Plan are diluted by the effects of the other dominant land management practice(s). For example, Green Diamond owns 4 percent of the Eel River HPA and the incremental effects of Green Diamond's management can be expected to be significantly diluted and indistinguishable from the effects of other dominant land management regimes in the Eel River. In the case of Redwood Creek, there exist two dominant land management regimes, a federal and state management regime and a commercial forestry regime. Federal and State land ownership encompass approximately 46 percent of the basin and is generally concentrated in RNSP ownership (42 percent ownership of the basin) in the downstream portion of the watershed. Private lands total 54 percent of the watershed, are predominantly managed under a commercial forestry regime, and are concentrated in the upper reaches of the watershed. Green Diamond's ownership is located immediately upstream of the RNSP and totals approximately 17.5 percent of the basin. In this instance, the incremental effects, such as from reducing sediment loading, of implementing the AHCP/CCAA should be distinguishable over time within aquatic habitat in Redwood Creek, when combined with the upstream incremental effects of other commercial forestry activities. However, the cumulative effects of the reduced sediment loading from Green Diamond lands will be substantially less evident or distinguishable moving further down stream through RNSP ownership. The cumulative effects assessment area was not expanded beyond the 11 HPAs in consideration that a similar, though larger scale, dilution of effects would make the effects of implementing the Plan indistinguishable from other land management activities. For example, the incremental cumulative effect of implementing the Plan on the approximately 170,300 acres of combined Green Diamond's ownership within the Coastal Klamath, Blue Creek, and Interior Klamath HPAs would not be discernable among the cumulative effects of all land management activities within the approximately 10 million acres present within the Klamath River basin. The Services believe that the area assessed properly evaluates potential impacts within the geographic area where incremental impacts of the Permits and Plan could combine with other related impacts to result in cumulative effects.

3.4 Baseline Conditions in the Plan and EIS

Regarding issues of "baseline," please see Master Response 1.

3.5 Watershed-Level Analysis under NEPA

Some comments assert that no watershed-level or HPA-by-HPA cumulative effects analysis is included in the Draft EIS and believe that such analysis is necessary.

The Plan's Operating Conservation Program generally will be applied in the geographic area where the environmental effects of the covered activities are occurring. If harvesting operations are occurring at a more substantial level within specific areas over a certain period, the Plan's conservation measures also will be focused in those areas. For example, instead of setting targets for miles of roads to be decommissioned each year, Green Diamond will prioritize the decommissioning and upgrading of roads on the basis of benefits to the covered species. However, the Services anticipate that, generally, a greater amount of road treatment will be performed in those HPAs with the highest levels of operations at any given time within the Plan's term. In Chapter 4 of the EIS, potential cumulative impacts are assessed for each of several resource categories, including, among others: geology, geomorphology, and mineral resources; hydrology and water quality; aquatic resources; and vegetation and plant species of concern. For most of the resources, the cumulative effects analyses are grouped by HPA. The CEQ guidelines state that cumulative effects analyses should be limited to the effects that can be evaluated meaningfully by the decision makers. The guidelines further state that the area to use in defining the cumulative impacts geographical boundary should extend to the point at which the resource is no longer affected significantly (CEQ, 1997). The Services believe that the EIS's establishment of the geographical boundaries of the HPAs is appropriate and consistent with this guideline

3.6 Rate of Harvest under NEPA and the ESA

Some comments suggest that a discussion of the rate of harvest is necessary to conduct a proper evaluation of cumulative impacts in the EIS and the Plan.

The Plan discusses the potential that timber operations would alter hydrologic cycles, considers the potential of such alteration to cause take, and discusses the possible impacts of take on the covered species. Removal of trees and road building will, for varying periods, increase surface run-off, potentially affecting peak flows, which could damage salmonid redds or otherwise affect habitat conditions. The magnitude of such effects varies depending on the size of harvest units relative to the size of the watersheds. Harvesting rates are limited practically by an extensive set of state rules that restrict harvest unit size and re-entry timing. The Plan's measures have been designed to build on these existing constraints to minimize the peak flow effects. Further, as discussed above, implementation of the conservation measures will be focused on areas where timber operations are occurring. Upgrading or decommissioning of roads, for example, will occur on a priority basis in areas of harvesting operations where the covered species are most benefited. Therefore, the rate of harvest in any particular area is not essential to the impacts determination. Rate of harvest also is discussed in Master Response 11.

3.7 Assessing Cumulative Effects Associated with Lands Added to the Plan Area in the Future under NEPA

Some comments raise concerns about the cumulative impacts analysis in the Plan and EIS in light of the Plan's provisions for adding lands to the Plan Area in the future.

Comments correctly note that, under the Plan, the Plan Area can adjust over time to reflect the reality that Green Diamond buys and sells timberlands in the general area where the Plan will be implemented on a regular basis and expects to continue this practice in the normal course of business during the 50-year term of the Plan. See AHCP/CCAA Section 1.3.2 and IA Paragraph 11. Some comments assert that baseline conditions on these lands may differ from baseline conditions on Green Diamond's current ownership – the baseline used for the cumulative impacts analysis in the Plan for comparison in the EIS. The short answer to the question is that acquired commercial timberlands will not be added to the Plan Area unless they share similar relevant characteristics to the lands already included in the Plan.

Green Diamond may only add lands from within the existing 11 HPAs. HPA-specific analysis provided in the Plan supports a presumption that commercial timberlands within each HPA, whether they are included in the Plan Area or eligible for inclusion in the Plan Area, share similar relevant characteristics and, therefore, that adding such lands to the Plan Area during the term of the Permits will not likely result in adverse effects on the covered species different from those analyzed in connection with the original Plan. Characteristics found relevant to planning and implementation of the Plan for each HPA are described in AHCP/CCAA Section 4.4 and may include geology and geomorphology, climate, vegetation, habitat conditions (including water temperature, channel and habitat type, LWD inventory, and estuarine conditions), salmonid population estimates and covered species occurrence and status. However, the presumption of similarity is not conclusive. To add after-acquired properties for Plan and Permit coverage, Green Diamond will have to submit to the Services a description of the lands it intends to add together with a summary of the relevant characteristics that those lands share with existing Plan Area lands within that HPA. If the Services disagree that the presumption holds true for the specific lands proposed and object to their inclusion, the Services and Green Diamond would proceed through an informal dispute resolution process as described in paragraph 13.6.1 of the IA before the lands could be added.

3.8 Hydrology under the ESA

Some comments suggest that the Plan does not adequately address cumulative impacts associated with hydrology.

Section 5.2 of the AHCP/CCAA contains a discussion of the potential that the covered activities would alter hydrologic cycles, considers the potential of such alteration to cause take, and discusses the possible impacts of such take on the covered species. Removal of trees and road building will, for varying periods, increase surface runoff, potentially increasing peak flows, which could damage salmonid redds or otherwise affect habitat conditions. The magnitude of such effects varies depending on the size of the harvest units relative to the size of the watersheds. As explained in Section 7.2.1 of the AHCP/CCAA, existing state regulations furnish very restrictive limitations on harvesting large blocks of timber within any watershed unit. The Operating Conservation Program will build upon

existing regulatory constraints by both reducing this peak flow effect and by mitigating its impacts. For example, the Plan will reduce soil compaction and disturbance through its harvest-related ground disturbance measures. Further, the road implementation plan treatment/decommissioning measures will reduce any impacts occurring as the result of hydrologic alteration by disconnecting already-existing sources of road runoff (including legacy road conditions) from the streams. The extent of the biological impacts associated with alterations to the hydrologic regime is discussed in the EIS Section 4.3.3.

3.9 Herbicides under NEPA and the ESA

Regarding comments suggesting consideration of herbicide use pursuant to the impacts analysis, please see Master Response 4.

Master Response 4: Herbicides

Some comments suggest that herbicide use should be a Covered Activity and analyzed as such in the Plan and EIS. Other comments suggest that herbicide use should be considered in the AHCP/CCAA and EIS impacts analyses and that appropriate mitigation measures should be imposed in the Plan. Even though herbicide use is not a Covered Activity, the comments suggest that such measures should be imposed to address what the comments assert are direct, indirect and cumulative effects of herbicide use on species, water quality, food sources and Native American cultural activities.

Other comments express concern that pesticide registration and labeling laws do not take into account cumulative effects of site-specific application and comment drafters assert that this issue should be addressed in the Plan and EIS.

The Services acknowledge that application of herbicides occurs in a managed forest environment. Herbicides can be used to prepare a previously harvested site for planting tree seedlings, minimize resprouting brush, maintain road access and roadbed integrity, or eliminate exotic invasive weeds. Application of forest herbicides can result in both direct and indirect effects on wildlife and their habitats. Direct effects occur when species come in contact with contaminated water, food or sediment. Indirect effects may occur through alterations in nutrient, sediment or temperature characteristics that affect the amount of cover, food or suitable water quality available to the species. Herbicides can enter the aquatic system through direct application or drift from nearby treatment areas. Also, transport of chemicals from upstream, ephemeral channels may affect fish-bearing habitats during the first storms after application.

Green Diamond did not apply for incidental take coverage relating to herbicide use, and the Services have advised Green Diamond that permit coverage of herbicide use would be difficult due to the lack of scientific information and data necessary to assess adequately the impacts of such uses on the covered species. However, general information on Green Diamond's annual use of herbicides on the Plan Area has been added to EIS Section 2 and EIS Appendix C. This general information submitted to the Services by Green Diamond in March of 2004 was insufficient to enable the Services to analyze impacts and to provide incidental take coverage under an ITP or ESP for such uses.

When herbicides are used, the specific herbicides will be selected from those registered by the Department of Pesticide Regulation for use in forestry. A prescription will be developed

at that time by a licensed Agricultural Pest Control Advisor and materials applied by trained and certified applicators according to product label instructions and Federal and State regulations governing the use of pesticides.

4.1 Herbicide Application in the Past and Present is Part of the Baseline Conditions Affecting the Species in the No Action Alternative under the Plan and the EIS

It is not anticipated that there will be an increase in the amount or types of herbicides applied in the Plan Area as a result of approval of the Permits (see EIS Section 2). Current water quality conditions, including conditions relating to past herbicide application, farming, grazing, fishing, climate change, and residential and other land uses, water withdrawal policies, forestry practices, that have affected the species' status and habitat conditions are included in the baseline. These baseline conditions are properly considered in the evaluation of environmental effects associated with issuance of the Permits.

4.2 Future Use of Herbicides for Cumulative Impacts Consideration under NEPA and the ESA

Some comments suggest that herbicide use will be an integral part of Green Diamond's forestry management activities, could cause significant adverse impacts to humans, species and habitats and, therefore, that the potential impacts of future herbicide use should be analyzed in the Plan and EIS and appropriate mitigation set forth in the Plan even though Green Diamond is not seeking incidental take permit authorization for their use. Some comments also suggest that herbicide use should be considered in Green Diamond's cumulative impacts analysis. With respect to future actions, cumulative impacts analysis evaluates the prospect that incremental impacts of Plan implementation could combine with impacts of past, present and reasonably foreseeable probable future actions to cause cumulative impacts to the covered species and the environment.

Information on Green Diamond's annual use of herbicides on the Plan Area has been added to EIS Section 2 and EIS Appendix C. As a Federal agency, EPA has certain obligations under the ESA. ESA Section 7(a)(1) requires EPA to use its authority, in consultation with the Services in furtherance of the purposes of the ESA. ESA Section 7(a)(2) requires EPA to ensure that its actions are not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. As noted above, incidental take coverage provided for herbicide use.

Litigation on use and registration of pesticides (including herbicides) has been ongoing in the courts. In accordance with a recent court order (January 22, 2004) in the *Washington Toxics Coalition et al. v. Environmental Protection Agency* lawsuit concerning the effects of pesticides application on threatened and endangered salmonids, the court found that pesticide-application buffer zones are a common, simple and effective strategy to avoid jeopardy to threatened and endangered salmonids. Further the court found that the use of a 20-yard buffer zone for ground use and a 100-yard buffer zone for aerial application for certain pesticides would substantially contribute to prevention of jeopardy of these species. Green Diamond's use of herbicides will be consistent with the use requirements outlined in this order.

In accordance with deadlines mandated by a recent Consent Decree entered pursuant to a lawsuit between EPA and Californians for Alternatives to Toxics, EPA published for public comment on December 2, 2002 notice of a proposed field implementation approach for the implementation of an endangered species protection program (ESPP) to carry out its responsibilities under FIFRA in compliance with the ESA. 67 Fed. Reg. 71549, 71553 (December 2, 2002). The public comment period closed on March 3, 2003. The proposed ESPP is based on two goals: providing appropriate protection to listed species and their habitats from potential adverse effects associated with herbicide use, and avoiding imposition of unnecessary burdens. EPA's proposed field implementation program broadly applies to all herbicide products that EPA determines may affect listed species. *Id.* at 71557. The use of herbicides by Green Diamond and other landowners will be governed by the results of EPA's current effort and, in the interim, remains subject to existing herbicide regulations.

Master Response 5: "Likelihood to Recruit"

Some comments indicate the view that the determination of "likely to recruit" under the Plan is too subjective and so requested clarification of the definition and the intent of the provision

The Services agree. The "likelihood to recruit" standard is used in the Plan to guide the retention of trees in RMZs that may be the source of future LWD in the stream. Relative terms such as "likely" are inherently difficult to define and suggestions have been provided that may improve on the existing definition. The phenomenon being addressed is the probability that at some future time a given tree will recruit to the watercourse as functional LWD. Since there is no precise mechanism to estimate this probability (i.e., the mechanism, timing and trajectory of a tree falling into the watercourse and providing functional large woody debris), it will remain a subjective estimation. The canopy closure requirements will ensure that a high density of trees will be retained in the riparian zone, but it is important that the trees that are retained are also the ones that have the highest probability of recruiting to the watercourse as functional LWD. The Plan has been modified to incorporate the following new language to make this less ambiguous. In addition a new monitoring program for "likelihood to recruit" has been developed to ensure interpretation of the new language does not change over the permit term.

AHCP/CCAA Section 6.2.1.2.4 - Retention Based on Likelihood to Recruit

"The following criteria will be used to identify trees within the RMZ as potential candidates for marking to harvest due to their low likelihood of recruitment to the watercourse. (The determination of trees to be marked within the RMZ will be predicated on ensuring that overstory canopy retention standards and slope stability measures are met (see Sections 6.2.1 and 6.2.2), as well as ensuring that trees that are likely to recruit to the watercourse are not marked for harvest.)

Criteria for trees that have a low likelihood of recruiting:

1. Tree has an impeded 'fall-path' to the stream (e.g. upslope family members of a clonal group blocked by downslope stems) or;

2. Tree, or the majority of the crown weight of the tree is leaning away from stream and the tree is not on the stream bank or does not have roots in the stream bank or stream or;
3. The distance of the tree to the stream is greater than the height of the tree or;
4. Tree is on a low gradient slope such that gravity would not carry the fallen tree into the stream or objects such as trees and large rocks impede its recruitment path or;
5. Tree is not on an unstable area or immediately downslope of an unstable area or;
6. Harvesting of the tree will not compromise the stream bank or slope stability of the site, or directly downslope of the site.”

AHCP/CCAA Section 6.2.1.4.3 – Retention Based on Likelihood to Recruit

“Riparian management zones along the first 200 feet of the Class II RMZ adjacent to the Class I RMZ will be subject to the same criteria that are listed in Section 6.2.1.2.4 to determine possible candidate trees for marking due to their low likelihood of recruitment.”

AHCP/CCAA Section 6.3.1.1.1 #5a and #5b

“The following criteria will be used to identify trees within the RMZ as potential candidates for marking to harvest due to their low likelihood of recruitment to the watercourse [the determination of trees to be marked within the RMZ will be predicated on ensuring that overstory canopy retention standards and slope stability measures are met (See Sections 6.3.1 and 6.3.2), as well as ensuring that trees that are likely to recruit to the watercourse are not marked for harvest].

Criteria for trees that have a low likelihood of recruiting:

[Numbers 1-6 are the same as AHCP/CCAA Section 6.2.1.2.4 above]

AHCP/CCAA Section 6.3.1.2.1 #3a and #3b

“Riparian management zones along the first 200 feet of the Class II RMZ adjacent to the Class I RMZ will be subject to the same criteria that are listed in Section 6.3.1.1.1 #5a to determine possible candidate trees for marking due to their low likelihood of recruitment.”

Green Diamond gathered data to estimate the relative change in potential LWD recruitment before and after harvest, to assess the effectiveness of the RMZ measures in terms of potential LWD recruitment to Class I watercourses (see AHCP/CCAA Appendix H). These data were collected and summarized as changes in “full tree equivalents” (FTE). The findings from this assessment work demonstrated that the RMZ measures detailed in AHCP/CCAA Section 6.2.1 were effective in minimizing the loss of trees through harvesting practices that would potentially recruit to the stream as LWD.

The following text has been inserted into AHCP/CCAA Sections 6.2.7:

“Likelihood to recruit audit”

Green Diamond gathered data to estimate the relative change in potential LWD recruitment before and after harvest, to assess the effectiveness of the RMZ measures in terms of potential LWD recruitment to Class I watercourses (see AHCP/CCAA Appendix H). These data were collected and summarized as changes in “full tree equivalents” (FTE). The findings from this assessment work demonstrated that the RMZ measures detailed in Section 6.2.1 of the AHCP/CCAA were effective in minimizing the loss of trees through harvesting practices that would potentially recruit to the stream as LWD. However, the language used to communicate the “Likelihood to recruit” judgment may be susceptible to interpretation so to ensure consistent application of this language, the Services may audit the efficacy of the RMZ measures annually, by selecting three to five harvest units and requiring Green Diamond to gather before/ after data and calculate an estimate of relative change in FTE. The protocol used in the potential recruitment of LWD report (Appendix H) will be used in any future audits. If the results of the audit indicate that the FTE values were reduced by more than 3.2 percent post-harvest, then the Services may call a meeting with Green Diamond to recalibrate the interpretation of the likelihood to recruit judgment in the field. The 3.2 percent post-harvest FTE value reduction is a trigger for recalibration of the interpretation. If an agreement cannot be reached in the recalibration among the Services and Green Diamond, then the dispute resolution provisions of Section 6.2.7.5 will be initiated.

Master Response 6: Relationship between this Plan and the Pacific Lumber Company HCP

Some comments raise concerns about differences between the Pacific Lumber Company HCP measures/requirements and those established in the Green Diamond Plan. Some comments assert that the Pacific Lumber Company HCP measures should be discussed in the AHCP/CCAA to allow commenting parties to compare the two HCPs. Others suggest that prescriptions included in the Pacific Lumber Company HCP should be included as an alternative to the Proposed Action in the EIS.

6.1 Relationship between the Pacific Lumber Company’s HCP Prescriptions and the Measures Set Forth in the Green Diamond Plan’s Operating Conservation Program under the ESA

Comments suggest that the conservation measures set forth in the Plan should be the same or greater than those included in the Pacific Lumber Company HCP.

The purpose of the ESA Section 10 permitting process is not to compare conservation programs measure for measure, but rather to ensure that the criteria for issuing such permits are met, based upon site-specific, species-specific and activity-specific conditions. Furthermore, as explained in more detail below, the Services believe the two conservation plans meet Section 10 criteria even though they utilize different measures. The Services’ HCP Handbook states in Chapter 3:

*Mitigation programs under HCPs and Section 10 permits are as varied as the projects they address. Consequently, this handbook does not establish specific “rules” for developing mitigation programs that would limit the creative potential inherent in any good HCP effort. On the other hand, the **standards** used in developing HCPs must be adequate and consistent regardless of which Service office happens to work with a permit applicant. Mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address. (Emphasis added)*

Some comments question why, when Green Diamond’s and Pacific Lumber Company’s holdings are adjacent to one another in some areas, different mitigation and protection standards are applied.

There is no requirement that the conservation measures in HCPs on nearby lands be the same, so long as each HCP (and in this case AHCP/CCAA) meets the ESA Section 10(a) approval criteria. The Services believe that, where as here, physical and biological characteristics and the management history of land holdings differ between and among adjacent lands, it is appropriate that the management measures and prescriptions should reflect those differences.

Comments suggest that the conservation measures set forth in the Green Diamond Plan should be the same or greater than those contained in Pacific Lumber Company’s HCP.

The phrase “consistent with” does not equate to “the same as” and a one-size-fits-all approach would not address site-specific species needs or habitat conditions. There are at least two important differences in the circumstances involved with the two Plans that demonstrate the validity of applying different conservation measures.

One difference was the level of site-specific information available to each applicant at the time its HCP was prepared and the permit applications submitted. Pacific Lumber Company had less information about site-specific conditions within its plan area. Therefore, the resulting interim prescriptions in its HCP are based on assumptions about relevant conditions and relative risks to covered species based on information learned in other geographic areas. The Pacific Lumber Company HCP requires significant scientific studies to be conducted which will provide the basis for adjusting the conservation measures over time to reflect the development of site-specific information. In contrast, Green Diamond’s proposed Plan is based on more site-specific information than was available to Pacific Lumber Company at the time it prepared its HCP. Green Diamond has been studying aquatic resources on its ownership for more than a decade and has extensive, site-specific knowledge about many resource issues. This site-specific information allows for imposition of prescriptions that are tailored to the varying conditions in the Plan Area.

Green Diamond’s Operating Conservation Program is designed to address the specific habitat conditions that appear to be the primary constraint, or bottleneck, limiting maintenance or development of healthy, functioning aquatic/riparian ecosystems in each HPA. In addition, there are significant differences in most of the physical and biological conditions in the two plan areas despite their close geographic proximity. Green Diamond’s studies indicate that there are important differences in the occurrence and distribution of the covered species. One of the most notable examples of such differences is the presence of headwater amphibians. A study on Green Diamond’s ownership (with a few exceptions the same as the current Plan Area) found that 80 and 75 percent of headwater streams had

southern torrent salamanders and tailed frogs, respectively. In addition, currently, there are over 600 and 300 occupied sites known for these two species. It appears that the occurrence of these species in the Pacific Lumber Company ownership is significantly lower. Given that these two species have the least water temperature tolerances of any of the covered species, this is a strong biological indicator of the physical differences in the streams on the two ownerships. Further, these two species also are highly sensitive to sediment inputs that result in embeddedness of the stream substrate. The higher occurrence of the headwater amphibians in the streams on Green Diamond's ownership is evidence of apparent differences in the underlying geology of the two ownerships, despite their close geographic proximity.

Therefore, although some of Green Diamond's and Pacific Lumber Company's lands are near one another, they are different in key respects. These differences in conditions call for differences in conservation measures to address site-specific conditions. Furthermore, the Services recognize that although many of the resource issues may be similar among ownerships (e.g., reducing the frequency of harvest-related mass wasting increases), many different approaches are possible to achieve the goals and objectives. The result – an AHCP/CCAA with different conservation measures than those included in the Pacific Lumber Company HCP – is consistent with ESA Section 10(a) approval criteria and the Services' HCP Handbook guidance.

6.2 Pacific Lumber Company Prescriptions as a Project Alternative under NEPA and the ESA

Some comments suggest that the prescriptions of Pacific Lumber Company's HCP should have been, but were not, included in the alternatives analysis of Green Diamond's Plan.

Authors of such comments point to a Federal district court decision indicating that, to satisfy the ITP requirement that an HCP minimize and mitigate takings to the maximum extent practicable, the Services must consider an alternative involving greater mitigation. See *National Wildlife Federation v Babbitt*, 128 F. Supp. 1274, 1291-93 (E.D. Cal. 2000). In *National Wildlife Federation*, the court evaluated whether a development fee, the amount of which had been set at the minimum amount necessary to meet the biological needs of the affected species, met the ITP requirement. In its analysis, the court relied upon a statement in the HCP Handbook that, "particularly where adequacy of mitigation is a close call, the record must contain some basis to conclude that the proposed program is the maximum that can be reasonably required." Because the administrative record contained almost no information on this point, there was insufficient support for a conclusion that the ITP requirement had been met. Here, however, data and analysis in the Plan and EIS demonstrate that the level of mitigation provided provides for incremental improvements over current conditions and the No Action Alternative. See, e.g., the accelerated road program (AHCP/CCAA Section 6.2.3.2.1) and EIS Chapter 4. Therefore, because the adequacy of the mitigation is not at issue, neither the decision nor the HCP Handbook guidance is controlling.

In any case, the Plan and the EIS describe consideration of an alternative that would have involved more extensive mitigation measures than the proposed project. The Pacific Lumber Company HCP was considered but not included as an alternative because the site-specific conditions and species-specific and activity-specific considerations under which the Green Diamond Plan was developed are sufficiently different from conditions in the Pacific

Lumber Company HCP plan area that it would not be appropriate to implement the Pacific Lumber Company HCP in the Green Diamond Plan Area.

6.3 Relationship between the Pacific Lumber Company HCP and Cumulative Effects Analysis under NEPA

The EIS addresses the Pacific Lumber Company HCP in the context of cumulative impacts analysis (see Section 4.1.2 of the EIS), which is the appropriate NEPA context for consideration of that HCP. According to the CEQ Guidelines (40 CFR Section 1508.7), a cumulative impact is the:

“... impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”

Because the Pacific Lumber Company HCP meets the NEPA criteria of “other past, present, and reasonably foreseeable future actions” it has been evaluated in the cumulative impacts analysis.

Master Response 7: The Operating Conservation Program and the California Forest Practice Rules

Some comments question whether the AHCP/CCAA conservation measures are as protective as the California Forest Practice Rules under NEPA and the ESA

The analysis of potential environmental impacts associated with implementation of the proposed AHCP/CCAA conservation measures is provided in EIS Chapter 4 (Environmental Consequences). Potential impacts are assessed for all alternatives relative to the No Action Alternative (i.e., continued timber harvesting and related operations in the Action Area in accordance with existing State of California and federal regulations, including the CFPRs. As stated in the EIS, impacts to air quality (Section 4.7), visual (Section 4.8), recreation (Section 4.9), and cultural resources (Section 4.10) under the Proposed Action (implementation of the proposed Plan’s Operating Conservation Program) are anticipated to be comparable to the conditions described for the No Action Alternative. On the other hand, impacts to erosion and sediment control (Section 4.2), future water quality (Section 4.3), and future aquatic and riparian habitat (Section 4.4) would improve or trend towards improved conditions under the Proposed Action relative to existing conditions and the No Action Alternative.

Master Response 8: Permit Approval Criteria

Several commenters raise concerns about the criteria for approving the Permits and questioned whether the Plan complies with those criteria.

8.1 Approval Criteria

The application requirements and approval criteria for an ITP and an ESP are discussed in AHCP/CCAA Section 1.4.1 and EIS Section 1.3

Some comments suggest that the Plan is flawed because it does not provide for the recovery of species.

The ESA does not explicitly require an ITP or ESP to recover species. The ESA requires the Services to determine that an ITP may “not appreciably reduce the likelihood of survival and recovery of the species in the wild.” 50 C.F.R. §§17.32(b)(2)(D), 222.307(c)(2)(iii). Applicants for an ESP must, in a CCAA, contribute to efforts to preclude any need to list currently unlisted covered species (the ESP species) by providing early conservation benefits to these species that may be at risk of ESA listing in the future. The standard for issuance of an enhancement of survival permit and CCAA is that the benefits of the Plan for the ESP species, when combined with the benefits for those species that would be achieved if it is assumed that conservation also were implemented on other necessary properties, would preclude any need to list those species. 50 C.F.R. §17.32(d)(2); 64 Fed. Reg. 32726, 32729 (June 17, 1999).

8.2 The ITP Obligation to Minimize and Mitigate the Impacts of Taking to the Maximum Extent Practicable

Some comments assert that the Plan does not satisfy the ESA requirement that an HCP provide measures that minimize and mitigate the impacts of taking to the “maximum extent practicable.”

As discussed above, to meet the statutory criteria for approval of an HCP/ITP, Green Diamond’s conservation program must minimize and mitigate the impacts of authorized incidental take of covered species that may result from covered activities “to the maximum extent practicable.” The Services provide the following guidance regarding the interpretation of the phrase “to the maximum extent practicable” found in the Habitat Conservation Planning Handbook at 7-3:

This finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can practically be implemented by the applicant. To the extent [] that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, less emphasis can be placed on the second factor.

The minimization and mitigation measures proposed by Green Diamond are set forth in the Plan’s Operating Conservation Program Plan (AHCP/CCAA Section 6.2). The Services believe that these measures provide a level of mitigation that is rationally related to the level of take anticipated under the Plan. In addition, the analysis contained in Plan Section 7 demonstrates that implementation of the Plan will improve conditions for the covered species and their habitats relative to existing conditions and relative to the No Action Alternative. The Plan is also designed to meet the ESP/CCAA approval criteria for the unlisted covered species by providing measures that, if applied in other necessary properties, would preclude the need to list such species in the future.

The Services have concluded that the Plan’s conservation measures meet the approval criteria for an ESP/CCAA and an ITP/HCP. The Services believe that the Plan’s conservation measures not only fully minimize and mitigate individual impacts of take by

category and type of impact, but that the activities and management practices under the Operating Conservation Program outlined in AHCP/CCAA Section 6.2 will result in improvements in habitat conditions for the covered species.

Master Response 9: Quantifying Take

Comments suggest that the Plan should quantify the level of take, in terms of actual numbers of species or habitat units, in order to comply with the ESA and that uncertainty in the anticipated level of take increases the level of protection and mitigation required to provide for the survival or recovery of covered species.

The Services believe the Plan adequately addresses issues associated with quantification of take.

ESA Section 10(a)(2)(A)(i) requires that a conservation plan specify “the impact which will likely result from” any taking proposed to be authorized by the permit. As the statute reflects, precise quantification of take anticipated to occur is not required for HCPs to meet this requirement. *National Wildlife Federation v. Babbitt*, 128 F.Supp.2d 1274, 1291 (E.D. Cal. 2000). The Services’ Five Points Policy expressly endorses assessment of habitat alteration as another method to assess impact:

Section 10(a)(2)(A) requires that an HCP specify the impact which will likely result from the take to be permitted. Both Services require applicants to include certain information about the species to be covered by an HCP. USFWS permit application criteria require identification of the number, age, and sex of such species, if known (50 CFR 17.22, 17.32). NOAA Fisheries application criteria require a description of the anticipated impact, including amount, extent, and type of anticipated taking (50 CFR 222.307). While evaluating an HCP, we use the amount of incidental take as a main indicator of the impact the proposed project will likely have on the species. Identifying the amount of incidental take contributes to the analysis of whether the proposed incidental take permit will appreciably reduce the likelihood of survival and recovery of the species. There are situations where precisely quantifying the number of individuals that are anticipated to be taken is a less effective method than estimating the amount or extent of take in terms of the amount of habitat altered. What is most important is that we are able to assess the impact of the anticipated take on the species. Regardless of how the incidental take is quantified, it must be indicated in the biological opinion the Services complete for the issuance of the permit and on the permit itself. 65 Fed. Reg. 35242, 35245 (June 1, 2000).

The regulations governing ESPs/CCAAs (50 CFR §17.32[d]) do not call for quantification of take; rather, they only require that the take be incidental and that the probable effects of take will not appreciably reduce the likelihood of survival and recovery in the wild of any species. For these reasons, the Services believe that the Plan is consistent with the requirements of the ESA regarding evaluation of take and its impacts.

Master Response 10: Analysis of Alternatives in the Plan and EIS

Some commenters assert that the number and range of alternatives considered in the EIS and the AHCP/CCAA are inadequate, and that other alternatives should be considered.

The Services believe that the number and range of alternatives considered in the Draft EIS and Plan were both reasonable and sufficient to provide a reasoned choice. *Hells Canyon Alliance v. United States Forest Service*, 227 F.3d 1170, 1181 (9th Cir. 2000); *Northwest Env'l Defense Ctr. v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir. 1997).

10.1 The Number and Range of Alternatives Considered in the EIS under NEPA

NEPA does not require that any particular alternative be considered so long as a No Action alternative is sufficiently considered and examined to ensure that the subsequent agency decision is fully informed and well considered. The Services believe that the analysis of alternatives satisfies NEPA requirements regarding the number and range of alternatives considered. NEPA does not require consideration of every possible alternative among an infinite range of alternatives - the selection of the range is bounded by the concept of reason. NEPA requires only those alternatives to be discussed in the EIS that would achieve the purpose and need of the project. *City of Angoon v. Hodel*, 803 F.2d 1016, 1021 (9th Cir.1986) (per curiam) (“When the purpose is to accomplish one thing, it makes no sense to consider the alternative ways by which another thing might be achieved.”); *Trout Unlimited v. Morton*, 509 F.2d 1276, 1286 (9th Cir.1974) (“The range of alternatives that must be considered need not extend beyond those reasonably related to the purposes of the project.”).

Here, the Services’ purpose and need:

“is to respond to Green Diamond’s ITP and ESP application for incidental take authorization pursuant to an HCP /CCAA that provides protection and conservation to listed, proposed, and unlisted species and their habitats consistent with the requirements of Section 10(a)(1)(B) and Section 10(a)(1)(A) of the ESA.” (EIS at ES 2 and Section 1.2.)

In “NEPA’s Forty Most Asked Questions,” the CEQ addressed the question (Question 1b) of how many alternatives must be discussed when there is an infinite number of possible alternatives:

For some proposals there may exist a very large or even an infinite number of possible reasonable alternatives.... When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS... What constitutes a reasonable range of alternatives depends on the nature of the proposal and the facts in each case.”

Here, the alternatives considered included no Permits/ no Plan to an expanded Plan Area and expanded covered species list. Other alternatives identified during the scoping process, but eliminated from detailed evaluation are summarized in EIS Section 2.6. According to the USFWS’s NEPA Compliance Guidance located in its NEPA Manual, “alternatives should be reasonable and implementable, must be given equal treatment, and must provide clear

choice for the decision maker.” Thus, the EIS “should include an alternative comprising the Proposed Action, a no action alternative, and reasonable alternatives that satisfy the purpose and need(s), to the extent practicable.”

10.2 The Number, Range, and Selection of Alternatives Considered under the ESA

As with NEPA analyses, the ESA does not require the selection of any particular alternative. The Services also believe that the Plan’s alternatives analysis satisfies ESA requirements regarding the number and range of alternatives considered. ESA Section 10(a)(2)(A)(iii) requires, as a condition for incidental take permit issuance, that the applicant submit a conservation plan that specifies “what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized.” See also 50 CFR Sections 17.32(b)(1)(iii)C(3) and 222.307(b)(5)(iv).

In satisfaction of ESA requirements, Green Diamond considered and analyzed four alternatives to the Proposed Action, which is set forth in the Operating Conservation Program – AHCP/CCAA Section 6.2): three specific alternatives and a “no action” alternative. A “Listed ITP Species Only” alternative is discussed in AHCP/CCAA Section 8.2; a “Simplified Prescriptions Strategy” alternative is discussed in AHCP/CCAA Section 8.3; and an “Expanded Plan Area/Species List” alternative is discussed in AHCP/CCAA Section 8.4. The “No Permits / No Plan,” or no action alternative, is discussed in AHCP/CCAA Section 8.1.

Master Response 11: Disturbance Index/Rate of Harvest

Some commenters express the opinion that the AHCP/CCAA needs to use, and the EIS should have analyzed, a Plan that includes a disturbance index or rate of harvest limit in order to avoid impacts (individual and cumulative) on stream temperatures and sediment delivery. Some comments suggest that the Plan should use a disturbance index or limit the rate of harvest in order to avoid impacts on stream temperatures and sediment delivery.

The ESA does not require that any specific mitigation measure (such as a limit on the rate of harvest or road density) be included in a conservation program; rather the ESA provides that the appropriate inquiry is whether the Plan as a whole meets the ESA Section 10 approval criteria. For the reasons discussed below, the Services believe neither of these two suggested measures is necessary here.

As a preliminary matter, NEPA does not require that the assessment of potential environmental effects includes any specific subject matter or adopt any particular methodology or impact avoidance measure. Instead, NEPA’s requirements ensure that agency decision-makers have enough information to make an informed decision. The Services believe that this EIS satisfies this requirement.

11.1 Selection of Conservation Measures under the ESA

The selection of specific prescriptions is a matter of the permit applicant’s discretion. The Plan’s Operating Conservation Program, which includes the prescriptions Green Diamond has selected, is set forth in AHCP/CCAA Section 6.2. The ESA does not require that any

particular prescriptive measure be adopted or imposed, but only that the criteria for permit issuance be met. Issuance criteria are discussed in Master Response 8.

In a prescription-based HCP such as this one (see Master Response 12), the biological goals and objectives guide the development of the Operating Conservation Program. The biological goals and objectives of the AHCP/CCAA are based on the habitat requirements and life cycles of the covered species. The goals include: (1) maintain cool water temperature regimes, (2) minimize and mitigate human-caused sediment inputs, (3) provide for the recruitment of LWD into streams, (4) allow for the maintenance or increase of populations of the amphibian covered species in the Plan Area, and (5) monitor and adapt the Plan as new information becomes available. Biological objectives further describe the biological goals. For example, the Plan's biological objective for reducing sediment delivery into watercourses is set forth in Section 6.1.2.2.4.

The Plan includes a comprehensive Operating Conservation Program whose development was guided by the biological goals and objectives. It includes: (1) Riparian Management practices to reduce impacts to salmonid and amphibian habitat, including temperature, nutrient inputs, channel stability, sediment control, and LWD recruitment (AHCP/CCAA Section 6.2.1), (2) Slope Stability measures to control management-related sediment delivery from landslides and landslide-related erosion, thereby reducing take and adverse impacts to the covered species (AHCP/CCAA Section 6.2.2), (3) Road Management measures to reduce sediment delivery into watercourses from road sources, thus providing minimization for any impacts of taking as a result of timber operations, thereby reducing take and adverse impacts to the covered species (AHCP/CCAA Section 6.2.3), (4) Harvest-related Ground Disturbance measures to reduce sediment delivery to watercourses from activities conducted as part of timber harvesting operations (AHCP/CCAA Section 6.2.14), (5) Effectiveness Monitoring to track the success of the Operating Conservation Program in relation to the Plan's biological goals and Objectives (AHCP/CCAA Section 6.2.5), and (6) Adaptive Management to incorporate the results of the Effectiveness Monitoring projects into Plan implementation and provide a basis for modifications to Plan measures over the term of the Permits (AHCP/CCAA Section 6.2.6).

Based upon the Plan and information submitted with it, the Services believe that the Plan meets the ESA approval criteria discussed in Master Response 8. The concept of the application of a maximum disturbance level (index) or rate of harvest within a watershed is based upon an assumption that each acre harvested contributes to an impact that accumulates as a direct ratio to the total acres harvested in a watershed and that some theoretical limitation on the number of acres harvested as a percentage of the watershed will prevent adverse impacts to water resources, including aquatic habitats. No evidence was presented to indicate that imposing a maximum disturbance limit over and above or instead of the measures included in the Operating Conservation Program is needed or in fact would provide greater species protection or improved conservation benefits over the Plan as proposed.

11.2 Additional Assurances against Increased Peak Flows ESA

Green Diamond has provided this additional explanation describing how the CFPRs and the Plan will work together to guard against the possibility that increases in peak flows will result from short-term concentrated harvesting within a watershed. Harvesting age and adjacency

limits in the CFPRs were designed, in part, to guard against the possibility that increases in peak flows or other negative effects would result from short-term concentrated harvesting within a watershed. These rules limit the ability of a landowner to concentrate such harvests. Timberlands managed under the Plan will fall into two general categories: (1) Riparian protection zones (RMZs), including Riparian Slope Stability Management Zones (RSMZ) and (2) non-RMZ areas. Over time, timber stands associated with riparian protection zones will become older, larger and less diverse due to lack of intensive management. Pursuant to AHCP/CCAA Sections 6.2.1.2 and 6.2.1.4, with the exception of intermediate treatments (e.g. pre-commercial thinning) that are conducted with cable yarding prior to stand entry (in such cases, cable corridors will be harvested in the RMZs; see response to comment S1-15), during the life of the Plan, Green Diamond will carry out only one harvest entry into Class I (Class II) RMZs, which will coincide with the even-aged harvest of the adjacent stand. Overstory canopy closure retention standards contained in AHCP/CCAA Sections 6.2.1.2.1 and 6.2.1.4.1 will limit timber harvesting in RMZs during the life of the AHCP/CCAA.

In non-RMZ areas, operations conducted in compliance with the NSO HCP, AHCP/CCAA and CFPRs are expected to maintain a distribution of timber age classes over the Plan Area that will become more diverse in future decades. Watersheds supporting timber stands with fewer age classes at present will tend to have a greater age class distribution in the future as timber harvesting is spread over a greater percentage of the ownership in successive decades. Ultimately, harvesting will be so dispersed over the plan area that a more or less even distribution of age classes will form a mosaic on the landscape.

CFPRs that limit the size of regeneration harvest units and require a waiting period between adjacent harvests ensure the distribution of timber harvests over the forestland ownership. Where vast contiguous areas were harvested prior to the modern CFPRs, the new rules forces a patchwork pattern of harvests. Rule changes to reduce the sizes of regeneration harvest units further increased the distribution of the units. As timber management continues through the years, the dispersion of harvest units is expected to increase to the point where, harvesting will be occurring in virtually every watershed with harvest rates leveling out on a watershed basis. The long-term trend is toward harvesting widely dispersed units over a forestland ownership with disturbance spread more or less equally over the area.

When considered as a whole, implementation of the Operating Conservation Program and compliance with all applicable laws governing activities in the Plan Area, including the CFPRs, NSO HCP and AHCP/CCAA will provide protection for the covered species and their habitats.

11.3 Monitoring and Adaptive Management

The Monitoring and Adaptive Management processes are critical components of the AHCP/CCAA. The monitoring process includes implementation monitoring (AHCP/CCAA Section 6.2.7) to evaluate and document Green Diamond's implementation of and compliance with the provisions of the AHCP/CCAA, and effectiveness monitoring (AHCP/CCAA Section 6.2.5), which focuses on tracking the success of the measures in the Operating Conservation Program. The Adaptive Management Program provides a mechanism to adjust the Operating Conservation Program as appropriate.

Three categories of effectiveness monitoring are rapid response, response and long-term trend monitoring. Rapid response monitoring is expected to provide results on the scale of months to two years. Response monitoring efforts are expected to take at least 3 years to generate useable results while long-term monitoring projects will likely be open-ended with respect to development of results. Specific protocols for effectiveness monitoring are included in AHCP/CCAA Appendix D.

The rapid response and response monitoring projects have measurable thresholds which, when exceeded, initiate a series of steps for identifying appropriate management responses. A two-stage process with “yellow light” and “red light” thresholds has been developed. A yellow light threshold serves as a warning system to rapidly identify and address a potential problem. A red light threshold indicates a more serious condition than a yellow light threshold.

When a yellow light threshold is triggered, Green Diamond will conduct an internal assessment to determine the source of the problem. The Services will be notified within 30 days after it has been determined that a yellow light threshold has been exceeded. The Services and Green Diamond will confer to determine if any specific changes in the Operating Conservation Program are required. Any change would be in accordance with the adaptive management process outlined in AHCP/CCAA Section 6.2.6.1.1.

If a red light threshold is triggered, Green Diamond will notify the Services within 30 days after it has been determined that the threshold has been exceeded. The Services and Green Diamond would confer to determine if any specific changes in the Operating Conservation Program are required. Any change would be in accordance with the adaptive management process outlined in AHCP/CCAA Section 6.2.6. The specific process for handling an exceedance of a red light threshold is detailed in AHCP/CCAA Section 6.2.6.1.2.

When considered as a whole, implementation of the Operating Conservation Program and compliance with all applicable laws governing activities in the Plan Area, including the CFPRs, NSOHCP, and AHCP/CCAA will provide protection for the covered species and their habitats.

Master Response 12: Biological Goals and Objectives

Several comments suggest that Green Diamond should commit to meet the biological goals and objectives listed in the Plan. Absent such a commitment the comments assert that various aspects of the Plan are deficient and the Plan as a whole fails to meet permit issuance criteria.

The Services agree that the biological goals and objectives are an integral part of the Plan, and we also believe that the relationship of the Plan’s Operating Conservation Program and Green Diamond’s commitments to the Plan’s biological goals and objectives are consistent with ESA law and policy. There are two ways in which incidental take permittees may structure their HCPs under the Services’ Five Points Policy, which provides the basis for establishing biological goals and objectives in HCPs. Under one approach the biological goals and objectives are enforceable obligations and must be met by the permit applicant. Under the other approach, the biological goals and objectives provide the basis for establishing prescriptions and the prescriptions are enforceable. The first type of HCP is a performance or results-based approach in which the measures incorporated in the plan are somewhat

flexible so long as specified results are achieved. In such a case, biological goals and objectives can be designated the targeted results of the HCP and incorporated into the HCP's operating conservation program. Once biological goals and objectives (the desired results) are incorporated into the operating conservation program, their achievement becomes a requirement of the HCP and ITP.

The second type of HCP is a prescription-based approach in which biological goals and objectives guide the development of the specific measures included in the operating conservation program. In this second case, permittees are only required to implement the measures in the operating conservation program to comply with their permits. Green Diamond has elected to use a prescription-based approach. As discussed in Master Response 8, the Services believe that the Plan, including the Operating Conservation Program, satisfies the ESA permit issuance criteria.

Master Response 13: The Role of Foresters and the Practice of Geology

Some comments suggest that the Plan provides for foresters to engage in the unlicensed practice of geology by characterizing, analyzing, or mitigating slope stability issues or by adjusting the boundaries of geologic features, including unstable areas or roadways through such areas.

The Services agree. The Plan language has been clarified in AHCP/CCAA Sections 6.2 and 6.3 to ensure any geologic interpretation or development of unstable slope alternative conservation measures requires review by geologist registered in the State of California as required by state law.

Implementation of the Plan involves and requires close coordination and cooperation between RPFs and registered geologists who will work together to accomplish the designated tasks. Any covered activities that involve geologic issues and require the expertise of a registered geologist would need to be carried out by, or occur under the supervision of, a registered geologist as required by California law. See Business and Professions Code §§7800 *et seq.* These provisions apply within the Plan Area regardless of Plan approval and permit issuance. The Services believe that the Plan's allocation of responsibility among professionals, with the incorporated changes is appropriate.

Master Response 14: Plan Enforceability

Some comments question the Services' involvement in the Plan's enforcement mechanism, suggesting that enforceability is subjective. The comments suggest that the Services would have an insufficient role in ensuring that Green Diamond will comply with its obligations, arguing that enforcement would occur under the Plan and Implementation Agreement at the discretion of Green Diamond rather than the Services and the vagueness of the language and exceptions to the measures put into questions whether the measure are enforceable.

14.1 Services' Involvement in the Plan's Enforcement Mechanism

By law, the Services have complete authority to ensure compliance with the Plan and that authority remains intact under the Plan. Also by law and in accordance with the Plan and

the Implementation Agreement (IA), the Services have discretion to inspect the Plan Area to determine whether the Plan is being violated, and to take a variety of actions in the event that it is. In addition, the Plan and IA provide that the Services shall meet annually with Green Diamond for the first five years of the Plan to review and discuss issues of implementation. The frequency of subsequent meetings will be determined at the fifth annual meeting. The Plan (AHCP/CCAA Section 6.2.7.5) and IA (Paragraph 13.6) also contain dispute resolution provisions to provide an avenue to address different views relating to implementation questions, if any, that arise with respect to the Plan following issuance of the Permits.

All applicable HCP conservation measures will be included in individual State timber harvest plans (THPs). The Services can provide their recommendations during the development and consideration of individual THPs. The Services' comments on individual THPs would likely carry more weight under the THP process, as to effects on species under the jurisdiction of the Services.

14.2 Vague and Unenforceable Language

The use of language, such as "where feasible," "if practicable," etc., is subjective, and is intended to provide flexibility for Green Diamond to adjust conservation measures to site-specific conditions. This flexibility may help to ensure that an appropriate level of habitat protection is provided at every site. Site-specific applications of the conservation measures will be reviewed by the Services on an annual basis for the first 5 years of the permits to ensure the intent of the measures are being met, and periodically thereafter.

In addition, new language has been added to the Plan in several places where these subjective phrases are utilized to ensure the Services are notified of those instances where Green Diamond will be utilizing this flexibility to adjust the conservation measures. This notification will provide the Services with an opportunity to review the rationale for these adjustments. This new language is as follows:

Green Diamond will submit to the Services an explanation, justification and a map of the proposed exception as part of the informational copy of the THP notice of filing (see Section 6.2.7.2).

Master Response 15: The Adaptive Management Reserve Account

Some comments request clarification of the adaptive management reserve account, including what it is, what its purpose is and how it works. Other comments assert that the initial balance in the Adaptive Management Reserve Account is inadequate and not scientifically based.

The Adaptive Management Reserve Account (AMRA) is one element of Green Diamond's adaptive management program. The ESA itself does not require an HCP to providing for adaptive management, but the "Five Points Policy," an addendum to the HCP Handbook, encourages its use as one of several tools that can be used to meet ESA permit issuance criteria, 65 Fed. Reg. 35242, 35245 (June 1, 2000); HCP Handbook at 3-24 and 3-25. Consistent with this guidance, Green Diamond elected to include an adaptive management component in the Plan. The purpose of the AMRA is to fund adjustments over the term of the Plan and

Permits to the riparian protection measures included in the Operating Conservation Program that are indicated as necessary by conclusive results of the monitoring program. The balance in the AMRA will change with adjustments in the Plan Area size over the duration of the 50-year permit period. The currency for the AMRA is “fully stocked acres” (FSA). An FSA is comprised of a stand with 42,000 board feet per acre (50-year stand with an index of 350 square feet of basal area) and a species composition of 50 percent redwood, 34 percent Douglas fir, 10 percent white woods, and 6 percent hardwoods. The species composition was based on a Plan Area-wide average.

15.1 The Account Balance – Risk Base Approach

Green Diamond, with input from the Services, established the AMRA account using a risk-based approach. The opening balance of the AMRA (1,550 FSA) was based on the geographic extent of the Slope Stability Management Zones (SMZ) and the uncertainty of the effectiveness of the SMZ conservation measures (how much tree retention is needed to maintain slope stability). An estimated 8,850 SMZ acres will be managed using single-tree selection, where approximately 35 percent of the volume will be retained. As proposed, the default SMZ prescription is intended to retain approximately 3,100 acres (or $0.35 \times 8,850$ acres) of fully stocked timberland. To reduce the risk of potentially underestimating the protection needs of SMZs, the opening balance in the AMRA will allow up to a 50 percent increase in the retained volume of standing trees in SMZs. In terms of fully stocked acres, this will equate to 1,550 acres ($0.50 \times 3,100$ acres = 1,550 acres).

In addition, the AMRA allows for adjustments to the RMZs and could be applied to specific road management plan prescriptions by translating FSAs to funds. The current AMRA will provide assurances to the Services that the RMZ, SMZ and road conservation measures are as protective as analyzed in the Plan while providing Green Diamond with economic assurance that changes to mitigations through adaptive management modifications are not open-ended.

15.2 How the Account Works

As mentioned above, the purpose of the AMRA is to provide a mechanism for making changes to the Operating Conservation Program. The account is designed to include a stock of mitigation credit available to be used for changes in the conservation measures over the life of the Plan. It will operate much like a bank account, where the balance fluctuates over time as money is deposited and debited. Deposits and debits to the account will be made: (a) with the addition and deletion of properties which include Slope Stability Management Zones, (b) as riparian protection measures are modified, and (c) as specific road management prescriptions are accounted for over the term of the Plan and Permits.

The balance of the account will fluctuate proportionately with these activities. For example, a change increasing the width of an RMZ or an SMZ will debit the balance, and a decrease in a zone width will credit the balance. Debits and credits will be reflected in the account on an on-going basis and the account will be summarized biennially. Depletion of the AMRA balance by translating FSA to funds for road prescriptions is limited to 2 percent per year of the opening balance (i.e., the equivalent of 31 FSAs). There is no limit on the annual use of the AMRA for RMZ or SMZ modifications.

Master Response 16: 70 Percent Effectiveness

Some comments express the view that the establishment of a 70 percent effectiveness baseline to evaluate the effectiveness of the measures regarding steep streamside slopes is arbitrary and has no relevance to biological conditions.

The Services believe that this 70 percent value is appropriately used in the Plan. The Plan provides that the 70 percent threshold will be used to evaluate the effectiveness of the conservation measure for steep streamside slopes (SSS) protection and ensures that impacts to the habitats do not exceed the levels estimated. This measure is only one of many measures designed to minimize and mitigate the impacts of taking relating to management-caused sediment inputs to stream courses (AHCP/CCAA Sections 6.2 and 6.3). When determining whether sediment minimization measures are appropriate for the biological conditions that are affected by sediment, the entire group of sediment reduction measures should be considered as a whole.

AHCP/CCAA Section 6.1.2 articulates the biological needs, including a brief description of the components of each species' life history, that were considered in developing the goals and objectives for the conservation program. Namely, those needs are that the covered species require cool water temperatures and complex stream habitat morphology and substrates. A discussion of the key life history traits and biological requirements for each of the covered species is set forth in detail in AHCP/CCAA Section 3.2 and Section 3.3. A fully detailed discussion of these life histories and habitat characteristics is located in Appendix A of the Plan.

To reduce sediment delivery to streams, an estimation of the management related sediment sources was utilized in developing the conservation measures (Appendix F). Sediment delivery from SSSs was estimated to be secondary to road related sediment sources (Appendix F). The SSS measures (AHCP/CCAA Section 6.2.2) are intended, primarily, to minimize effects related to loss of slope stability that could occur due to harvesting in steep areas near watercourses, which may cause take or otherwise could impact habitat. Available scientific information on the effectiveness of conservation measures for SSS stability is very limited. It is uncertain how effective the SSS measures will be. Therefore, based on the general sediment budget analysis provided by Green Diamond in Appendix F of the AHCP/CCAA, the Services assumed that the SSS sediment minimization measures would be 70 percent as effective in preventing sediment delivery to streams as compared to not harvesting on these unstable geologic features.

The 70 percent threshold is intended to provide assurance that the SSS measures have, at least, their anticipated level of efficacy, and a trigger for additional action (adaptive management process) if the measures do not. A long-term study (15 years +) will evaluate the SSS measures.

Master Response 17: Road Density

Some comments suggest that Green Diamond should limit road density as a mitigation measure in the Plan's Operating Conservation Program.

Sediment from roads was found to be one of the highest contributors of sediment inputs to Plan Area streams. The Services believe that the Plan's approach to addressing significant sources of sediment in the Plan Area is adequate.

Using road density as the priority metric would not necessarily translate into higher water quality and aquatic habitat health or provide a mechanism for satisfying the permit approval criteria in this case. The condition of the roads in a given watershed alone generally indicates a more relevant measure of road related sediment that may be delivered to the aquatic system. A watershed with a low road density and poor road conditions could have greater road related sediment inputs than a comparative watershed with a higher road density and higher quality road conditions.

Under the road management measures (AHCP/CCAA Section 6.2.3), Green Diamond would decommission a large number of roads and thereby reduce the road density in the Plan Area. However, a road density threshold has not been established. GIS road coverage shows 3,695 miles of road in the 416,531-acre Plan Area. Current projections estimate decommissioning of approximately 1500 miles over the life of the Plan. This estimate does not include road construction of temporarily decommissioned roads, or new road construction. However, throughout the life of the Plan, the mileage of management roads is anticipated to decrease and the mileage of decommissioned roads is expected to increase. The intention of the Road Management Plan is to decrease the mileage of management roads over time. In addition, newly constructed roads will be built to a higher standard than existing roads (see AHCP/CCAA Section 6.3.3.2.1), and therefore are less likely to contribute sediment into streams.

The Plan's Operating Conservation Program places the highest emphasis on reducing significant sediment inputs, and, through its accelerated Road Management Plan (see AHCP/CCAA Section 6.2.3.2.1), the Plan has placed a particular focus on treating high and moderate risk sites that are potential sources of sediment to streams. Green Diamond's implementation of the Road Work Unit prioritization tables described in AHCP/CCAA Section 6.2.3 will be used to determine where to begin road assessments and to implement subsequent treatment. Under the Plan, the treatment of high and moderate risk sites would be accelerated for the first 15 years and the remaining high and moderate risk sites would be treated in the following 35 years. Green Diamond will submit biennial reports that will contain a summary of the roadwork completed including costs, sediment treated, and number of road miles treated (upgraded and decommissioned). By following the Plan's system for prioritizing treatment of sites, the Plan will achieve its objective of reducing the classification of high and moderate risk sites to low risk sites in an accelerated fashion (see AHCP/CCAA Sections 6.2.3.2.1 and 6.3.3.2.5) regardless of whether the treatment of a particular road site is decommissioning or upgrading. Implementation of the Operating Conservation Program will reduce the risk that such sites will fail and deliver significant sediment to Plan Area streams. In this way, the Plan will reduce future sediment delivery.

The Services acknowledge that decommissioning a road has an economic and aquatic resource benefit over maintaining a road through several culvert rotations while having little or no road use. One element of the Plan's road management program is to decommission roads where practicable and reopen them only when they are needed for management purposes. The results of the road assessment will indicate which roads will be treated first for upgrading or decommissioning based on potential future sediment yield, the immediacy of

need for treatment and cost-effectiveness. It is not feasible at this time to identify specifically all roads that will be either upgraded or decommissioned. However, based on past experience, the roads targeted for decommissioning will likely have a higher treatment immediacy and will be targeted first. A likely exception to this expected emphasis on decommissioning is the roads identified in Figure 6-7 (A-C) of the AHCP/CCAA. Green Diamond views these as critical mainline roads (a subset of management roads) that provide the primary access into various tracts, and targets them for upgrading rather than decommissioning. Other management roads will be decommissioned as timber harvesting operations along them are completed and other previously decommissioned roads may be reopened as timber operations along them begin.

Master Response 18: Riparian Widths

Some commenters assert that the riparian widths proposed in the Plan and analyzed in the EIS will be too narrow and allow too much activity and, therefore the widths set forth in the Plan would be inadequate to promote proper riparian function.

Based on the information contained in the Plan and EIS, the Services believe the proposed riparian widths are appropriate. Site-specific data presented in the Plan and EIS indicate that recruitment of LWD is an important and limiting function of Class I RMZs in the Plan Area. This conclusion is based on two comparisons of data in the Plan Area with data from other published sources. The Services have compared in-channel LWD volumes in the Plan Area (reported in AHCP/CCAA Appendix C-2 as a function of drainage area) with published data sets for redwood old-growth (Keller et al. 1995) and managed young-growth (Knopp, 1993) in northwestern California. LWD volumes in the Plan Area are low compared to old-growth volumes reported by Keller et al. (1995), as expected, but are also low compared to managed young-growth volumes elsewhere in the redwood region, as reported by Knopp (1993). The Services have also compared stream temperature data reported in AHCP/CCAA Appendix C-5 with temperature and associated data in Lewis et al. (2000) and find that stream temperatures in the Plan Area are representative of those found through the zone of coastal influence in northwestern California, and that few stream monitoring stations in the Plan Area exceed the threshold MWAT of 17.40C. There is evidence in Lewis et al. (2000) that coastal atmospheric conditions (reduced air temperature and elevated moisture) and canopy closure have an additive effect in regulating stream temperature. As a result of these comparisons, the riparian conservation measures are expected to provide long-term recruitment of LWD to watercourses.

The Services evaluated the proposed RMZ widths against an LWD source-distance curve developed for second-growth redwood in Mendocino County, California (Reid and Hilton, 1998). Source-distance curves are based on in-stream surveys of down trees and tree segments that can be traced to their point of origin as live, standing trees in the riparian zone. Source-distance curves estimate cumulative LWD recruitment potential as a function of the slope-distance between the stream bank and recruitable trees upslope. Source-distance curves are logistic in form, becoming asymptotic as cumulative recruitment approaches 100 percent (for example, see Murphy and Koski, 1989; McDade et al., 1990; Reid and Hilton, 1998). The maximum recruitment distance (at which cumulative recruitment equals 100 percent) is roughly equal to the height of dominant trees in the adjacent riparian area, provided that long-distance landslides are not a dominant recruitment process. Cumulative

LWD recruitment potential can be estimated by substituting the width of a proposed riparian zone for source-distance on the x-axis of the curve.

Six variables were considered in the evaluation: RMZ inner zone width, RMZ total width, managed potential tree height, site potential tree height, site index 100, and site index 120. Methods and results are discussed in detail in Peters (2001). Managed potential tree height is defined as the height a dominant redwood tree would grow in 60 years (112 and 134 feet on site index 100 and 120 lands, respectively). Site potential tree height is defined as the maximum, or asymptotic, height of a dominant redwood left to grow indefinitely (216 and 245 feet on site index 100 and 120 lands, respectively). All four reference tree heights were estimated using site index and height growth equations in Wensel and Krumland (1986). Managed and site potential tree heights are used as rough estimates of maximum recruitment distance in young-growth and old-growth riparian forests, respectively, and enable estimates of the near-term and long-term LWD recruitment potential associated with each proposed RMZ width.

The RMZ width in the Plan are as follows: For Class I streams, inner zone widths of 50 and 70 feet with a total RMZ width of 150 feet; for Class I streams, an inner zone width of 30 feet with total RMZ widths of 70 and 100 feet. The 85 percent and 70 percent canopy closure retention requirements in the inner and outer zones of the RMZs, respectively, would allow for some trees to be removed in the RMZ. However, we did not have sufficient data to estimate the amount of biomass extraction that is likely occurring in the RMZ.

For Class I streams on site index 100 lands, the total RMZ (assuming functional equivalent to a “no-cut” zone) provided for 99 and 88 percent of the estimated total recruitment potential for managed and site potential tree height, respectively. For Class I streams on site index 120 lands, the estimated recruitment potential was 98 and 84 percent (same no-cut assumption) for managed and site potential tree height, respectively.

On second order Class II streams (100-foot total RMZ width), the estimated attainment was 95 and 73 percent for managed and site potential tree height, respectively, for site index 100, and 90 and 67 percent for managed and site potential tree height, respectively, for site index 120. On first order Class II streams (70-foot total RMZ width), the estimated attainment was 85 and 57 percent for managed and site potential tree height, respectively, for site index 100, and 78 and 52 percent for managed and site potential tree height, respectively, for site index 120.

An important function of LWD in both high- and low-order streams is the sorting, storing and metering of streambed sediments. Sorted gravel and cobble streambeds form key spawning habitats in fish-bearing reaches and are a vital habitat feature (escape cover, foraging, water oxygenation, egg laying) for amphibians in low-order reaches (for example, see AHCP/CCAA Section 3.3.2.2). The estimated LWD recruitment potential of the proposed RMZs, summarized above, is lower in Class II streams than in Class I streams. However, this apparent shortfall is offset by differences in the dynamics of LWD in lower-order streams as compared to higher-order streams. Lower-order streams, including most Class II reaches, are characterized by relatively small drainage areas, narrow channel widths, and limited hydraulic energy. In streams in old-growth Douglas-fir forests, mean LWD piece size decreases with decreasing drainage area and channel width (Bilby and Ward, 1989). LWD recruitment per unit of stream length is relatively constant in old-growth systems, so the

results suggest that LWD pieces of all sizes in low-order reaches are less susceptible to long-distance transport during peak flow events and smaller pieces are retained in the channel for longer periods. In managed forests in the redwood region, a similar pattern is evident in the pooled data in Knopp (1993) and in Pacific Lumber Company (2001a, 2001b, 2002), though the results are complicated by the varying harvest histories and amounts of legacy (pre-harvest) wood represented in those surveys.

Conservation measures in the Plan for steep streamside slopes (AHCP/CCAA Section 6.2.2.1) will provide additional benefits to Class I and Class II streams. Slope stability management zones (RSMZ/SMZs) shall be established where streamside slopes are greater than threshold gradients identified in AHCP/CCAA Section 6.2.2.1.1. The RSMZ/SMZs will be substantially wider and more protective than RMZs. The Plan also points out that the stream reaches with steep slopes have a greater probability of actually delivering functional LWD to the stream. The net effect is substantially greater zones of tree retention (200 to 475 feet on Class I streams, 75 to 100 feet on first order Class II streams, and 100 to 200 feet on second order Class II streams) in those regions that will have the greatest potential to provide for the future LWD in streams. The actual proportion of streams throughout the Plan Area that will have these increased retention zones cannot be estimated because of technical limitations in Green Diamond's GIS coverage. However, on-the-ground experience indicates that a substantial proportion of the Plan Area has stream reaches that exceed the threshold slope gradients identified in AHCP/CCAA Section 6.2.2.1.1, thus triggering the establishment of an RSMZ/SMZ. In the SMZ (outer zone of the management zone), only one harvest entry is allowed during the term of the Incidental Take Permit (AHCP/CCAA Section 6.2.2.1.7[3]).

Permitted harvesting in riparian areas can reduce RMZ canopy closure to 85 and 70 percent in the inner and outer zones, respectively. However, the "likelihood to recruit" riparian conservation measures (AHCP/CCAA Sections 6.2.1.2.4 through 6.2.1.2.6) for Class I and portions of some second order Class II streams will ensure that all the trees with the greatest potential for significant LWD function (e.g., LWD recruited by fluvial processes, windthrow, or tree mortality with sufficient size and proximity to the stream that it can influence fluvial processes and provide cover for fish) will be retained. ("Likelihood to recruit" is discussed in Master Response 5). As a result, harvesting in the RMZs will not substantially reduce LWD recruitment potential below the levels we estimated, based on RMZ width. Riparian forests are important in stream temperature regulation, but the relevant attribute is not canopy closure within the riparian zone, but canopy closure directly over the stream channel (Lewis et al., 2000). Stream temperature is partly a function of canopy closure, but also a function of channel width, tree crown width, and quantity of trees along the streambank. The operational result of the "likelihood to recruit" measures (AHCP/CCAA Sections 6.2.1.2.4 through 6.2.1.2.6) is that the closer a tree is to the streambank, the less likely it is to be harvested.

Master Response 19: Assurances and the No Surprises Rule

Some comments expressed concern that the Services were not following existing regulations for providing assurances for unlisted species under the No Surprises rule.

There are separate regulations and policies for providing assurances to permittees under Section 10 of the ESA. The Habitat Conservation Plan Assurances (known as “No Surprises”) Rule (50 C.F.R. 17.22(b)(5), 17.23 (b)(5), 222.307(g)) provides assurances for ITPs issued under section 10(a)(1)(B) of the ESA. In contrast, the final rule for CCAAs (64 FR 32706) provides assurances for ESPs issued in association with CCAAs under section 10(a)(1)(A) of the ESA.

For this project, NOAA Fisheries is considering issuing an ITP for species under their jurisdiction that are listed under the ESA, as well as for species which are not currently listed, as allowed under current policy and regulation for HCPs and ITPs. Under an ITP, regulations at 50 CFR 17.22(b)(5), 17.32(b)(5), and 222.307(g) state that the assurances provided to the permittee “apply only with respect to species adequately covered by the conservation plan.” “Adequately covered” is defined by regulation (at 50 CFR 17.3 and 222.102) and means, with respect to unlisted species, that a proposed conservation plan has satisfied the issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan was actually listed.

It should be noted that conservation groups have filed a legal challenge to the No Surprises rule, *Spirit of the Sage Council v. Norton* (Civil Action No. 98-1873). This lawsuit or any future court decision that concerns the No Surprises rule for ITPs does not affect the assurances provided by the Services for ESPs. For the unlisted species under the jurisdiction of the USFWS, the USFWS is considering issuing an ESP in association with a CCAA. Such permits are issued under section 10(a)(1)(A) of the ESA and regulations at 50 CFR 17.22(d) and 17.32(d).

Under an ESP, there is no specific requirement to treat unlisted species as if they were listed. However, as specified in regulations and in our CCAA policy, one of the primary issuance criteria for an ESP issued in association with a CCAA is that the USFWS must determine that the benefits of the conservation measures implemented by the property owner under a CCAA, when combined with those benefits that would be achieved if it is assumed that conservation measures were also to be implemented on other necessary properties, would preclude the need to list the species. The USFWS believes that the conservation standard set for this particular issuance criterion is equivalent to a recovery standard and, therefore, negates the need for language requiring unlisted species to be treated as if they were listed in order for applicants to receive assurances under the CCAA policy and regulations [50 CFR 17.22(d)(5) and 17.32 (d)(5)].

ATTACHMENT 1

Responses to Comments

Individual Citizens: C

Letter - C1. Signatory -Michael L. Rilla.

Response to Comment C1-1

Section 10(a)(1)(B) of the Endangered Species Act (ESA) permits "any taking otherwise prohibited by section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." Take means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" [ESA section 3(18)] Based on the best available information and data (see the responses to Comments G10-58 and G10-51), the Environmental Impact Statement (EIS) concludes that the overall amount of sediment delivered to Class I streams in the Primary Assessment Area would likely be reduced as a result of implementation of the proposed road management plan [Aquatic Habitat Conservation Plan (AHCP)/Candidate Conservation Agreement with Assurances (CCAA) Section 6.2.3] and riparian (AHCP/CCAA Section 6.2.1), slope-stability (AHCP/CCAA Section 6.2.2), harvest-related ground disturbance conservation measures (AHCP/CCAA Section 6.2.4), and other measures included in the Operating Conservation Program (AHCP/CCAA Section 6.2) that would occur under the No Action Alternative (EIS Section 4.2.3). In turn, these conservation measures would improve water quality conditions for the covered species (EIS Section 4.3.3; AHCP/CCAA Section 1.3.3), and would also result in an increase in quantity and quality of suitable salmonid spawning gravels, greater survival of salmonid eggs and alevins in the gravels, and increased production of aquatic invertebrates that serve as food for fish and other species (EIS Section 4.4.3.3).

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SEP 27 2002

US Fish & Wildlife Service
Arcata, CA

9-26-02

Dear, Amedee Brickey and James Bond

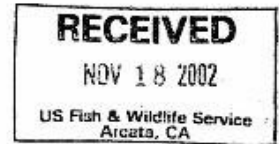
I'm writing to you regarding the Simpson's Habitat Conservation Plan (HCP). I am opposed to the Simpson HCP because it would harm or kill the wildlife under its incidental take permit and cause runoff problems (sediment) in the watersheds affected by Simpson's logging.

Please do not allow the Incidental take permit, because it would be a disaster to the wildlife, trees and watershed.

Thank you for taking time to read my letter. Please reply as soon as possible.

Sincerely
Michael L. Rilla

Letter - C2. Signatory - Charles Minton.



Response to Comment C2-1

The Plan and EIS address soil stability, the status of the covered salmonid and amphibian species, and the overall health of these species' habitats affected by the Covered Activities (which are described in Plan Section 2) and implementation of the Operating Conservation Program (AHCP/CCAA Section 6.2). The Plan is expected to provide an overall conservation program for minimizing and mitigating the impacts of take on the ITP covered species to the maximum extent practicable, and ensuring that such take would not appreciably reduce the likelihood of survival and recovery of the covered species in the wild. Conservation measures for the covered species (AHCP/CCAA Section 1.3.3) are set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2). Because the Plan is oriented towards aquatic species, the conservation measures focus on a broad range of actions that have the potential to affect aquatic habitat conditions. Such actions include management of riparian management zones (RMZs; AHCP/CCAA Section 6.2.1), implementation of covered activities on geologically unstable areas (AHCP/CCAA Section 6.2.2), and management of roads throughout the Plan Area (AHCP/CCAA Section 6.2.3). The approval criteria for an incidental take permit (ITP) and an enhancement of survival permit (ESP; collectively the Permits) are discussed EIS section 1.3 and Master Response 8.

In accordance with the National Environmental Policy Act (NEPA), an EIS has been prepared by the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS; collectively the Services) to address the overall environmental effects of issuing an ITP and ESP to the applicant (Green Diamond), including the impacts of take on the covered species and impacts on other forest resources.

November 14, 2002

To Amedee Brickey and James Bond:

C2-1

My understanding is that the Aquatic Habitat Conservation Plan and Environmental Impact Statement submitted by Simpson Timber is seriously inadequate. Given the potential magnitude of the impact this could have on critical issues of soil stability, survival of salmon and amphibious species, and overall health of the rivers and forests impacted, this is not acceptable. The AHCP and EIS should be required to actively address all of the above concerns thoroughly and held to the highest standards.

Sincerely,

A handwritten signature in cursive script that reads "Charles Minton".

Charles Minton
1885 Golf Course Rd.
Bayside, CA 95524

Charles Minton
1885 Golf Course Rd
Bayview CA 95524



Amedee Brickey and James Bond

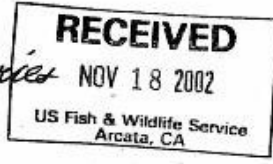
Simpson Timber AHCP

US Fish and Wildlife

National Marine Fisheries

1655 Heindon Rd.

Arcata CA 95521



95521#4573



Letter - C3. Signatory - Ron Peterson.

Response to Comment C3-1

Comment noted.

#57178

11/14/02

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Arcata, CA

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NOV 19 2002
Nat'l Marine Fisheries SVC
Arcata, CA

C3-1

AMEDEE BRUCKEY + JAMES BOND,
RE: SIMPSON TIMBER AHCP

MY FAMILY SUPPORTS THE JOINTLY SUBMITTED COMMENTS BY THE NORTHCOAST ECOLOGY CENTER, PACIFIC RIVERS COUNCIL, PACIFIC FEDERATION OF FISHERMEN'S ASSN., DEFENDERS OF WILDLIFE, EPIC & EARTH JUSTICE.

WE LIVE ^{NEAR} ~~ON~~ THE SMITH RIVER IN GASQUET CA & HAVE FIRST HAND KNOWLEDGE JUST HOW IMPORTANT THE SIMPSON PLAN WILL BE TO THE HEALTH OF OUR SMITH, Klamath, MAD RIVERS & REDWOOD CREEK FOR THE NEXT 50+ YEAR.

PLEASE INCLUDE OUR COMMENTS ^{FOR OFFICIAL RECORD} THAT WE SUPPORT THE ABOVE IN A PLAN THAT WILL PRESERVE OUR PRECIOUS RIVERS - OUR LIFE BLOOD!

SINCERELY,

[Handwritten Signature]
RON PETERSON + FAMILY

PO BOX 142
GASQUET CA 95543-0142

(PLEASE EXCUSE HANDWRITING - LIMBATA CRASHED!)

Letter - C4. Signatory -Patrick Higgins.

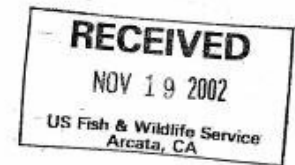
Response to Comment C4-1

Please see responses to Comments C4-3 through C4-29, which address specific concerns raised in this comment. The Plan's and EIS's cumulative effects analyses are discussed in Master Response 3. Plan enforceability is discussed in Master Response 14. The Services note that the EIS satisfies the requirements of NEPA, and that the California Environmental Quality Act (CEQA) is not applicable to the Services' approval of the Permits under ESA Section 10. However, CEQA would apply to State Agency approval of other related activities occurring in the Plan Area (e.g. responses to Comments C4-25, G2-17 and G4-31. Plan approval and issuance of the Permits would not excuse Green Diamond from its obligation to comply with otherwise applicable laws--including CEQA as it applies to discretionary decisions made by State agencies such as approval of timber harvest plans.

Response to Comment C4-2

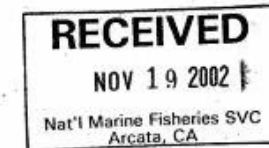
The "current condition of salmonid habitat" is part of the baseline conditions, which are discussed in Master Response 1 and AHCP/CCAA Section 4.4. The draft Operating Conservation Program provided for monitoring and adaptive management and similar provisions are included in the final Plan. See AHCP/CCAA Section 6.2.7 (implementation monitoring), AHCP/CCAA Section 6.2.5 (effectiveness monitoring) and AHCP/CCAA Section 6.2.6 (adaptive management). Approval of the Plan will not change the Services' level of involvement in THP review; in fact, the Services will have additional opportunities to ensure that measures to protect the covered species are implemented through the enforcement of the Plan and Permits.

Patrick Higgins
Consulting Fisheries Biologist
791 Eighth Street, Suite N
Arcata, CA 95521
(707) 822-9428
phiggins@humboldt1.com



Ms. Amedee Brickey
United States Fish & Wildlife Service
1655 Heindon Rd.
Arcata, CA 95521

Mr. James Bond
National Marine Fisheries Service
1655 Heindon Rd.
Arcata, CA 95521



November 15, 2002

Dear Amedee and James,

C4-1

I am writing to comment on the *Simpson Resource Company Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement, Del Norte and Humboldt Counties, California*, or as I will refer to it throughout this dissertation as the Simpson Aquatic HCP and Draft EIS. The Aquatic HCP and Draft EIS are fundamentally flawed in their approach to protecting coho salmon (*Oncorhynchus kisutch*), chinook salmon (*O. tshawytscha*), steelhead trout (*O. mykiss*) and coastal cutthroat trout (*O. clarkii*). The HCP and the companion document do not adequately address cumulative effects and will likely cause a continued decline of fish populations and forest health. What guidance there is provide for protection of resources is compromised by weak language and phraseology that makes the HCP unenforceable. I will provide background which the HCP and EIS failed to on Threatened and Endangered salmonid species and give evidence that shows specific problems not discussed or adequately handled. As the documents currently sit, they are insufficient under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act.

C4-2

The Simpson HCP and Draft EIS do not provide data related to the true conditions of fish habitat on their land. No data such as pool frequency by length, average and maximum pool depths were provided to judge the current condition of salmonid habitat. Simpson collected such data but has chosen not to release it because it shows the results of over-logging (see discussions of Canon Creek below). No clear monitoring plan is laid out to check for whether trends in habitat conditions are those expected by the HCP in terms of species and habitat recovery. To be credible, Simpson should offer standard tools for monitoring and a program to implement adaptive management on their lands (see Monitoring section). There is also language in the HCP and Draft EIS that state that the National Marine Fisheries Service (NMFS) will no longer be routinely involved in timber harvest oversight once this HCP is ratified. Consequently, with the ratification of the Aquatic HCP, not only will there be no focused monitoring plan but also no enforcement mechanism for the Endangered Species Act.

Response to Comment C4-3

The hydrographic planning area (HPA)-by-HPA descriptions of species' status in EIS Section 3.4.4 (*Aquatic Habitat Conditions*) and AHCP/CCAA Section 4.4 adequately characterize the condition of coho salmon and other anadromous salmonid species in the Primary Assessment Area (under NEPA) and in the Plan Area (under the ESA). The Primary Assessment Area and Plan Area are equivalent terms. The Services acknowledge that streams in the Plan Area have been impacted by past timber harvesting and other land management activities (Master Response 1). However, the latest findings of the NMFS Biological Review Team (2003), which include the results of the 2002 California Department of Fish and Game (CDFG) *Status Review* and supercede the 2001 NMFS *Status Review Update*, suggest that there has been no dramatic change in the percent of coho salmon streams occupied from the late 1980s and early 1990s to the present. As reported in the NMFS (2003) analysis, results are generally consistent with those of CDFG (2002), but depart from those of NMFS (2001), which suggested a significant decline in percent occupancy in the Southern Oregon/Northern California Coast (SONCC) coho salmon evolutionarily significant unit (ESU) from 1989 to 2000. This discrepancy resulted from bias in data used in that analysis towards values of "presence," particularly in the late 1980s to mid 1990s. The Services are not aware of any new information that suggests risks beyond those identified in previous status reviews. As such, the Services believe that the characterization of species status in the EIS and the Plan is accurate.

C4-2

Splitting off interior basins from this HCP should not be allowed and these streams were likely left out to avoid obvious problems with water temperatures associated with Simpson's riparian management. Discussions of riparian conditions and their impact on aquatic ecosystems in the Aquatic HCP and Draft EIS lack scientific credibility.

My Qualifications: I have been a consulting fisheries biologist working on Pacific salmon species and their restoration since 1988. I have written fisheries elements of restoration plans for the Klamath River (Kier Assoc., 1991), the South Fork Trinity River (Pacific Watershed Associates, 1994), the Garcia River (Monschke and Caldon, 1994) and San Mateo Creek and the Santa Margarita River in southern California (Higgins, 1992). I have also worked in the field for the California Department of Fish and Game, the U.S. Forest Service and as a private contractor. I was the lead author of *Factors Threatening Stocks With Extinction in Northwestern California* (Higgins et al., 1992), which characterized the risk of extinction of Pacific salmon species at that time.

Since 1994 I have been assimilating fisheries, water quality and watershed information into projects that are published both on CD and on the Internet. The Klamath Resource Information System (KRIS) was devised to support the Klamath Basin Fishery Restoration Program and the Trinity River Restoration Program and two versions of the database have been published. Since release of KRIS Version 2.0 for the Klamath/Trinity, I have been working on KRIS projects in a dozen basins for the California Department of Forestry, as part of the California Resources Agency North Coast Watershed Assessment Program (NCWAP), and the Sonoma County Water Agency. From 1994 to 2002 I served on the Klamath Provincial Advisory Committee, a Federally chartered (FACA) group concerned with implementation of the Northwest Forest Plan in the Klamath Basin. It is from this broad based perspective and body of information on which my comments on the Simpson Aquatic HCP and Draft EIS rely.

C4-3

Status of Pacific Salmon Species: The Simpson Aquatic HCP and Draft EIS patently fail to characterize the dire condition of coho salmon and other anadromous salmonid species on their property and in the region. In fact, Simpson Timber's watershed management has contributed to the decline of anadromous salmonids, in some cases extirpating or nearly extirpating populations of coho and other Pacific salmon species (Kier Associates, 1999).

The Aquatic HCP and Draft EIS do not properly acknowledge the findings of recent National Marine Fisheries Service (NMFS, 2001) and California Department of Fish and Game (CDFG, 2002) status reviews that highlight the condition of coho populations in the Southern Oregon/Northern California (SONCC) area. The recently released California Department of Fish and Game (CDFG, 2002) *Status Review of Coho Salmon North of San Francisco* stated that:

- "California coho salmon populations have been individually and cumulatively depleted or extirpated and the natural linkages between them have been fragmented or severed.
- The analysis of presence-by-brood-year data indicates that coho salmon occupy only about 61% of the SONCC Coho ESU streams that were identified as historical coho salmon streams by Brown and Moyle (1991) so it does appear that there has been a fairly substantial decline in distribution within this ESU. This analysis and the 2001 presence surveys indicate that some streams in this ESU have may have lost one or more brood-year lineages.

Response to Comment C4-4

See Master Response 3 regarding cumulative effects.

See response to Comment C4-3.

- The inability to detect coho salmon in streams that were historically documented to have contained them and are considered by biologists to contain suitable coho salmon habitat is significant, especially to the high degree that coho salmon were not found in these surveys (59% of all streams surveyed).
- Because of the decline in distribution prior to the 1980s, the possibility of a severe reduction in distribution as indicated by the field surveys, and the downward trend of most abundance indicators, the Department believes that coho salmon populations in this ESU will likely become endangered in the foreseeable future in the absence of the special protection and management efforts required by CESA.”

The latter note is significant in terms of the Simpson Aquatic HCP, which proposes continued logging practices similar to or less stringent in protection than current FPR's (see Cumulative Effects section). Coho salmon are likely to be listed under the California Endangered Species Act in the area covered by the HCP.

C4-4

The fact is that there were only seven populations of coho salmon throughout northern California in the hundreds as of 1994 (Brown et al., 1994), with no robust and notable populations on Simpson Timber land. These populations are no longer immediately adjacent to one another and natural mechanisms of replenishment through straying are not likely to operate. Higgins et al. (1992) characterized stocks of Pacific salmon at risk in northwestern California for the Humboldt Chapter of the American Fisheries Society. The report found numerous at-risk populations of Pacific salmon on streams managed by Simpson Timber with categories of high risk of extinction (A), moderate risk of extinction (B), and stocks of concern (C) (Table 1). The Aquatic HCP and Draft EIS have discussions relevant to Higgins et al. (1992), which was reviewed by dozens of fisheries scientists throughout northern California.

Table 1. At-risk status for Pacific salmon species in streams flowing from watersheds managed by Simpson Timber from Higgins et al. (1992).

Stream/Basin	Species	Status
South Fork Trinity	Spring chinook	High Risk
South Fork Trinity	Fall chinook	Stock of Concern
South Fork Trinity River	Summer steelhead	High Risk
Lower Klamath	Coho	Stock of Concern
Lower Klamath	Fall chinook	Moderate Risk
Lower Klamath	Coastal cutthroat	Stock of Concern
Redwood Creek	Coho	Stock of Concern
Redwood Creek	Fall chinook	Stock of Concern
Redwood Creek	Summer steelhead	High Risk
Mad River	Fall chinook	Stock of Concern
Mad River	Coho	High Risk
Mad River	Summer steelhead	High Risk
Mad River	Coastal cutthroat	Stock of Concern
Little River	Fall chinook	Stock of Concern
Little River	Coho	Stock of Concern
Humboldt Bay Tributaries	Coho	Stock of Concern
Wilson Creek	Coho	Stock of Concern
Wilson Creek	Coastal cutthroat	Stock of Concern

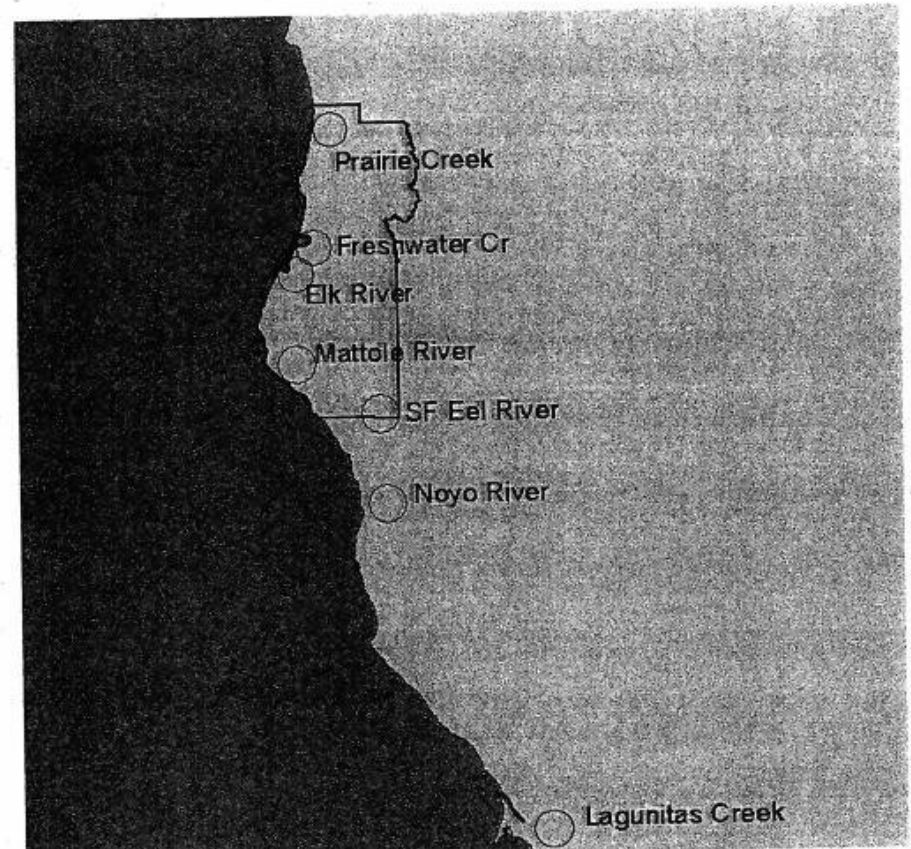


Figure 1. Map showing the last populations of coho salmon in the hundreds in all of northwestern California, according Brown et al. (1994). Note that none of the streams on Simpson Timber land had hundreds of adults.

Higgins et al. (1992) noted that mainstem dwelling species such as green sturgeon (*Acipenser transmontainous*), candle fish (*Thelichthys pacificus*) and adult salmonids such as spring chinook and summer steelhead were also effected by deteriorated mainstem river conditions on large rivers such as the Klamath (see cumulative effects). These conditions in part are owing to logging and erosion in tributary basins (Kier Assoc., 1991; 1999). Coho populations that once spawned at the base of South Fork Trinity River tributaries such as Big Creek and Pelletreau Creek in Hyampom Valley were extirpated by debris torrents off South Fork Mountain, although damage to the watershed and loss of species was prior to Simpson ownership.

C4-4

Response to Comment C4-5

The status of fisheries resources in the Plan Area has been evaluated extensively. Baseline conditions, including current habitat conditions and species status, are discussed in Master Response 1 and AHCP/CCAA Section 4. In particular, see AHCP/CCAA Section 4.3, which summarizes the data collection and assessments that were conducted to determine habitat conditions and the status of covered species. Additional details regarding the objectives, methods, results, discussions, and conclusions of the studies are presented in AHCP/CCAA Appendix C. Data on fishery resources was collected and included through 2000.

C4-5

Simpson Timber and its consultants have not been forthcoming with the status of fisheries resources on their property and as a result have not provided a basis to judge whether their HCP is working to protect the target species. I will document below case studies from streams on Simpson Timber land where populations have been severely impacted by land use.

Lower Klamath Tributaries: U.S. Fish and Wildlife Service (1990) studied Lower Klamath basin tributaries by running a downstream migrant trap. They found fish communities dominated by warm water species (Figure 2) as opposed to salmonids, which were the main species prior to disturbance from logging. Rankel (1979) found that Terwer Creek, along with Blue Creek, which is partially owned by the U.S. Forest Service, were the last major producers of chinook salmon in the Lower Klamath Basin and recommended protection for the former. Terwer runs underground (Figure 3), after 80% watershed disturbance by Simpson, and 14 of 17 Lower Klamath Basin tributaries also lacked surface flow when surveyed by the Yurok Tribe (Voight and Gale, 1998) (see Cumulative Watershed Effects section). Brown et al. (1994) characterized the Lower Klamath as follows: "Many of the lower tributaries in the Klamath drainage have been degraded by logging and road-building, and their coho salmon runs diminished. For example, surveys in 1989 failed to find coho salmon in Tully and Pine Creeks."

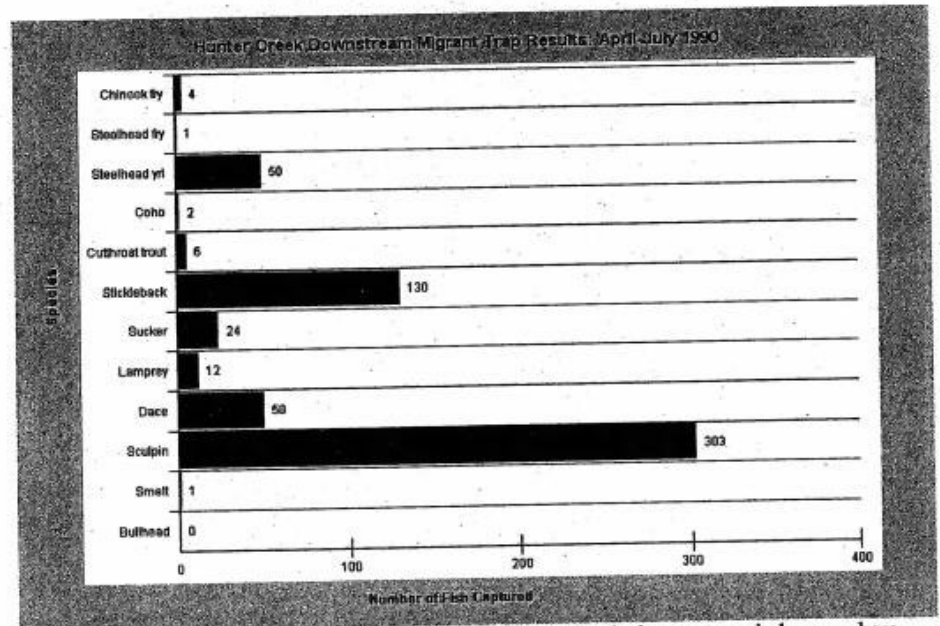


Figure 2. The downstream migrant trap results from Hunter Creek show extremely low numbers of salmonids, which is indicative of a shift in community structure in this creek to non-salmonids as a result of habitat loss. Data from USFWS (1990).



Figure 3. Lower Terwer Creek running underground in a reach that was prime coho and chinook salmon juvenile habitat (Rankel, 1979) prior to recent logging by Simpson (see Cumulative Effects section). Coats and Miller (1980) predicted likely cumulative watershed effects when just 32% of the basin had been logged.

The *Mid-term Evaluation of the Klamath River Basin Fisheries Restoration Program* (Kier Assoc., 1999) noted that chinook salmon populations in Hunter Creek in the Lower Klamath were failing despite operation of a hatchery by the Yurok Tribe:

“Fewer than 100 fall chinook salmon have returned to Hunter Creek in recent years and half of those were from the small scale rearing program operated on Hunter Creek. There is no baseline information on historic salmonid populations; however, Hallock (1952) marked thousands of juvenile coho in this stream. It would seem that highly disturbed watershed conditions are confounding recovery in Hunter Creek despite expenditures of the Task Force on both in-stream habitat improvement structures and artificial culture to aid in the recovery of this watershed.”

Hunter Creek like Terwer Creek runs underground for several miles as a result of high sediment supply. Wilson Creek just to the north of the Lower Klamath has had similar watershed management by Simpson Timber to Hunter and Terwer creeks and runs underground in summer.

Redwood Creek: Prairie Creek in the Redwood Creek basin is largely protected by Redwood National and State Parks and provides a refugia for coho salmon. The mainstem of Redwood Creek, however, is severely aggraded and coho and summer steelhead are at very low levels in the watershed above Prairie Creek. The mainstem of lower Redwood Creek is so aggraded that it loses surface flow in summer. Landowners in Redwood Creek, including Simpson Timber, have operated a downstream migrant trap that shows chinook salmon and steelhead production is recovering in the upper Redwood Creek watershed (Sparkman, 2000). The lack of coho salmon in these traps, however, shows that habitat is not fully recovered. Also, there is a high risk that aggradation in upper reaches will recur as a result of cumulative effects (see Cumulative Watershed Effects section).

Lower Mad River/Canon Creek: Simpson Timber's extensive timber harvest of the lower Mad River since 1985 has caused significant and chronic turbidity of the Mad River, which I have personally witnessed as an angler. It is common for the Mad River to become too turbid to fish after early rains and to remain too muddy to fish for months unless there is a prolonged drought or a cold storm with snow fall and freezing temperatures. Turbidity is known to inhibit steelhead feeding and growth (Sigler et al., 1984) and it is likely that elevated turbidities caused by Simpson activities are negatively affecting all native salmonids with a life history requiring winter, mainstem use.

Canon Creek is a tributary of the Mad River upstream of Blue Lake, with substantial Simpson Timber ownership. This stream was a coho salmon index stream for the Pacific Fisheries Management Council (Larry Preston, personal communication) but lost its run of coho salmon as a result of habitat loss. Sediment evulsions from this watershed after extensive Simpson clear cutting and road building created a delta at the mouth of this stream which prevented coho from even entering in low flow years in the early 1990's.

Humboldt Bay Watersheds: Although there are no data for Simpson Timber owned watersheds in Humboldt Bay, recent studies by Pacific Lumber Company (2000) on Freshwater Creek provide insight into response of coho salmon and other species to high rates of cutting. Higgins (2001) noted patterns in downstream migrant trapping data in Cloney Gulch and McGarvey Creek, where coho salmon dropped by an order of magnitude after timber harvest in 80% and 50% of

Response to Comment C4-6

The cumulative effects analysis is addressed in Master Response 3. This comment suggests that the Plan and EIS should: (1) expand the geographic scope of analysis to potential effects further downstream, (2) use disturbance indices to measure potential effects, (3) consider the additive effects of other landowners' land management activities; and (4) discuss timber harvest limits as a way to mitigate potential effects. The Plan and EIS establish analysis boundaries that are large enough to be meaningful to the resources at risk, and small enough not to dilute potential identified cumulative effects issues associated with the impacts of take resulting from the Covered Activities (see AHCP/CCAA Section 1.3.2, regarding the area where the Plan's monitoring provisions and adaptive management provisions are designed to measure, potential effects of the Covered Activities and modify the Operating Conservation Program as monitoring results demonstrate are necessary). The use of disturbance and other indices would provide a less comprehensive measure of potential effects (see Master Response 11). The Plan and EIS did take into account activities on other owners' properties within the 11 HPAs. Green Diamond considered activities on all privately-owned commercial timberlands within the 11 HPAs - regardless of ownership - that, over the life of the Plan, either are included within the Plan Area or eligible for inclusion in the Plan Area as provided in the Implementation Agreement. Regarding mitigation, the Plan's Operating Conservation Program satisfies the requirements of the ESA and implementing regulations. Implementation of the Operating Conservation Program will focus the Plan measures on the habitat characteristics determined to have the greatest affect on species survival and recovery in the Plan

these watersheds, respectively. Graham Gulch was so impacted by timber harvest and landslides that it produced only a few dozen juvenile salmonids over several months of trapping. It is likely that Simpson watersheds managed with equal intensity would yield a similar response.

Howe Creek: This Lower Eel tributary has lost its coho salmon and exhibits extreme, chronic high water temperatures (Figure 4), which make it unviable for the species. In fact coho salmon have been extirpated or nearly extirpated in the Lower Eel River, lower Van Duzen and Yager Creek as a result of excessive logging (Higgins, 1998). Howe Creek is characterized by the Aquatic HCP as properly functioning for temperature and no problems are acknowledged off Simpson's ownership. In fact Howe Creek has suffered debris torrents, which have dramatically changed the width to depth of the stream, resulting in the high water temperatures. The torrents also filled pools that will not scour out for decades.

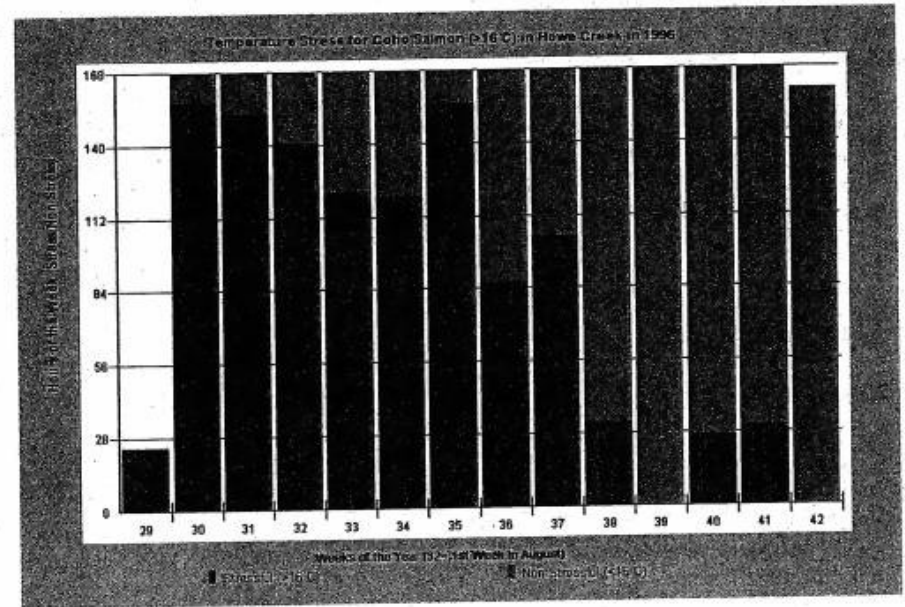


Figure 4. This chart shows the hours in the week above 16 degrees C, which is used as an indicator for the stressful range for coho salmon.

C4-5

C4-6

Cumulative Watershed Effects: Both Ligon et al. (1999) and Dunne et al. (2001) recently found that California Forest Practice Rules were not preventing the decline of anadromous salmonid species nor were they adequately dealing with cumulative watershed effects. Similarly, the Simpson Aquatic HCP and Draft EIS do not discuss prudent limits for timber harvest, which is the crux of the cumulative effects issue, nor make use of essential indices of disturbance such as road densities. The documents do not consider influence of managed streams on larger downstream tributaries (Klamath, Mad, Eel and Redwood Creek), many of which are recognized as impaired under TMDL. It also fails to factor in land management by other owners.

Area. Under these circumstances, there is no basis to require different or additional measures to satisfy the ESA Section 10(a) approval criteria for ITPs and ESPs. The approval criteria are discussed in Master Response 8.

Reeves et al. (1993) studied eight basins on the Oregon Coast that were less than 25% timber harvested and compared them to adjacent watersheds with higher timber harvest levels. They found that streams draining watersheds cut in over 25% of their area were usually dominated by one salmonid species, while basins with less disturbance maintained several species. Reeves et al. (1992) traced the root cause to channel simplification associated with pools filling in and large wood depletion.

Dunne et al. (2001) explain that large land surface disturbances, such as the recent extensive timber harvests surrounding and within Simpson Timber land, cause effects which are sometimes hard to quantify but known to occur:

“Generally speaking, the larger the proportion of the land surface that is disturbed at any time, and the larger the proportion of the land that is sensitive to severe disturbance, the larger is the downstream impact. These land-surface and channel changes can: increase runoff, degrade water quality, and alter channel and riparian conditions to make them less favorable for a large number of species that are valued by society. The impacts are typically most severe along channels immediately downstream of land surface disturbances and at the junctions of tributaries, where the effects of disturbances on many upstream sites can interact.”

Simpson Timber Company has timber harvest levels of over 80% of some basins within a 20-year period, such as **Terwer Creek** (Figure 5), **Hunter Creek** and **Wilson Creek**. Coats and Miller (1981) used Terwer Creek in the Lower Klamath Basin as a cumulative effects case-study, when harvesting in the basin had taken place in 32.5% of the basin and about 12% of its watershed area compacted by roads and landings:

“Given the extent of recent soil disruption in Turwar Creek, the probability of continued timber harvest activities and the documented impacts in watersheds of comparable climate and geology, it appears that the stage has been set for significant accretion of sediment from hillslopes to tributaries and to the main channel of Turwar Creek. The timing of such impacts, however, depends to a large extent on the timing of future storm events.”

Kier Associates (1999) found that: “The January 1997 flood transported very large quantities of gravel through lower Terwer Creek, negatively impacting private agricultural land and threatening a community water supply (Mark Meissner, NRCS Eureka).”

In adjacent Hunter Creek, which has a similar level of harvest and impacts to Terwer Creek, Kier Associates (1999) indicated that the streambed was so unstable that habitat restoration and rebuilding of chinook populations with a hatchery was failing:

“Hopelain (in press) found that Hunter Creek has one of the lowest scores for habitat restoration success in northern California. High watershed disturbance is confounding habitat restoration efforts in the entire Lower Klamath Basin. The Yurok small-scale fish rearing program did not succeed in rebuilding salmon numbers because the stream habitat was too poor to support natural spawning.”



Figure 5. Terwer Creek from the air in 1990 after extensive clear cutting and salvage logging. Note steep terrain with high landslide risk and dense tractor skid trails on less steep slopes.

Other Simpson Timber tributaries of the lower Klamath were characterized by Kier Associates (1999) as follows:

“Channels of most Lower Klamath tributaries have continued to fill in as sediment yield in the watersheds remains high. Timber harvest in all Lower Klamath watersheds exceeds cumulative effect thresholds and all streams (except upper Blue Creek) have been severely damaged during the evaluation period. Clear-cut timber harvest in riparian zones on the mainstem of lower Blue Creek and the mainstem Klamath River occurred in 1998 in inner gorge locations. Aggradation in salmon spawning reaches can be expected to persist for decades.”

“Lower Blue Creek on private, industrial timber lands has been extensively logged, including in the riparian zone during the course of the Restoration Program (Figure 6); consequently, fish habitat has deteriorated since 1986. The channel of lower Blue Creek has widened substantially in response to an over-supply of sediment related to logging activities. USFWS (1993) has expressed concern over gravel quality and stability in lower Blue Creek with regard to survival of fall chinook salmon redds. The West Fork of Blue Creek has been heavily logged and has an extensive road network. Although a complete survey has not been conducted, weirs in the West Fork of Blue Creek were at least partially destroyed by the 1997 storm. Difficulty maintaining in-stream structures would be expected because most of the West Fork is in early seral conditions and there is an extensive un-maintained road network. Logging on private lands in inner gorge areas of lower Blue Creek was continuing during winter 1997.”

Response to Comment C4-7

AHCP/CCAA Section 2.4 describes Green Diamond's Maximum Sustained Production (MSP) Plan, under which annual harvest levels are scheduled to "balance forest growth and timber harvest over a 100-year period and to achieve maximum sustained production of high quality timber products while protecting resource values such as water quality and wildlife." Since essentially all of Green Diamond's property has been harvested at some time in the past, the progress of timber harvesting across the ownership will reflect to some extent the pattern of age classes imprinted on the landscape by the timing of prior logging activity. Fifteen percent of the Plan Area is in forest types 60 years old and older, and the proportion of the area in these older age classes is expected to remain at this level or increase over the Plan term.

Timberlands managed by Green Diamond under the Plan will fall into two general categories: 1) RMZs, and 2) non-RMZ areas. Over time, timber stands associated with RMZs will become older and larger due to lack of intensive management.

In non-RMZ areas, operations conducted in compliance with an approved MSP plan, the Northern spotted owl (NSO) HCP (see AHCP/CCAA Section 1.4.3), AHCP/CCAA and California Forest Practice Rules (CFPRs; 14 CCR 895 *et seq.*) is expected to maintain a mosaic of timber stand ages over the Plan Area that will become more diverse in future decades. Watersheds with fewer age classes at present will tend to have a greater diversity of age classes in the future as timber harvesting activities will become spread over a greater percentage of the ownership in successive decades.



Figure 6. Inner gorge of Blue Creek in 1990 with clear cuts adjacent to the stream and a wide gravel bar signifying an over-supply of sediment from logging, landslides and failed roads.

C4-7

The Aquatic HCP data on age of trees show only 7% of the landscape in Simpson holdings in Blue Creek is in trees older than 60 years, and 25% of the trees are less than 20 years old (Figure 7). This indicates a very high disturbance index related to logging for the last 20 years and the previous 20 years was more intensive. Age class distribution of timber on Simpson's property as a whole indicate a similar conditions (Figure 8).

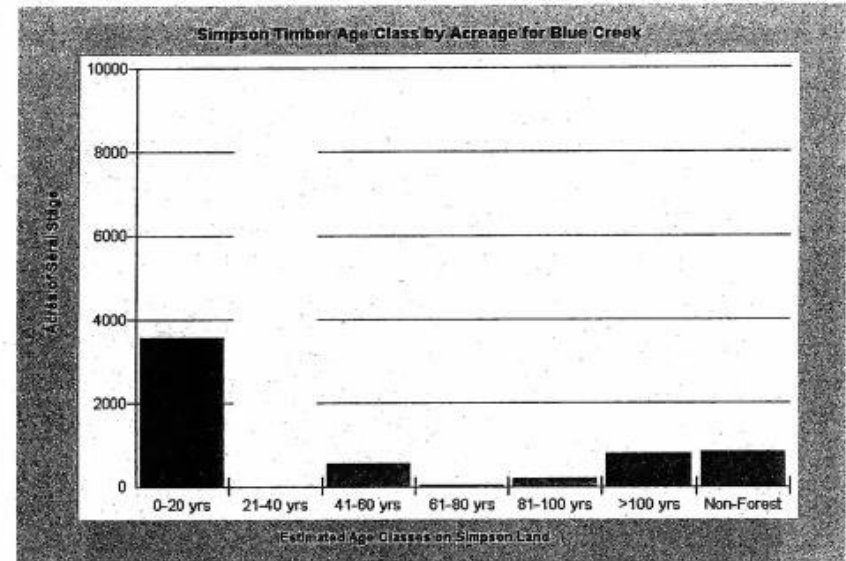


Figure 7. Distribution of age classes of timber in the Blue Creek drainage on Simpson's holdings. Note the lack of late seral trees or even those over 60 years. Data from HCP.

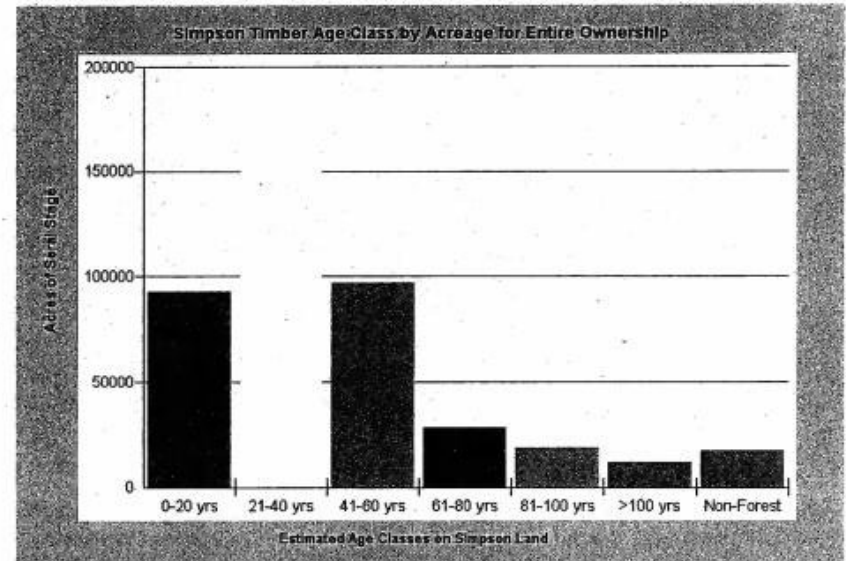


Figure 8. The high proportion of young trees across Simpson's ownership indicates high rates of entry in recent years. There are few mature trees across the landscape on their ownership.

Response to Comment C4-8

The commenter referred to a workshop that was held on March 18 and 19, 1999. The statistician the commenter refers to presented mean bankfull widths for Cañon Creek, indicating that the mean bankfull width increased from 47.4 feet in 1995 to 62.1 feet in 1996. The statistician indicated that this statistically significant increase in mean bankfull width was a result of a large flood event with approximately a 10 year recurrence interval. The statistician did not indicate that, during the course of the study, the channel increased to 150 feet as the commenter indicated. The channel shift that occurred in the Mad River in 1998 has extended the low flow confluence of Cañon Creek further downstream which may limit early access of anadromous salmonids. However, data submitted by Green Diamond in support of its Plan indicates that since the 1996 flood event, anadromous salmonid access into Cañon Creek has occurred, including coho salmon, even in low flow years. See AHCP/CCAA Section 4.4.8.7.1.

Response to Comment C4-9

The Plan describes the major impact to salmonid diversity in the North Fork Mad River as a natural barrier low in the watershed that prevents access to all salmon and a high proportion of steelhead (see AHCP/CCAA Section 4.4.9). Below the barrier, the Plan documents runs of Chinook salmon in the mainstem and runs of coho salmon in Sullivan Gulch (one of the few accessible coho salmon streams in the North Fork watershed). Above the barrier, salmonid diversity is naturally low, but watershed health is indicated by high numbers of tailed frogs in many of the tributaries. These results are reported in the Headwaters

C4-8

Canon Creek, tributary of the lower Mad River, was discussed at a seminar on sediment sponsored by Simpson Timber and the National Marine Fisheries Service in 1999 at Humboldt State University. A statistician presented results of shifts in thalweg profiles in Canon Creek and showed a chart indicating that the width of the creek had gone from 50 feet wide to 150 feet wide during the course of the study. This type of channel change can take decades to recover (Lisle, 1981), and represents a major setback in carrying capacity for salmonids. The sediment transported through this reach, which caused the channel widening, formed a delta at the mouth, which prevents access to anadromous fish, including coho salmon, in low flow years.

C4-9

The portion of the **lower Mad River** owned by Simpson Timber Company has 31% of its forests harvested in the last 20 years, while 26% of stands less than that age are in the **North Fork Mad River** watershed (Figure 9). When a 40-year period is assessed for the North Fork, tree age data suggest that 49% of the watershed was logged over that time. This far exceeds thresholds recognized by Reeves et al. (1993) as likely to retain diverse salmonid communities. The disturbance levels in particular small sub-basins may be much higher (Figure 10). There are further problems in the North Fork Mad River from a forest health perspective (see Forest Health section).

C4-10

I have fished **Little River**, Humboldt County, since I moved here in 1972. Although Simpson Timber purchased land in this watershed after Louisiana Pacific had cut over 70% of the forest

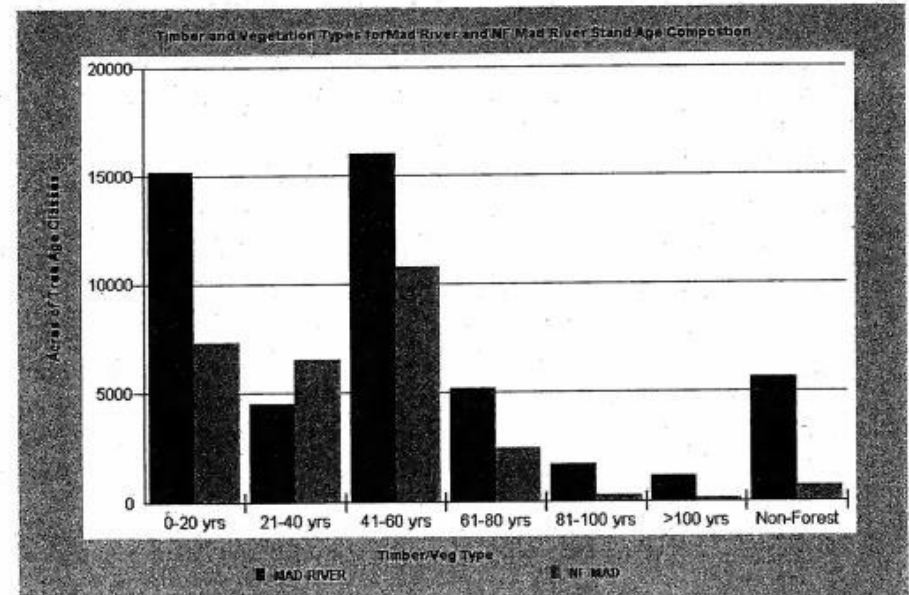


Figure 9. This chart of tree age classes of Simpson Timber holdings in lower Mad River and North Fork Mad River show a paucity of trees over 80 years old and indicate extensive timber harvest in recent decades, especially in the last two in Mad River.

Monitoring section in AHCP/CCAA Appendix C11. See generally Master Response 1, regarding baseline conditions in the Plan Area.

Response to Comment C4-10

The commenter describes a series of anecdotal observations as evidence for deterioration of the Little River watershed due to excess timber harvesting. However, these observations do not appear to be consistent with fish monitoring data that are provided in the Plan, which Simpson Timber Company, and later Simpson Resource Company, began gathering in 1998. In AHCP/CCAA Appendix C7 and C8, there are data on juvenile coho salmon and steelhead populations in the Lower and Upper South Forks and Railroad Creek in the Little River system. There are annual variations in the numbers, as would be expected for any anadromous salmonid run, but in general, the data suggest that Upper South Fork and Railroad Creek produce good numbers of steelhead, while Lower South Fork and Carson Creek have good numbers of coho salmon. The densities of coho salmon in these latter two creeks are comparable with data from Prairie Creek, which is a relatively pristine watershed.

These monitoring data indicate that there have been no impacts to the Little River watershed from past timber harvesting activities. However, the watershed conditions and processes are consistent with reproduction and survival in the freshwater habitat despite past impacts. Therefore, under the conservation measures proposed in the Plan, salmonid populations are expected to continue to persist, and potentially increase, following implementation of the conservation measures in the Plan.

Response to Comment C4-11

Harvesting activities by owners other than Green Diamond in Redwood Creek was considered in the EIS cumulative effects analysis. Regarding potential downstream effects on Redwood National Park, the Services believe the analysis is adequate for the reasons discussed in the response to Comment C4-6.



Figure 10. This photo shows the North Fork Mad River with large patch cuts amid over-stocked stands of 40-60 year old trees. Extensive clear cutting is likely to promote hydrologic change.

after 1985, they continue to harvest timber. I watched the stream go from a premier fishery for coho, steelhead, chinook and coastal cutthroat trout to one that is rarely fishable because of turbidity. The estuary, which was an excellent salmonid nursery and harbored adult cutthroat trout all summer, has filled in by at least six feet. I noticed that the bed of Little River below Crannel went from one with deep pockets to one with few areas over three feet deep. I also witnessed substantial fluctuation in bed elevation where a car body around which a pool was formed was three feet above grade the following year and sticking up in the air. Changes of this magnitude in bed elevation indicate high likelihood of redd scour (Nawa and Frissell, 1990). The flood frequency of Little River has increased substantially and even moderate rainfall with saturated ground swells Little River into the low lands above Highway 101.

C4-10

Simpson Timber Company has major holdings in **Redwood Creek**, which was well noted for the catastrophic sediment yield associated with the first wave of logging and the 1964 flood (Janda, 1977). While sediment yield in upper Redwood Creek has been reduced and the channel has cut down, extensive clear cutting and high road densities now are increasing risk that new evulsions will occur. Some Calwater Planning Watersheds in Redwood Creek have been harvested in over 60% of their area in just 15 years (Figure 11). The Minor Creek Calwater shown and harvest activity are largely by owners other than Simpson, but their activities also need to be added to HCP cumulative watershed effects discussions.

C4-11

Response to Comment C4-12

See the response to Comment C4-6 where consideration of the geographic scope of analysis of downstream effects and the effects of other landowners' activities was discussed. See AHCP/CCAA Section 4.4.5 where the Redwood Creek estuary and its conditions have been described as part of the Redwood Creek HPA. The Services believe the scope of analysis was proper and that the Plan's measures appropriately address the commenter's concerns.

Response to Comment C4-13

The potential for increased peak flows and their relationship to the Plan's measures have been addressed in the AHCP/CCAA Section 7.2.1. EIS section 3.2.4.12 describes rain-on-snow areas located outside of the HPAs. The EIS considers an alternative (Alternative C) that includes 25,677 acres of rain-on-snow areas within Humboldt and Del Norte counties. Regarding consideration of other owners' activities, see the response to Comment C4-6. Regarding the potential for increased rain-on-snow events see EIS Chapter 3.

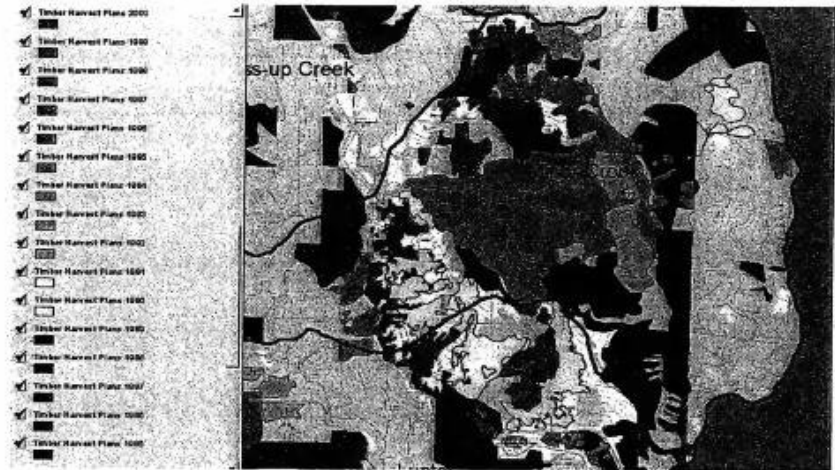


Figure 11. This shows the amount of logging in the Minor Creek Calwater Planning Watershed with disturbance of over 60% of the watershed in 15 years.

C4-11

Cross sections and longitudinal profiles from Redwood National Park (Madej, 1999) show that the channel of lower Redwood Creek has filled as upper reaches in the watershed have recovered from the 1964 flood. The result is reaches of lower Redwood Creek losing surface flow, which greatly diminishes rearing habitat capability for salmonids (Figure 12). This change in the channel has made lower Redwood Creek unviable for spawning and has severely restricted summer steelhead habitat to just a few reaches in middle Redwood Creek. If a new wave of sediment is unleashed from land use activities in upslope areas, negative effects on fish populations will extend for decades. Channel filling may also cause loss of giant redwoods in Redwood National Park. Impacts to RNP are not properly covered in the HCP and DEIS.

C4-12

The Redwood Creek estuary is recognized as a very important habitat for anadromous salmonids, but with its carrying capacity severely restricted due to sedimentation and levee construction (Anderson, 1999). Sediment that would affect lower Redwood Creek would also be flushed through the estuary. Consequently, the Aquatic HCP and DEIS should cover potential impacts of Simpson's activity, in combination with other land owners, to the estuary of Redwood Creek. It is likely that sediment problems and diminished salmonid carrying capacity for salmonids in the estuary would persist for decades in the event of another pulse of sediment.

C4-13

Simpson is also not dealing with potential rain on snow in the Redwood Creek basin and the additional potential of peak flows resulting from increased discharge from clear cuts (Harr, 1979). Simpson is using regeneration silviculture on ridges in Redwood Creek that make them more susceptible to build up of snowfall. Harr (1979) found that peak flow increases occurred when snowfall built up in clear cuts and melted with subsequent warm rain events. Snow falling in areas with canopy has greater chance for ablation. Recent past and planned clear cuts in Redwood Creek and high road densities further exacerbate the risk of extremely high peak flows and catastrophic channel changes. Other owners are showing similar patterns of land use.

Response to Comment C4-14

See Master Response 1, regarding the September 2002 Klamath River Die-Off of Fish. The commenter also is referred to the summer water temperature monitoring data shown in AHCP/CCAA Tables C5-3 and C5-4 for the Coastal Klamath and Blue Creek HPAs, respectively. These water temperature monitoring data, obtained from the late summer period (after August 15 when adult Chinook salmon may be present) at Green Diamond property sites on the tributaries to the lower Klamath River, indicate that except for one site, the maximum water temperatures have been less than 17° C. This data set clearly indicates that the water temperatures within these tributaries provide suitable refuge temperature for adult salmon should they choose to seek these refuge areas. Furthermore, access into these tributaries (e.g., sufficient water depth for passage of adult fish) is not solely dependant on flows from the tributaries, but is substantially co-dependent on flows in the mainstem of the Klamath River. The flows in the Klamath are controlled by flow releases determined by the Bureau of Reclamation at Iron Gate Dam, and not by any action that Green Diamond can affect. Therefore, the lack of tributary refuge habitat is a result of low late-summer streamflows and access from the mainstem Klamath River, not the lack of cool water habitat in the tributaries.

C4-13

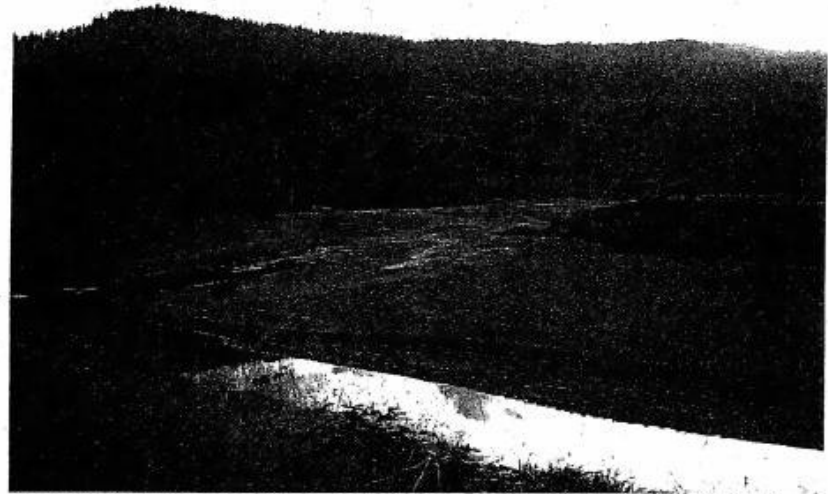


Figure 12. Lower Redwood Creek, above its convergence with Prairie Creek (at left) running dry as a result of major bedload transport. Loss of surface flows greatly reduces beneficial uses of water, including fisheries. Another wave of sediment generated by too much watershed disturbance would prolong this problem.

C4-14

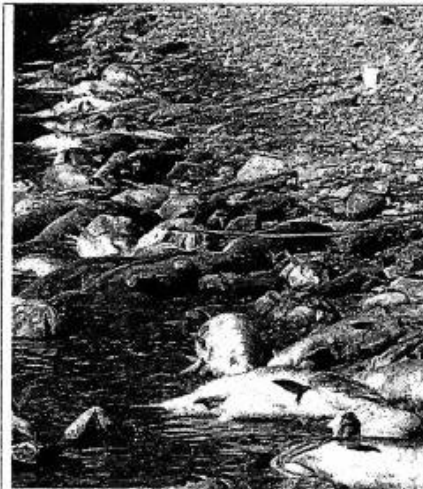


Figure 13. Lower Klamath, Sept. 2002.

Simpson Timber has very substantial cumulative effects on the **Lower Klamath River**. If each of the tributaries flowing from Simpson land had cool clear water and sufficient depth for adult salmonids to enter, then many of the 30,000 dead chinook, coho and steelhead (Figure 13) might have had a source of refuge. The mouth of Blue Creek had one pool with over 2,000 adult salmonids at the time of the fish kill (Craig Bell, personal communication). This tributary has extensive headwaters with ecological health because of United States Forest Service ownership. Voight and Gale (1998) found 14 of 17 tributaries in the Lower Klamath Basin lacked surface flows at their juncture with the Klamath. Most of these basins are managed wholly by Simpson.

Response to Comment C4-15

See Master Response 17 with regard to road density.

Regarding Green Diamond's plan for replacing culverts and upgrading or decommissioning roads, Green Diamond will implement the road implementation plan (AHCP/CCAA Section 6.2.3) across the entire Plan Area according to the priorities established in the Plan. Therefore, any culverts or roads within the Plan Area have the prospect of culvert replacement or road upgrading or decommissioning.

Response to Comment C4-16

The final product of the roads assessment and treatment prioritization will be an implementation plan that results in three classifications: temporarily decommissioning, permanent decommissioning, and road upgrading. As stated in AHCP/CCAA Section 6.3.3.2, over the term of the Plan and Permits, the mileage of management roads is expected to decrease as roads are decommissioned roads will increase. Also, every five years the entire classification system will be reviewed to ensure that management roads no longer needed for log transportation or administrative access are changed to the appropriate decommissioning status. See AHCP/CCAA Section 6.3.3.2.1. This implementation plan is expected to result in a larger number of decommissioned road miles during the term of the Plan than currently exists. Consequently, road density may be reduced over the term of the AHCP/CCAA.

The Plan explains that the emphasis on upgrading existing roads as opposed to road decommissioning reflects Green Diamond's

C4-15

Roads: Simpson owns 416,531 acres or roughly 650.4 square miles and has 3800 miles of roads or 5.84 mile per square mile (mi/sq mile) on their property as a whole. That figure does not address the skid trails (Figure 14), temporary roads or abandoned roads from previous waves of logging. The Aquatic HCP and Draft EIS do not address recommendations in Cedarholm et al. (1983) and NMFS (1996) that maximum road densities should not exceed 2.5 miles per square mile in order to maintain properly functioning watershed condition and to prevent harmful levels of fine sediment from entering streams. Road crossing failure is one of the principal sources of sediment (Hagans et al., 1986) and Simpson has no plan to replace culverts and upgrade or decommission roads except in watersheds where it plans further logging. Culverts have an expected life of 25 years and many culverts in inactive timberlands can be expected to fail. There are many watersheds where there are stacked culverts as roads criss-crossing drainages (Figure 15). These are the most dangerous as one blown crossing near a headwall brings other pipes and fill into a major debris torrent.

C4-16

Not only are there no targets for reduction of road density, the emphasis of the roads program is more on upgrading than decommissioning. Simpson admits that it will maintain only 45% percent of its roads annually, which poses a higher risk of crossing failure where trash may build up on culvert inlets or stream capture occur because of unmaintained drainage structures. *Since the road densities on Simpson land are about double recommended (NMFS, 1996) and twice what they can maintain, it suggests that their road density needs to be cut by half.*



Figure 14. Recent clear cut in Redwood Creek watershed showing extensive tractor skid trails or temporary haul roads, which are not considered part of the road network but do add to changes in hydrologic function.

management activities, which requires a majority of their existing roads to remain active to provide access for timber harvest over the next 20 years. The road management measures (AHCP/CCAA Section 6.2.3) are based on a risk assessment of an identification and prioritization of the potential for sediment delivery into watercourses. As stated in AHCP/CCAA Section 6.3.3.8, an initial estimate of approximately 45 percent of all roads will be routinely maintained annually following inspection each year. Maintenance will follow a 3-year rotating schedule. However, the actual annual percentage of roads that are maintained will increase over time due to planned decommissioning. Any increased risk of crossing failures from debris accumulated at culverts or stream capture along roads would be minimized by road upgrading measures and routine road maintenance. Routine road inspections will assess the effectiveness and condition of all erosion control and drainage structures. As stated in AHCP/CCAA Section 6.2.3.9, Green Diamond will prioritize repairs that are needed based on treatment immediacy. These measures will help minimize the risks for sediment delivery from road crossings, a goal of the implementation plan.

Moreover, the Services expect that, the potential for sediment delivery to the watercourse, as a result of the road implementation plan, will be greatly reduced. Therefore, notwithstanding the commenter's indications that road density limitations would be a superior measure for mitigating and minimizing the effects of sediment (see Master Response 17), the Services believe that the measures selected by Green Diamond are acceptable under Permit issuance criteria discussed in AHCP/CCAA Section 1.4.1, EIS section 1.3 and Master Response 8.

Response to Comment C4-17

See Master Response 18, regarding riparian widths. IN addition, the Services considered an alternative similar to the Northwest Forest Plan (EIS section 2.6) but eliminated it from further consideration. Further, the relationship of the Operating Conservation Program and the CFPRs is discussed in Master Response 7.

Response to Comment C4-18

See Master Response 18.

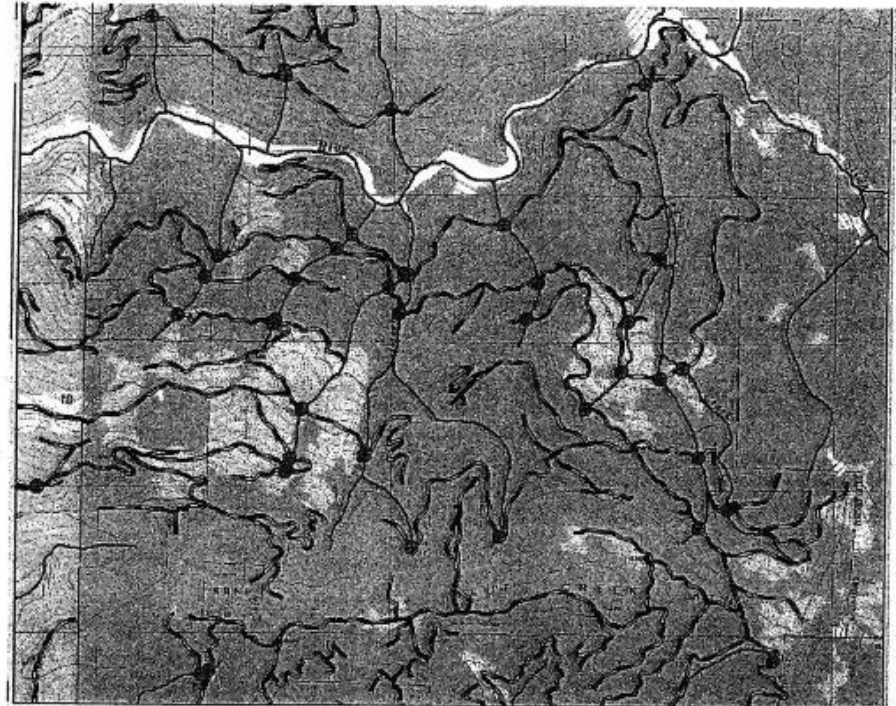


Figure 15. This USGS topographic map is overlaid with hydrology and timber haul roads in middle reaches of Blue Creek on Simpson Timber land. There are many mid-slope roads and roads crossing headwalls, which have high failure risk. Stacked roads pose risk of multiple crossing failures. All these roads except those on ridges should be decommissioned.

C4-17

Riparian Conditions: The Aquatic HCP and Draft EIS confuse canopy and riparian health and function (Chen, 1991). Science associated with the Northwest Forest Plan (FEMAT, 1993) indicates that the zone of riparian influence is two site potential tree heights or more (Figure 16). In fact water temperature buffering, in the form of cool air temperatures and high humidity over the stream, rapidly deteriorates under one site potential tree height protection, which in redwood country is 200 feet or more (Spence et al. (1996). Consequently, the riparian buffers and management plans are fundamentally flawed. The Aquatic HCP ignores best science on this issue and continues to promote harvest of large trees in riparian zones. Harvest restrictions are only equal to, if not less than, those required under the California FPRs (Table 2).

C4-18

The protection for streamside areas is extremely inadequate when contrasted with the scientific assessment of riparian function from Federal scientists in the FEMAT (1993). They recommended protection of two site potential tree heights on perennial streams and one site potential tree height on ephemeral streams. Figure 17 shows how Bartholow (1989)

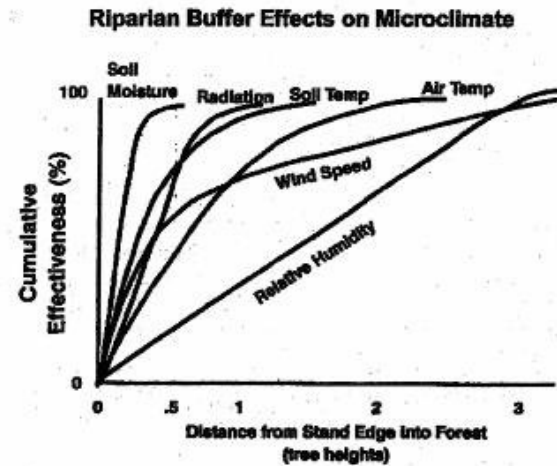


Figure 16. Chart based on Chen (1991) taken from FEMAT (1993) showing that riparian function drops off rapidly inside one site potential tree height. Simpson proposes only 50 foot no cut zones with some protection out to 150', which is less than one site potential tree height.

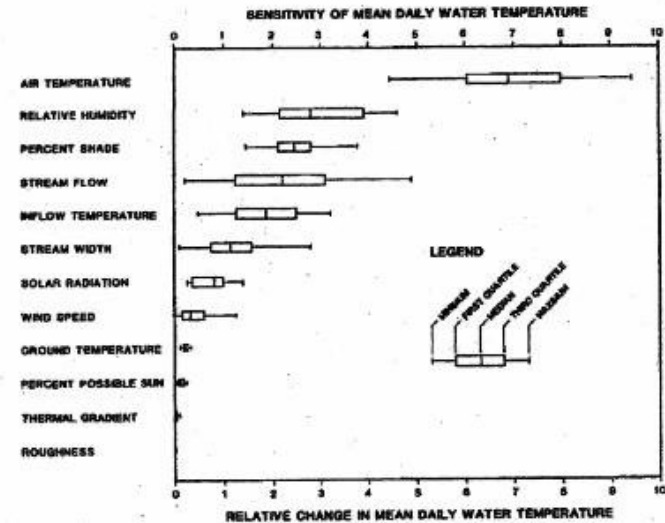


Figure 17. This chart taken from Bartholow (1989) shows the order of influence of factors on mean daily water temperature, with air temperature having the greatest impact followed by relative humidity and shade.

Response to Comment C4-19

The cool coastal climate throughout most of the Plan Area diminishes the impacts of harvesting and other covered activities on riparian micro-climate and water temperatures. The evidence contained within the Plan indicates that water temperatures Plan Area streams are generally currently suitable for all the covered activities. The Plan provides that only a single entry into RMZs to harvest trees during the life of the Permits for both Class I and II watercourses is allowed (with the exception of adding cable yarding corridors for intermediate treatments-see the response to Comment S1-15). Only a small proportion of the trees within the RMZs will be harvested (85 percent overstory retention in inner zone and 70 percent overstory in the outer), and those trees remaining will continue to age throughout the term of the Plan. In addition, the AHCP/CCAA Section 6.2.1 has provisions for not harvesting trees within Class I and Class II RMZs that meet the “likelihood to recruit” criteria (see Master Response 5). By the end of the Permit term (50 years), the Plan projects that over one third of the stands comprising the RMZs will be greater than 100 years old and the remainder will be between 51-100 years.

AHCP/CCAA Section 7.2.3.3 provides and analysis of the condition of the RMZs at the end of the Permit terms. The Services believe that, collectively, the conservation measures for the RMZ’s will encourage retention of larger diameter trees, which in turn will provide additional conifer cover and ensure riparian shade and canopy for the protection of riparian micro-climate and water temperatures.

C4-18

C4-19

demonstrated that mean daily water temperature is influenced most by air temperature over the stream, then relative humidity and shade, respectively. This well recognized relationship of air temperature and water temperature (Poole and Berman, 2000; Essig, 1999) is ignored in the Aquatic HCP and Draft EIS.

The Aquatic HCP and Draft EIS use stream shade or canopy as if they were the main governor of water temperature, when they are not. Data provided in the Aquatic HCP shows that even canopy is fairly open on some reaches of streams in Simpson’s ownership and the amount of shade provided by conifers is very low in most cases (Figure 18). This is consistent with the findings from Landsat (Figure 19), which shows that mostly small diameter trees dominate the 90 meter buffer zone. These small diameter trees are often hardwoods. A canopy of hardwoods often signifies that the overstory of conifers have been removed, opening air flow and the chance for stream warming. Hardwoods also offer very little value as habitat structures when recruited to the stream, because they only last about five years before rotting (Cedarholm et al., 1997).

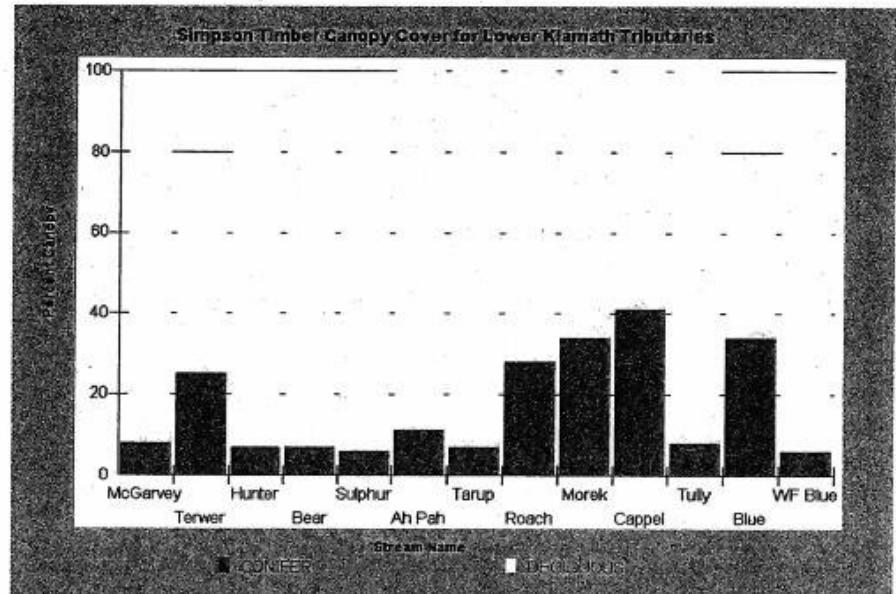


Figure 18. This figure takes canopy measurements of Lower Klamath tributaries taken from the Simpson Aquatic HCP. All of these streams show major signs of riparian logging and have depleted conditions relative to potential recruitment of conifers into the stream channel.

The riparian zones on Simpson Timber lands are as lacking in large trees similar to upland conditions, as shown by their data of tree age classes (Figure 8). Landsat imagery from 1994 as interpreted by Dr. Larry Fox at Humboldt State University shows that there are almost no late seral trees in the riparian zone of Lower Klamath tributaries (Derksen et al., 1996). Figure 19 shows vegetation and size of trees in a 90-meter buffer the riparian zone in lower Blue Creek and the West Fork Blue Creek. The Landsat has a 30-meter resolution and may miss individual trees,

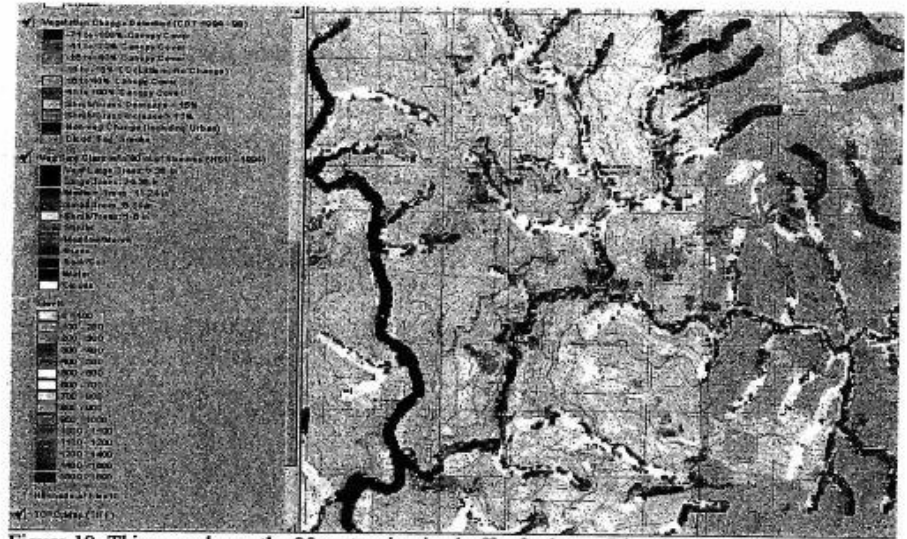


Figure 19. This map shows the 90 meter riparian buffer for lower Blue Creek and the West Fork Blue Creek (upper center) with the zone dominated by trees less than 12 inches in diameter. Change scene detection shows removal of trees in riparian zones or in inner gorge areas.

but most of the riparian zone is in very early seral conditions with the majority of trees under 12 inches. This indicates that large wood supply in these reaches is likely to be hindered for 50-100 years as conifers grow large enough to provide lasting value as habitat elements in streams. The 1994-1998 change scene detection overlay on the map shows significant tree removal in riparian zones and in uplands immediately adjacent. Large conifers may last decades or even hundreds of years, in the case of old growth redwood. Simpson plans far less protection for riparian zones than recommended for ecosystem function in FEMAT (1993) (Table 2). In light of the current conditions in Simpson's riparian zones, there should be no harvest of large diameter trees out to 200 feet for at least 50 years.

Stream Class	FEMAT	Simpson	Simpson No-Cut
Class I	360-400	150	50-70
Class II	360-400	70-100	30
Class III	180-200	30	0-30

Table 2. The CDF stream classification refers to perennial streams with fish (Class I) and without (Class II) and ephemeral streams (Class III). The FEMAT distances for site potential tree heights reflect the taller trees expected in redwood forests (Spence et al., 1996). The Aquatic HCP tiers cuts inside bands within their riparian management zones.

Response to Comment C4-20

The goal of the slope stability conservation measures is “to reduce management related sediment delivery to the aquatic system from landslides and landslide related erosion that might occur in specific portions of the landscape.” (See AHCP/CCAA Section 6.3.2.1.). A discussion of the relative effectiveness of silvicultural prescriptions on slope stability is provided in AHCP/CCAA Appendix F1 and the modeled effectiveness of the slope stability conservation measures is shown in AHCP/CCAA Table F3-8. Data from the Plan Area has been reviewed through the steep streamside slope (SSS) assessment and the mass wasting assessment, to estimate the expected effectiveness of the various prescriptions and the relationship between timber management and mass wasting, as described in AHCP/CCAA Sections D.3.4 and D.3.5. See response to Comment J1-19 regarding the SSS pilot study and the response to Comment S5-77 regarding the mass wasting assessment pilot study.

The slope stability conservation measures include the use of SHALSTAB as a screening tool to aid in identifying terrain that may include headwall swales (AHCP/CCAA Section 6.2.2.2.1). SHALSTAB itself, however, does not identify headwall swales. Headwall swales only can be identified through direct field observation, regardless of whether the landform occurs inside or outside a SHALSTAB area. A selection silvicultural method is the proposed default prescription for field verified headwall swales rather than complete avoidance (AHCP/CCAA Section 6.2.2.2.3).

C4-20

Disturbance of Steep Slopes and Sediment Yield: The Aquatic HCP and Draft EIS recognize unstable areas but then fail to make appropriate prescriptions. The inner gorge zones are recognized as unstable but restrictions on harvest do not rise to the break in slope but only arbitrary distances, depending on stream class. Roads will still be allowed to be built across high risk geomorphic features, such as headwater swales and slides, if there is no other “feasible” path for the road. Timber harvest will still be taking place in inner gorges, at headwalls and within 25 to 50 feet from the top of active slides. The whole system of sediment prevention from mass wasting rests on the opinion of a licensed engineering geologist (in the company’s employ). This is the same system that has been used under California FPRs and has been shown to be an abysmal failure in preventing sediment yield on Simpson’s land and elsewhere (Pacific Watershed Associates, 1998).

C4-21

The harvest of trees on steep slopes destabilizes them, increasing the risk of landslides. When slides occur, they lack large wood and, therefore, cause extensive damage to streams due to long run out distances of debris torrents (PWA, 1998). The Aquatic HCP should have to use and share results from the shallow landslide stability model (SHALSTAB) (Deitrich et al., 1998), which gauges the risk of slope failure. The Fox Unit Study on the South Fork Smith River (LaVen et al., 1974) showed that harvest of timber on unstable lands, particularly inner gorges, leads to a huge increase in sediment yield. Simpson Timber has already disturbed numerous slopes with high risk of failure (Figure 4). Sediment yield after timber harvest or road building may have a lag time before contributing sediment to streams (Frissell, 1992). Inner gorge areas and those shown as high risk zones by SHALSTAB should be completely avoided, with no timber harvest or road building.

Effects of Sediment on Aquatic Habitat: A very major deficiency of the Aquatic HCP and Draft EIS are their failure to discuss the linkage of sediment yield, due to harvest and road building activities, and subsequent impacts on aquatic habitat downstream. Reeves et al. (1993) had the following findings in paired comparisons in Oregon Coastal basins with greater or less than 25% prior timber harvesting:

“Stream habitats in basins with low timber harvest levels were more diverse than habitats in basins with high levels of harvest. In the paired comparisons, streams in low-harvest basins had significantly more pieces of wood per 100 m – 2 1/2 times more than streams in high-harvest basins. Streams in low-harvest basins also had 10 to 47% more pools per 100 m than did streams in high harvest basins.”

Harvest of between 50-80% of Freshwater Creek sub-basins caused a major decrease in pool frequency and depth, and a simultaneous decrease in coho juvenile production (Higgins, 2001). Results from V* in upper Freshwater Creek showed pools filled from roughly 15-20% filled in 1992-93 and 46% filled in 1999, after more than 40% of the basin was logged. Similar patterns of loss of pool frequency and depth after logging are also evident in the Noyo, Ten Mile, Big and Gualala rivers in Mendocino county after extensive logging (IFR, 2000; 2002; In review). The loss of pool habitat was associated with loss of coho salmon or their diminishment in all the aforementioned basins. Brown et al. (1994) noted the following about why coho had declined in California:

“Optimal habitat for juveniles seems to be deep pools (>1 m) containing logs, root wads, or boulders in heavily shaded sections of stream. These habitat characteristics are typical

Response to Comment C4-21

AHCP/CCAA Section 5.3 specifically addresses the “linkage” requested by the commenter-the potential for increased sediment input due to harvest and road building activities.

AHCP/CCAA Section 6.2.5 provides a description of the measures proposed to monitor the effectiveness of the reduction in sediment delivery from road-related sources.

Specific protocols for monitoring the effects of sediment delivery on aquatic habitats are outlined in AHCP/CCAA Appendix D. These include: D.1.5 Road Related Sediment Delivery (Turbidity) Monitoring; D.2.2 Channel Monitoring; and D.3.6 Long-term Habitat Assessments. Green Diamond’s fish habitat data are presented in AHCP/CCAA Appendix C (specifically Appendices C1 and C2 for habitat information and C3 for thalweg profiles and channel widths analyzed to date).

Because these studies will continue under the AHCP/CCAA (see Section 6.2.5) additional habitat information will be generated and provided in the biennial reports prepared and submitted to the Services (see AHCP/CCAA Section 6.2.7.3).

Response to Comment C4-22

Regarding consideration of existing conditions, including “legacy” conditions, see Master Response 1. Briefly, however, legacy conditions are those that exist prior to the Proposed Action, and have been considered in this analysis as part of the existing baseline condition.

The criteria for issuance of these permits is discussed in EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8. The ESA does not require that a Plan actually result in recovery. For ESPs, the ESA requires that the CCAA contribute to efforts to preclude or avoid the need to list the species by providing early conservation benefits. Implementation of the Operating Conservation Program will contribute to recovery efforts for ESP species by providing benefits that, when combined with the benefits that would be achieved if it is assumed that conservation measures were also implemented on other necessary properties, would preclude or avoid any need to list those species. The Operating Conservation Program will concentrate efforts and resources on the habitat conditions or factors that are limiting for the covered species which have been discussed in AHCP/CCAA Sections 1.3.3 and 4) in each of the HPAs.

For more information on how effects, including cumulative effects, were addressed in the AHCP/CCAA and EIS, see Master Response 3.

Response to Comment C4-23

Summaries of the scientific data analyzed and used in developing the Plan are included in AHCP/CCAA Section 4 and full details of

of streams in old-growth forests, and for that reason, the decline of coho salmon stocks in California can be tied to the widespread elimination of old-growth forest on the California north coast.”

Simpson Timber Company has collected data on fish habitat and measures of bed change, such as cross sections and longitudinal profiles, and should be made to share it openly as part of their Aquatic HCP. Average and maximum pool depth need to be monitored over time to gauge recovery (see Monitoring section).

Restoration and Salmonid Recovery: In order to recover coho salmon and other Pacific salmon species, restoration needs to be targeted in areas adjacent to existing refugia to expand them and protect gene resources and allow for colonization of healthy stocks into restored watersheds (Bradbury et al., 1996). The Aquatic HCP gives priority to road maintenance and decommissioning to watersheds where Simpson will be actively logging. If the HCP were following a science based strategy for recovery of coho, it would protect those watersheds in the company’s holdings where they are most abundant. This strategy would target road decommissioning in the West Fork of Blue Creek and their other holdings in middle and lower Blue Creek. Blue Creek is recognized as a refugia by the USFS and has been given Key Watershed status under the Northwest Forest Plan (FEMAT Aquatic Conservation Strategy, 1993). Voight and Gale (1998) found the highest densities of coho in the Lower Klamath Basin in the Crescent City Fork of Blue Creek.

The Little River has been known as a coho salmon producer and also has a strain of large, short-run coastal chinook, which is not found in many other watersheds. Simpson in combination with the former owner Louisiana Pacific has now logged over 80% of the basin since 1985, and instead of protecting Little River as a refugia, timber harvest plans continue to be filed. Recently

The inability of the Simpson Aquatic HCP to craft a plan suitable for salmonid recovery is that the company will not allow for watershed rest. Kauffmann et al. (1998) point out that: "The first and most critical step in ecological restoration is passive restoration, the cessation of those anthropogenic activities that are causing degradation or preventing recovery." The high levels of watershed disturbance described above indicate a widespread need for Simpson owned watersheds to rest in order to allow true hydrologic recovery and return to channel diversity.

Freshwater Creek had almost fully recovered its function as prime coho habitat after 50 years of watershed rest following logging in the 1930s and 1940s (Higgins, 2001). Original logging in Freshwater, however, used trains and cable yarding and did not have a high density of roads. Recovery of logging from 30 to 50 years ago may be progressing more slowly because of chronic road failures on abandoned road networks. Watersheds will not heal and channels will not recover, if these legacy problems are not addressed.

Monitoring: Simpson has collected data since at least 1994 in preparation of the HCP yet these data are not available to the public, to NMFS or other agencies. The NMFS should reject the Aquatic HCP and Draft EIS and make Simpson share all data in raw as well as summarized or analyzed form before the next draft is released.

Green Diamond's studies and monitoring are included in Appendix C. Such information includes water temperature, instream channel and aquatic habitat conditions, instream and recruitment zone LWD, sediment inputs from Class III watercourses, salmonid abundance in key watersheds, and headwater amphibian distribution, relative abundance and habitat associates. Raw data was not included in the Plan because inclusion of the volumes and volumes of information was not feasible. The Services believe that the data submitted provides an adequate basis for approving the Plan.

The total maximum daily load (TMDL) process is addressed in AHCP/CCAA Section 4.3.6. The north coast water bodies (identified in Table 4-3 of the Plan) were listed by the State Water Resources Control Board in 1998 and approved by the United States Environmental Protection Agency (USEPA) on May 12, 1999 as water quality limited relating in part to silvicultural and rangeland activities. These water quality conditions were considered as part of the existing baseline. See Master Response 1 regarding baseline conditions. The comment also suggests that NMFS should require Green Diamond to fund operation of the downstream out-migrant trap every year for the term of the Plan and permits. As discussed in Master Response 8 (see also AHCP/CCAA Section 1.4.1 and EIS Section 1.5.1.1), the Services judge whether the Plan as proposed meets the ESA approval criteria. The Services have concluded that the Plan meets these criteria without requiring additional measures.

Response to Comment C4-24

California Timberland Owners operate under the CFPRs, (Title 14 CCR, Chapters 4, 4.5, and 10) and the Z'berg-Nejedly Forest Practice Act. Title 14 CCR 913.11, (Maximum Sustained Production of High Quality Timber) states that MSP can be achieved by meeting the requirements of either (a) or (b) or (c) in THP, SYP or NTMP, or as otherwise provided in Article 6.8, Subchapter 7. Green Diamond chose to meet the goal of MSP by developing a MSP plan under 'Option A' of this section. The MSP plan was submitted to CDF, Reviewed, revised, and approved. Timber operations on the majority of the area included in the Plan operate within the limits of the approves MSP plan.

Fuel loading and the subsequent potential risk of wildland fires were not addressed with specific conservation measures. However, Green Diamond activities related to large wildland fires were addressed under changed circumstances (AHCP/CCAA Section 6.2.9.1).

C4-23

C4-24

The Aquatic HCP and Draft EIS do not provide sufficient data to characterize present stream habitat and fish populations; consequently, the documents do not provide a basis for judging success over time. A sufficient monitoring program should use easily understood tools, that can be cost-effectively applied, and that can be compared to regional results. Such tools are V* (Hilton and Lisle, 1992; Knopp, 1993), bulk gravel samples or gravel permeability (McBain and Trush, 2000; PALCO HCP, 1998), cross sections and longitudinal profiles (Madej, 1999) and turbidity. Such data would allow the HCP to potentially come into compliance with TMDL (U.S. EPA, 1999). Instead the Aquatic HCP and the Draft EIS do not deal substantively with the TMDL process.

There had been far too little fisheries data collected and shared on Simpson Timber owned streams, although downstream migrant traps have been operated on occasion and electrofishing and spawner surveys conducted periodically. What is needed is consistently collected fisheries data that the company is bound to collect and share. Index electrofishing stations with block nets carried out over many years can have some utility. NMFS should require that Simpson fund operation of the downstream migrant trap every year under the life of the HCP.

The need to share data in raw form for independent analysis extends to water temperature data. The Aquatic HCP and Draft EIS used color codes for temperature ratings instead of references to locally based literature. Welsh et al. (2001) found that coho salmon in the Mattole River were only present when the floating weekly average water temperature remained under 16.8 C and floating weekly maximum under 18.3 C. This is consistent with findings of Hines and Ambrose (in review), who noted similar water temperature tolerance and patterns of distribution for coho juveniles in the South Fork Eel, Ten Mile, Big, and Noyo rivers. Essig (1999) pointed out that it is most effective to use temperature tolerance for one species in a program to monitor and abate water quality problems. Coho salmon are the keystone aquatic species for all northern California coastal streams, including those managed by Simpson Timber. Consequently, all data analysis related to ESA compliance or compliance with the Clean Water Act and meeting "beneficial uses" should reference known tolerances for coho. Stream temperature monitoring should also be required of receiving waters, larger downstream tributaries, such as the mainstem Klamath River. Consideration of acceptable tributary impacts must consider the status and needs of impaired water bodies downstream.

Forest Health: In serving for over six years on the Klamath Provincial Advisory Committee, I have become a student of forest health, and Simpson manages some very unhealthy forests. Unfortunately, under the Aquatic HCP forest health conditions are likely to deteriorate. My experience within the Klamath Basin leads me to believe that fire risk is elevated on managed lands. Figure 20 shows Simpson property on the North Fork Mad River where herbicides have been applied. The major amount of dead material represents immense fuel loading and, along with even aged conifer forest, present an elevated risk of fire.

Clear cutting has disrupted the natural succession mechanisms for much Simpson's coniferous forests and many sites often come back in Ceonothus, hardwoods and invasive species. Simpson's attempts to restore conifers by repeated clear cut and spraying with herbicides have been futile (Figure 21). Thinning from below would be a compatible solution to both forest health concerns and improving watershed health. Instead the Aquatic HCP perpetuates a cycle least-cost forest management, using chemicals to promote growth as opposed to more labor intensive methods that would yield larger diameter trees and substantial returns in the future.



Figure 20. While the conifers in this photo look vigorous, the dead plants around them are hardwoods and successional species such as *Ceanothus*. This dead plant material represent fuels and increased fire risk. The spraying of herbicides on aquatic biota are unknown.

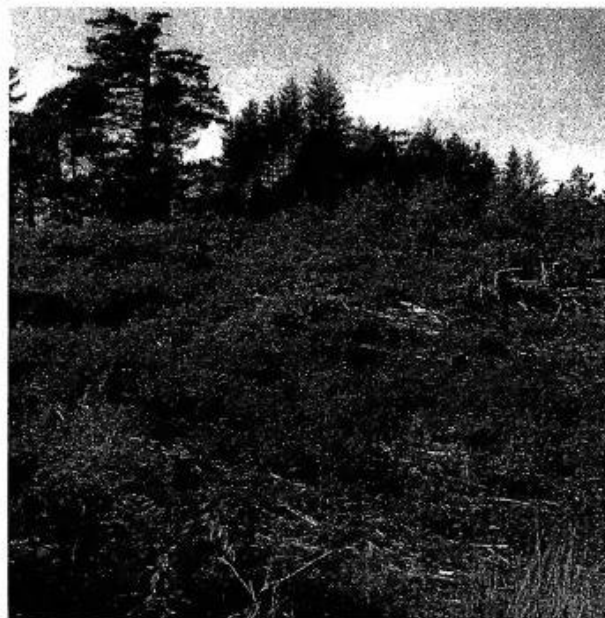


Figure 21. Recent regeneration clear-cut just off Highway 299 in Redwood Creek growing more *Ceanothus* and hardwood species. This management style is a failed paradigm.

Response to Comment C4-25

The CEQA (Cal. Pub. Res. Code Section 21000 et seq.; 14 Cal. Code Regs. Section 15000-15387) does not govern approval of the AHCP/CCAA or issuance of the Permits..

The NEPA (42 U.S.C.A. Section 4371 et seq.; 40 C.F.R. Parts 1500-15081) requires the Services and other agencies of the Federal government to incorporate environmental considerations in their planning and decision-making processes. The information used must be “of high quality” and the scientific analysis “accurate” (40 CFR Section 1500.1(b)). More specifically, NEPA requires the Services to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.... [to] identify any methodologies used and... make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement” (40 CFR Section 1502.24). However, “[u]ltimately, of course, it is not better documents but better decisions that count. NEPA’s purpose is not to generate paperwork - even excellent paperwork - but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment” (40 CFR Section 1500.1(c)).

The Services have used current, accurate scientific information throughout its review of the Plan and preparation of the EIS. See AHCP/CCAA Section 9 for the list of literature cited and the appendices for the summaries of Green Diamond’s studies within the Plan Area and see Master Response 1.3 regarding the adequacy of the data used to support and evaluate the Plan and Draft EIS.

C4-25

Conclusion: The Aquatic HCP and Draft EIS do not use best science in interpreting conditions or forging a plan for the conservation of species such as coho salmon. The documents ignore the significance of documents characterizing species status (Higgins et al., 1992; NMFS, 2001; CDFG, 2002), riparian function (Chen, 1991; FEMAT, 1993), what drives stream temperatures (Bartholow, 1989; Poole and Berman, 2000) and how elevated water temperatures affect coho salmon (Welsh et al., 2001; Hines and Ambrose, In Review). Use of “best science” is required under both CEQA and NEPA; therefore, this documents lacks sufficiency with regard to these laws.

C4-26

The Aquatic HCP failed to provide adequate data to characterize fish populations, especially ESA protected species and to provide standard data about aquatic habitat quality. NMFS should patently reject the document because it does not provide the basis for management needed by an ESA related document. Simpson has collected data pursuant to its HCP since 1994 yet they have provided very little of that data in useful form. This is unacceptable for public trust protection and unworkable as an ESA document. NMFS should require sharing of all fish, aquatic and watershed data collected by Simpson to be shared with all interested parties, including in raw form.

C4-27

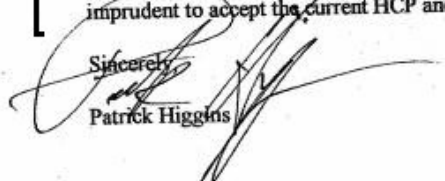
The Aquatic HCP of cumulative effects discussions do not broach receiving water bodies downstream and the potential effects of management on them. It fails also to assess what impacts may be from other owners in the basin and their past and future land management. Monitoring plans in the HCP lack focus to discern cumulative effects related problems. NMFS needs to require Simpson to monitor fish and aquatic habitats in standards way and share results. There must be clear targets for fish and habitat recovery. Similar targets and objectives are needed for road densities and thresholds of disturbance for timber harvest.

C4-28

This HCP fails to call for watershed rest, in order to recover restore natural hydrologic regimes and channel conditions that support that support diverse salmonid communities, when there is no substitute for that prescription (Kauffmann et al., 1999). The lack of strategy in reducing road related erosion will make it likely that investments will maintain access to areas for timber harvest but allow further degradation of key habitats. The fact that Simpson has more than double the recommended road densities to protect salmonids (Cedarholm et al, 1982; NMFS, 1996) and roughly twice what it can maintain, roads should be reduced by half.

C4-29

The practices Simpson proposes will be locked in for 50 years, with little authority of NMFS to re-negotiate prescriptions. The NMFS has also initiated recovery planning for listed anadromous salmonids, locking in to this management plan oriented towards timber harvest as a primary objective may put it in conflict with the recovery planning process. NMFS has more stringent guidelines it has offered for forestry practices in Oregon (NMFS, 2000) which indicate that protections under the Aquatic HCP are inadequate in this regard. It is widely recognized that California FPRs are deficient in providing for recovery of anadromous salmonids as currently written (Ligon et al., 1999; Dunne et al., 2001), and the HCP mimics or provides less protection than FPR’s, which are currently under consideration for revision. It would seem unwise and imprudent to accept the current HCP and Draft EIS.

Sincerely,

Patrick Higgins

The Services believe that the Draft EIS meets the NEPA standard for scientific information used to inform the Services' decision makers regarding the Plan and permits.

Regulations governing ITP applications that are submitted for NMFS' approval require submittal of a conservation plan to be based on the best scientific and commercial data available, which specifies the following: (i) the anticipated impact of the proposed activity on the species (see AHCP/CCAA Section 5); (ii) the anticipated impact of the proposed activity on the habitat of the species and the likelihood of restoration of the affected habitat (see AHCP/CCAA Sections 5, 7); (iii) the steps that will be taken to monitor, minimize and mitigate such impacts and the funding available to implement such measures (see AHCP/CCAA Section 6.2); (iv) the alternatives that were considered and reasons why those alternatives are not being used (see AHCP/CCAA Section 8); and (v) a list of sources used in preparation of the Plan, including communications with recognized experts on the species or activity who may have access to data not published in current literature (see AHCP/CCAA Section 9) (50 C.F.R. Section 222.307(b)(5)). Green Diamond's Plan meets NMFS' requirements.

Response to Comment C4-26

The Services find that the Plan includes site-specific data that have contributed significantly to the analysis and development of the measures proposed in the Plan. Current fish populations and habitat quality are part of the baseline conditions, which are discussed in Master Response 1. AHCP/CCAA Sections 3 and 4 and the Appendices also provide fish population and habitat information: Section 3 provides a description of the covered species, including covered fish species protected under the ESA, and of the covered Species' habitat. AHCP/CCAA Section 4.4 provides an HPA-by-HPA assessment of habitat conditions. AHCP/CCAA Appendix A provides a more detailed description of each of the covered species. Additional information about habitat conditions, such as summer temperature profiles and appropriate thresholds, is provided in AHCP/CCAA Appendix C5. Fish data through 2000 has been included in the AHCP/CCAA in Section 4 and Appendix C, and will continue to be gathered continually as part of the presence/absence surveys. All the data collected as part of the

monitoring measures will be utilized in Plan implementation, including adaptive management as described in AHCP/CCAA Section 6.2.6 and 6.3.6.

Response to Comment C4-27

Consideration of downstream receiving waters and the effects of other landowners' activities have been addressed in Master Response 3, regarding cumulative effects. The collection and dissemination of monitoring data have been addressed in response to Comment C4-23. The role of biological goals and objectives is clarified in Master Response 12. The Permit approval criteria, which do not establish a recovery standard, have been discussed in Master Response 8. Master Response 17 addresses road density, and Master Response 11 addresses disturbances index/rate of harvest.

Response to Comment C4-28

The selection of specific prescriptions, including whether they involve watershed rest or reductions in road density, or the measures proposed in the Plan is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role in designing the conservation program is to "be prepared to advise" (HCP Handbook at 3-6 and 3-7). Regarding comments pertaining to roads, see response to Comment C4-16. The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance (see Master Response 8) be met.

Response to Comment C4-29

As to the request that the Services be able to "renegotiate prescriptions" during the Plan and term of the Permits, the Plan includes an adaptive management strategy (AHCP/CCAA Section 6.2.6) that will allow for some modification of prescriptions based on the results of the Plan's monitoring program. It, together with the IA, also includes measures to respond to changed and unforeseen circumstances (AHCP/CCAA Sections 6.2.9, 6.2.10 and IA Paragraph 4.3). Regarding the perceived need to provide for species recovery, see Master Response 8. Regarding the CFPRs, see Master Response 7.

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Letter - C5. Signatory -Bruce Campbell.

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Response to Comment C5-2

See Master Response 4.

Response to Comment C5-3

Climate change is not an impact of the Proposed Action. However, climate conditions in the Plan Area were taken into account in the development of the Plan. See AHCP/CCAA Section 4 for a summary of relevant conditions in the 11 HPAs as related to the covered species.

November 18th, 2002

Bruce Campbell
614 Gretna Green Way
Los Angeles, CA 90049

Ms. Amedee Brickey (USFWS)
Mr. James F. Bond (NMFS)
1655 Heindon Rd.
Arcata, CA 95521

Re: Comment on Simpson Draft Environmental Impact Statement, Aquatic Habitat Conservation Plan / Candidate Conservation Agreement with Assurances, and Draft Implementation Agreement

Dear Ms. Brickey and Mr. Bond:

There are appalling deficiencies in these documents and here are some of the main problems with Simpson's theories, analysis, and the limited amount of these words which actually are required to be put into practice (and that is assuming there is any sort of enforcement):

1. No analysis of the impacts of herbicide use and commercial fertilizers on amphibian and salmonid species;

Just because Simpson is not including herbicide and fertilizer use under covered activities in its application for an Incidental Take Permit (ITP) from NMFS, or under covered activities in its application for an Enhancement of Survival Permit from the USFWS, does not mean that use of fertilizers and herbicides (which obviously make it into North Coast waterways and riparian areas) can be excluded from analysis as far as cumulative impacts on water quality or on likelihood of survival of various listed and other species of note. I strongly urge this to occur in the Supplemental DEIS and other supplemental documents relating to Simpson's holdings and don't forget to analyze impacts from inert ingredients and adjuvants in and related to herbicide use in this analysis.

2. Inadequate analysis of climate change and its impact on amphibian and salmonid species;

A little section on climate change in an Appendix mentions some warming in Northern Pacific in last couple decades (especially in certain years) and discusses some impacts it has had on north coast salmonids. It also mentions that while there has been climate changes over time that it is especially disturbing to have both larger climate changes impacting species combined with human activities impacting species. I just want to add to that by saying that global climate change impacts combined with human / industry-related impacts which impact species in many ways including micro-climate and to an extent regional climate changes was not sufficiently analyzed in these documents.

CS-2

CS-3

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Response to Comment C5-4

See Master Responses 1 (Baseline) and 10 (Alternatives) for a discussion of the range of alternatives considered and how alternatives were considered in the AHCP and EIS. (Please note that there is no requirement to consider alternatives in the CCAA process.) The Services have determined that the alternatives in the EIS represent an appropriate range of reasonable alternatives consistent with NEPA requirements (see 40 CFR 1502.14). The alternatives considered in AHCP/CCAA Section 8 were prepared by Green Diamond in consultation with the Services. Alternatives also are described in more detail in EIS section 2.

Response to Comment C5-5

See Master Responses 1 (Baseline), 3 (Cumulative Impacts), and 10 (Alternatives) for a discussion of the appropriate baseline for the analysis, including the consideration of past actions.

Response to Comment C5-6

The important role of biological goals and objectives is discussed in Master Response 12. As discussed therein, the relationship of the Plan's biological goals and objectives and the Operating Conservation Program is consistent with the Services' Five Points Policy.

For the duration that Green Diamond retains the permits, implementation of each of the measures set forth in the Operating Conservation Program will not be voluntary upon issuance of the Permits - the Operating Conservation Program reflects the binding, enforceable commitments that Green Diamond is making to qualify for and comply with the requirements of ESA Section

- CS-4 3. Horrible range of alternatives (including the No Action Alternative which involves a huge amount of actions) to help Simpson and CH2M Hill conclude that the Preferred Alternative is best;
- CS-5 4. Naive assumptions that there is benevolent management which actually helps species on corporate and federal lands and waterways in HPAs and watersheds discussed -- thus there must be assessment of state and federal land management actions outside of the 11 HPAs and the sentence must be struck on page 4-5 of the DEIS which says, "In addition, state and federal land management actions outside the 11 HPAs are not assessed because almost no timber harvesting occurs on these state and federal lands and streamside and upslope activities on these lands that could affect aquatic resources are extremely limited.";
Klamath National Forest (among other NFs) have significantly clearcut logged and road built in the last couple decades and is even proposing logging in such pristine areas as the Salmon River watershed. Rather than call some of these management activities basic Timber Sales which they are, there are many disturbing practices which are allowed to proceed while masquerading as fire salvage or forest health-related measures -- essentially public relations spinmeisters at work. #12 below discusses the impact that the Dept. of Interior / Bureau of Reclamation had on Klamath River fish while some cumulative impact analysis within the documents admits sedimentation far downstream due to up-watershed activities. Get a clue, the Bush Adm. is taking pre-emptive strikes against species to help resource-extracting industries and chemical-intensive farming. #13 has some info on how corporate landowners (especially PL) are not abiding by the law in their forest practices. Also strike the sentence on page 4-19 of the DEIS that, "Current protections for and benefits to geomorphology in those HPAs where federal agencies are the predominant land managers would be expected to continue into the future."
- CS-6 5. The biological goals and objectives are meaningless since apparently the "Operating Conservation Program" is the only thing Simpson is supposed to follow;
And even in this only document which has any teeth at all, page 6-3 of the Simpson AHCP/CCAA says that, "The CCAA portion of this Plan will provide benefits to the ESP Species through Simpson's implementation of the VOLUNTARY conservation measures contained in the Operating Conservation Plan (Section 6.2)." How much of the Simpson Operating Conservation Plan is voluntary?
- CS-7 6. There are too many words in the OCP which allow activities destructive to habitat of the noted species -- terms like "fall trees on a field verified headwall swale for worker safety and to create yarding corridors of up to 25 feet in width" and "new road construction will avoid field verified headwall swales wherever feasible";
- CS-8 7. Allows too much management in both Riparian Slope Stability Management Zone and in Slope Stability Management Zones;

10(a). What is voluntary is the decision of a non-Federal landowner to prepare and propose an HCP, seek an incidental take permit and be bound by their terms upon approval. As a general matter, the Services cannot require any non-Federal landowner to apply for incidental take permit coverage. However, landowners have a choice: comply with the take prohibition of ESA Section 9 or seek section 9 take exemption through an incidental take permit. Green Diamond has elected to seek take exemption and is expected to implement all of the commitments contained in the Operating Conservation Program.

HCPs can be developed for listed species, and also can cover proposed, candidate or other unlisted species. The decision to propose for inclusion an unlisted species in an HCP is also voluntary. Further, all of the CCAA species covered by this Plan (which have been discussed in AHCP/CCAA Sections 1.3.3 and 4) currently are unlisted. The inclusion of measures to benefit these species, have been included as binding commitments in the Operating Conservation Program.

Response to Comment C5-7

The Services believe these measures are consistent with the biological goals and objectives of the Plan and consistent with the approval criteria for these permits. Management considerations are proper in the Plan. These measures are part of a whole suite of measures designed to meet those goals and objectives. The ESA does not establish a “no take” or “no impact” standard for Section 10(a) permits. Instead, it requires a permittee to minimize and mitigate the impacts of take to the maximum extent practicable for an ITP and to provide benefits for the ESP species that, when combined with the benefits that would be achieved if it is assumed that conservation also were implemented on other necessary properties, would preclude or avoid any need to list them in the future (see Master Responses 8).

Response to Comment C5-8

The Plan limits management in Slope Stability Management Zones (SMZs) and Riparian Slope Stability Management Zones (RSMZs) by pre- and post-harvest requirements including silviculture method (and therefore minimum stand volume), minimum overstory canopy,

retaining trees that are likely to recruit or that are considered to be important to stream bank stability, and increased vegetative buffer widths for steep streamside slopes. The intent of these measures was to minimize the impacts of take associated with the covered activities on slope stability and incrementally reduce management related landslide sediment delivery. The modeled effectiveness of these measures is shown in AHCP/CCAA Tables F3-3, F3-4, F3-5, and F3-8. Also, these conservation measures must be considered in the context of the total Plan, which includes conservation measures for harvest-related ground disturbance, road related sediment sources, large woody debris recruitment, effectiveness monitoring, and adaptive management (as described further in AHCP/CCAA Section 6.3). The Services are satisfied that the Operating Conservation Program, which reflects the collection of all conservation measures, meets the ESA Section 10(a) approval criteria. See Master Response 8.

Response to Comment C5-9

See response to Comment C5-8.

Response to Comment C5-10

The Services are not aware of any data available to support a contention that redwoods are a much smaller component of the trees on Green Diamond land than they have historically been in the past.

With regard to the preference for harvesting redwoods, the only place in the Plan where a preference for harvesting redwoods is addressed is in AHCP/CCAA Section 6.2.1.2.2, Number 2. The reason for harvesting redwoods (in cases where it is appropriate to harvest trees within RMZs under the Plan) in preference to other conifers along watercourse banks is that redwoods resprout following cutting so the stumps retain their roots and, therefore, sustained bank stability versus other conifers where the roots die after the tree stem is severed.

Response to Comment C5-11

As described in EIS Section 3.3.5 (Water Quality) and AHCP/CCAA Section 4.3.6, only one watershed in the Plan Area is listed as impaired under Section 303(d) of the Federal Clean Water Act (CWA) for turbidity. Other watersheds are listed for sediment. The range of mean daily turbidity values (NTU) for the Klamath, Smith, and Eel rivers is reported in Table 3.3-3 of the EIS. General effects of suspended sediment on aquatic resources are described on page 3-93 of the EIS under the heading Effects of Forest Management on Water Quality. One of the conservation measures included in the Plan restricts use of roads, landings, and skid trails at any time of the year if such use results in runoff of

- C5-9 [8. Due to its steepness (and due to fairly pristine nature of Blue Creek and due to massively impacted Coastal Klamath zone), no timber management should be allowed in the SSMZ as well as none in the RSMZ in these areas;
- C5-10 [9. Redwoods are a much smaller component of the trees on Simpson land than in historical times and thus should be preferentially left as habitat rather than preferentially logged;
- C5-11 [10. Incorporate data and analysis relating to Turbidity into the DEIS, other documents, and into the Operating Conservation Program;
- C5-12 [11. So-called "baseline data" tends to be from heavily impacted areas and thus is not an ideal background to compare streams and habitat in Simpson-managed areas (there are reasons why amphibians now mostly prefer headwaters areas -- due to lousy timber management and related road problems in areas further downstream);
- C5-13 [12. The Fall Chinook of the Klamath River obviously should now be listed under the ESA due to the recent massive die-off of perhaps 33,000 of them due to the diversion of Klamath river water to heavily pesticide-using potato farmers on federal land in the Upper Klamath Basin -- this is significant enough to require a Supplemental Draft EIS to account for this disturbing new info;
Species such as Coho, steelhead, sturgeon, and suckerfish were somewhat impacted as well by the very low water level meaning increased temperatures and increase in disease resulting in killing about 33,000 fish in the Klamath. The Klamath fish kill makes moot the theory (though it does say Covered Species which should include Klamath Chinook Salmon upon re-evaluation of recent biological information) on page S-10 of the AHCP/CCAA that it is only a "few isolated streams or stream reaches have water temperatures that could cause local declines in populations of Covered Species but are not likely to be potentially responsible for regional declines."
- C5-15 [13. The Pacific Lumber Company has been ignoring a court order issued on August 29th, 2002 (and then once again reiterated by the court), and continue to illegally log their land despite the judge telling them to at least temporarily halt all timber harvest plans relating to the Headwaters Agreement and HCP (which is all of them);
Not only does PL not have good protections in their HCP, but continually ignore various laws, while CDF, CDFG, the Resources Agency, and Attorney-General's office has no impetus to enforce the law likely due to timber industry pressure and contributions to certain officeholders and candidates. With this record, one cannot assume that PL abides by their HCP let alone does reasonably protective management on the watersheds in the Humboldt Bay and Eel River HPAs -- plus PL has even proposed logging in the Allen Creek set-aside area which would obviously negatively impact murrelet and other habitat.
- C5-15 [14. Whether or not Pacific Lumber is abiding by it, at least PL's HCP does not allow logging on mass-wasting areas including headwall swales -- unlike Simpson's proposal;

waterborne sediment in amounts sufficient to cause a visible increase in turbidity in any ditch or road surface which drains into a Class I, II, or III watercourse (AHCP/CCAA Section 6.2.3.5.23 Number 3; See also, for example, AHCP/CCAA Sections 6.2.3.5.10 Number 3, 6.2.3.7.3 and 6.2.3.11.1). These and other measures designed to minimize sediment production and delivery to Plan Area streams. The environmental consequences resulting from implementation of the proposed Plan on sediment production and delivery are described in EIS Section 4.4.3.3. The EIS analysis concludes that sediment production and delivery to Primary Assessment Area streams would be reduced under the Proposed Action compared to the No Action Alternative.

Response to Comment C5-12

See Master Response 1.

Response to Comment C5-13

Species, whether federally-listed or not, are included in an HCP/CCAA at the sole discretion of the Permit applicant - the Services do not require that a particular species be included. The species Green Diamond has elected to cover in the Plan and Permits have been identified in AHCP/CCAA Sections 1.3.3 and 4. See Master Response 1.6 about the 2002 fish die off in the Klamath River.

Response to Comment C5-15

The Services are satisfied that the Plan as a whole meets the ESA Section 10 (a) approval criteria and that the Plan is not necessarily required to adopt all the same prescriptions that are contained in other HCPs. As stated above, the particular suite of prescriptions, which may or may not include a restriction of activity on mass-wasting areas such as headwall swales, is a matter of the Permit applicant's sole discretion (HCP Handbook at 3-19). However, the Services' role is to ensure that a Permit application meets applicable criteria for Permit issuance, which have been discussed in Master Response 8 and in AHCP/CCAA Section 1.4.1. Briefly, the ESA requires an ITP applicant to minimize and mitigate the impacts of authorized take to the maximum extent practicable, to ensure that permitted take does not appreciably reduce the likelihood of survival and recovery of the species in the wild, and

requires an ESP applicant to provide benefits that, when combined with the benefits that would be achieved if it is assumed that conservation also were implemented on other necessary properties, would preclude or avoid the need to list those species. Because the Services believe that the Plan meets these standards (see AHCP/CCAA Section 7), there is no basis to reject the application on the grounds suggested in this comment.

Regarding the Pacific Lumber HCP and comparison of its measures with those in this Plan, see Master Response 6.

Response to Comment C5-16

A description and assessment of the current status of covered species and their habitat is provided in AHCP/CCAA Section 4. Comments regarding the establishment of an appropriate baseline have been addressed in Master Response 1. See response to Comment G4-19 for a discussion of the concern raised about altered hydrology. A summary of mitigation and minimization of impacts, including cumulative effects, is provided in AHCP/CCAA Section 7.4. Conclusions have been provided in AHCP/CCAA Section 7.6. Comments regarding analysis of cumulative effects have been addressed in Master Response 3.

Response to Comment C5-17

The analysis in Section 7 of the AHCP/CCAA and Chapter 4 of the EIS provides a formal, detailed "biological assessment" of effects in accordance with the respective standards of the ESA and NEPA. The Services have prepared a Biological Opinion and determined that implementing the Proposed Action is likely to jeopardize the continued existence of covered species or adversely modify critical habitat.

Response to Comment C5-18

The Plan presents data in Appendix C-1 on stream assessments that include an index of embeddedness, but no direct measures of this variable. In addition, these data were collected for fish bearing reaches of streams, which generally do not include the headwater stream segments in which tailed frogs and torrent salamanders are found. As described in AHCP/CCAA Section 3.2.2.1, Diller and Wallace (1996 and 1999) found that both amphibian species tend to be associated with streams that have fewer fines and less

C5-16

15. Proposals given for Simpson management are insufficient to limit ongoing harm to covered and other species of note due to cumulative watershed effects such as activities altering hydrologic and sediment regimes – the one-size-fits-all default management no matter what the condition of the watershed is inadequate and ridiculous;

Despite some earlier summary results of cumulative impact assessment on the same page, yet page S-9 of the AHCP/CCAA says that "the hydrology of a large portion of a sub-basin or watershed would need to be altered before the magnitude of the response would be large enough to impact the Covered Species." Large portions of these watersheds are already impacted which is why the baseline data used in these documents is insufficient.

C5-17

16. There needs to be a detailed formal biological assessment of viability of covered and other species of note in the planning area -- this assessment must be in the Supplemental DEIS and related updated documents;

C5-18

17. While there are lots of graphs and words about sediment delivery, it makes sense to have quite specific discussions about what impacts to covered species and other species of note would be due to future sediment delivery;

C5-19

18. Due to the conclusion that roads are related to more sediment delivery to streams than logging sites, it is assumed that massive clearcutting can continue without impacting aquatic species -- is there biological evidence proving this and where is it?

It is presumptuous to claim that road upgrades are sufficient to reduce sediment delivery to the point of helping species, so certainly it makes no biological sense to allow new roads to be built, including major roads on streamside slopes and road construction across headwall swales.

C5-20

19. There is evidence that most CA Forest Practice Regulations are not sufficient to protect aquatic species, yet Simpson's plan only changes a few things in these regs with some changing for the worse such as ending the rule to leave the ten largest trees in riparian areas;

There is so much discussion as well as graphs and surveys about Large Woody Debris in the documents, yet it seems like it is a cover to distract attention from logging too close to streams, including further changing composition of tree species away from older conifers which are precisely the best trees to contribute LWD to riparian areas in the future.

C5-21

20. A Supplemental DEIS and related documents should scrutinize and analyze whether the Simpson plan meets all applicable decision standards -- also while Simpson staff on instructions from lawyers may act like they will exercise discretion to help watersheds and species, when one gets on the ground there is often contempt for such measures and a focus on getting the cut out, and let's log these big ones because let's claim it is needed for worker safety or because we have to cable-yard right in that area or it is not feasible to leave those big redwoods / conifers;

embeddedness. Consequently, the Operating Conservation Program includes numerous measures to reduce fine sediment delivery into streams throughout the Plan Area. See, for example, AHCP/CCAA Section 6.2.3 regarding road management measures, and Section 6.2.4 regarding harvest-related ground disturbance measures. Observations throughout the Plan Area indicate the largest source of fine sediments is from roads, which is why the Plan is focused on reducing sediment production from roads, and that focus is correlated very well with the life history requirements for the covered amphibian species.

Response to Comment C5-19

It is true that determining absence of a species is practically impossible, so that apparent extinctions may give false negative indications. However, this outcome means that the monitoring trigger is more conservative, or in other words, more likely to trigger adaptive management than is necessarily warranted. In addition, the monitoring was not focused on the habitat in headwater streams for the same reason described previously in response to Comment G10-41. The Services further note that headwater amphibian monitoring should not be considered in isolation, but in the context of all the other monitoring actions that will be concurrently taking place (see AHCP/CCAA Section 6.2.5).

Under the Proposed Alternative, triggering of a yellow light will result in notification to the Services within 30 days after Green Diamond's internal assessment indicates that yellow light threshold has been exceeded, and the Services and Green Diamond will work together to determine the cause of the exceedance and to determine any and all management changes necessary to address the situation. Within the limit of the AMRA (see Master Response 15), all necessary measures will be taken to address the issue. The Services believe that this collaborative approach to responding will benefit the covered species and their habitats in the Plan Area.

Response to Comment C5-20

The Plan contains a conservation strategy that relies on a suite of conservation measures that, as a whole, provide greater protection than the CFPRs. The Services note that Plan approval and issuance of the Permits would not excuse Green Diamond from its obligation to comply with otherwise applicable laws, including the CFPRs, under the Proposed Action (see AHCP/CCAA Section 1.4.2). Additional text has been added to EIS Section 2.2 (Proposed Action) for clarification purposes.

Regarding "older" conifers within riparian areas under the Proposed Action relative to the No Action Alternative, as noted in EIS Section 4.5.3.2, only a small proportion of trees within RMZs would be harvested under the Proposed Action. Those that remain would continue to mature and trees in the RMZs would age throughout the term of the proposed Plan. Modeling results referenced in this section suggest that riparian areas under the Proposed Action would comprise more mature trees by the end of the Permit term, compared to the No Action Alternative. See AHCP/CCAA Section 6.2.1, which includes riparian management measures, and Master Response 18, regarding riparian widths.

Response to Comment C5-21

As stated in AHCP/CCAA Section 5.5.2, for water temperatures less than lethal, the effect of elevated temperature on aquatic life tends to be cumulative. Therefore, short-term increases, as measured by the absolute maximum temperature, are less likely to be harmful than chronic, long-term increases as measured by the 7DMAVG temperature. Therefore, as described in the Plan, "red and yellow light" threshold criteria were developed to adequately monitor and provide protection to covered species on a long-term temperature basis.

As stated in AHCP/CCAA Section 3.3.1.3.1, to develop the temperature monitoring threshold values, 7DMAVG temperatures from monitoring studies conducted since 1994 were regressed on the square root of drainage area at stream locations known to support populations of the two covered amphibians and coho salmon species (the most temperature sensitive of the covered species). This regression relationship provided

the basis of the “red and yellow light” temperature threshold criterion proposed for monitoring (AHCP/CCAA Section 6.2.5.5.1) and it provides for variability in watershed characteristics as discussed above and not on an absolute maximum temperature or a temperature threshold (e.g., acute lethal) value from the literature. Evidence in the Plan indicates that the existing water temperature conditions for the vast majority of the habitats within the Plan Area currently meet not only the acute short-term temperature needs for covered species’ survival, but also the chronic long-term temperature needs to ensure adequate growth, smoltification and reproduction for the covered species in the streams being monitored (see AHCP/CCAA Sections 3 and 4). This fact is evidenced by the presence of juveniles of covered species throughout the Plan Area. Finally, the Services are not required to presume that a permittee will not comply with the provisions of the Permits.

Response to Comment C5-22

The ESA and applicable regulations do not expressly require preparation of an IA. The decision of whether to prepare one depends on the size and scope of the HCP and the wishes of either the Services or the applicant (HCP Handbook at 3-36). The Services and Green Diamond have chosen to utilize an IA in this case. All parties sign the IA and compliance with its terms is not optional. See IA paragraph 4.1(a).

Biological goals and objectives have been discussed in AHCP/CCAA Section 6.1. Comments regarding the role of biological goals and objectives, including an explanation of why direct compliance with them is not required, have been addressed in Master Response 12.

Response to Comment C5-23

Comment noted. Concerns regarding consideration of cumulative effects on the species of concern to the commenters in these streams have been addressed in Master Response 3.

Response to Comment C5-24

The adequacy of an HCP's measures is judged in relation to the conservation benefits provided during the term of the Plan. The large woody debris (LWD)-related prescriptions in the Operating Conservation Program (AHCP/CCAA Sections 6.2.1.6.2 and 6.2.1.7.5) call for leaving existing trees in the riparian areas that are likely to recruit to the watercourse and become LWD. In addition, the prescriptions that will be implemented in the riparian management zones will provide for an increase in the maturity of forest stands in the RMZs (AHCP/CCAA Sections 6.2.1.2 and 7.2.1.2). Furthermore, the ESA does not require Permit applicants

C5-22 21. Why does it say on page 6-2 of the Simpson AHCP/CCAA "the IA, if used,"? Is the Implementation Agreement optional?
I also find it appalling that, as it says earlier on the aforementioned page, "Permittees are not required to achieve the HCP's biological goals and objectives to comply with their permits."

C5-23 22. I object to the claim that since the Klamath, Smith, and Eel Rivers are larger watersheds that Simpson can only have a small impact on species in these drainages; There has been considerable extirpation of some of these species of note in the lower Klamath area streams due to intensive clearcutting, roadbuilding, and herbicide spraying largely by Simpson.

C5-24 23. It is disturbing that in discussion of the LWD objective that there is emphasis on mature stands over the life of the plan -- it sounds like, as with the PL HCP/SYP, that near-future liquidation of almost all large conifers including in the riparian areas will take place, and then the companies try to impress us that many decades down the line that there will be good habitat.
The species need to recover rather than have degraded habitat in the near term which many could not survive.

C5-25 24. It is very disturbing to see that there are plans to focus on extracting merchantable trees especially redwoods from even riparian areas;
Where are the studies showing that species of note do better with changed composition of trees as vs. the trees which were the main riparian and LWD components during the evolution of the species? Also there is confusion on page 6-27 in regards to whether all trees over 12 inches dbh will be removed within 5 feet from the top of a cut slope. It is disturbing under Default Prescriptions for SMZs to see that only "where feasible" will there be "All species and size classes represented in pretreatment stands" in the post-harvest composition. I also read in the documents that similar species will be planted as were found in given areas. I find this surprising since Simpson is well-known for converting predominately redwood areas to Douglas-fir plantations while spraying herbicides to kill hardwoods and brush. I imagine this claim regarding planting various species rather than monoculture will also not need to be implemented -- is this the case or does this claim have enforceable teeth?

C5-26 25. It is disturbing to see the word "initial" in discussing silvicultural prescriptions to be employed in the riparian areas -- it says there will be single tree selection initially -- will they move to more clearcutting later on?

Sincerely yours,
Bruce Campbell
Bruce Campbell

to affirmatively recover species. The appropriate standards have been discussed in Master Response 8.

Response to Comment C5-25

The Services are satisfied that the Plan as a whole meets the ESA Section 10 (a) approval criteria. The Plan's riparian management measures have been provided in AHCP/CCAA Section 6.2.1 and comments regarding operations in riparian areas have been addressed in Master Response 18. Preferential harvest of redwoods is mentioned specifically in AHCP/CCAA Section 6.2.1.2.2 in relation to bank stability; this measure recognizes that redwoods re-sprout following harvesting, so stumps retain their roots, thereby maintaining bank stability, whereas the roots of other trees dies following harvesting, thereby reducing bank stability. The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria have been discussed in Master Response 8.

This comment requests clarification regarding "whether all trees over 12 inches dbh will be removed within 5 feet from the top of a cut slope." As provided in AHCP/CCAA Section 6.2.3.5.4 "trees greater than 12 inches dbh within five feet of the top of the cut slope may be retained if they will not be susceptible to windthrow or of being undercut."

Response to Comment C5-26

AHCP/CCAA Section 6.2.2.1.7 of the provides that the initial silvicultural prescription in SMZs will be single tree selection, and that there would only be one harvesting entry of SMZs during the term of the Plan and Permits, except where cable yarding corridors are necessary for intermediate treatments. In this section, "initial" indicates that the prescription is an initial default that could be changed as a result of the steep streamside slope assessments discussed in AHCP/CCAA Sections 6.3.2.3.1, 6.3.5.4.3, 6.2.6.1.3 and 6.2.6.2.

Letter - C6. Signatory -Joyce King.

Response to Comment C6-1

Harvest rates for the timberlands managed by Green Diamond are practically constrained by current CFPRs (including the requirement to demonstrate sustained yield over a long planning horizon), as well as other requirements applicable to timber operations, as described in the Plan and EIS. See AHCP/CCAA Section 1.4.3. See also Master Response11, regarding rate of harvest.

Response to Comment C6-2

Methodologies selected in the EIS and AHCP/CCAA to analyze cumulative effects under NEPA and the ESA are discussed in Master Response 3. The AHCP/CCAA Section 7 utilizes Section 4's assessment of current conditions for the covered species in the Plan Area and Section 5's general assessment of the potential impacts of Covered Activities (see AHCP/CCAA Section 1.3.4, Section 2) that may result in take as well as the effects, including cumulative effects, on the covered species that may result from such take. This section draws conclusions regarding the conservation strategy's potential effectiveness in addressing both direct and cumulative impacts of take on the covered species (see AHCP/CCAA Sections 7.7.4 and 7.6). EIS Section 4.1 sets out the methodologies used for assessing potential cumulative effects of the proposed action on the environment, including on geology and geomorphology, hydrology and water quality, aquatic resources, vegetation and plant species of concern, terrestrial habitat and wildlife species of concern, air quality and other areas. The Services are satisfied that the cumulative impacts analysis is proper and sufficient in methodology and analysis and that the conclusions of the EIS and Plan are correct with regard to cumulative effects.

Ms. Ammedee Brickey
U.S. Fish and Wildlife Service
1655 Heindon Road
Arcata, CA 95521
FAX: 822-8136



Re: Review of Simpson Resource Company Aquatic Habitat Conservation Plan
(Plan)

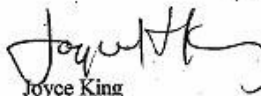
Dear Ms. Brickey:

C6-1 [The documents contained provide methodologies for calculating appropriate rates of harvest for recovery of local watersheds which, like the Mad River, are listed as cumulatively impacted for sediment, and should be employed to determine appropriate rates for Simpson timberlands.

C6-2 [They also contain strategies for evaluating cumulative effects, which should be the first task and major consideration in determining prescriptions for all of our cumulatively impacted watersheds.

The Review of "Engineering geologic and zero net discharge study of the proposed timber harvest plan" THP: Upper Alwardt is included to illustrate the problem of reliance on professional judgement, or credentialed professionals for identifying mass wasting hazards. Epidemiological studies show many such failures among the highest ranks of professional geologists and foresters.

Thank you for the opportunity for public comment.


Joyce King
1658 Ocean Drive
McKinleyville, CA 95519

11/19/02

Federal Agencies: F

Letter - F1. Signatory -US EPA, Region IX.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 12, 2002

Steve Thompson, California/Nevada Operations Manager
U.S. Fish and Wildlife Service
2800 Cottage Way
Sacramento, CA 95825

Rodney R. McInnis, Regional Administrator
National Marine Fisheries Service
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802



Dear Sirs:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for **Authorization for Incidental Take and Implementation of a Multiple Species Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances** covering Simpson Resource Company (Simpson) lands in Del Norte and Humboldt Counties, CA (CEQ Number: 020347). Our review is pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. We appreciate your willingness to accept these comments after the formal comment deadline, as discussed with your agency staff.

The DEIS analyzes potential environmental impacts associated with approving applications for an Incidental Take Permit and Enhancement of Survival Permit under Section 10 of the federal Endangered Species Act (ESA). Simpson is requesting authorization for the incidental take of three fish Evolutionary Significant Units (ESUs) that are listed as threatened under the ESA: Southern Oregon/Northern California Coast coho salmon, California Coastal chinook salmon, and Northern California steelhead. Simpson is also requesting authorizations for the incidental take of three other fish ESUs: Southern Oregon/Northern California Coast chinook salmon, Upper Klamath/Trinity Rivers chinook salmon, and Klamath Mountains Province steelhead; two fish species: coastal cutthroat trout and rainbow trout; and two amphibian species: southern torrent salamander and tailed frog--these fish ESUs, fish species, and amphibians are not currently listed, but could potentially become listed in the future.

Letter - F1

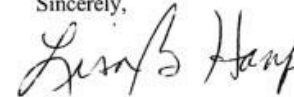
Page 2

In addition to No Action, the DEIS analyzes impacts associated with four action alternatives which vary according to the number of species and the geographic area covered, and the complexity of management prescriptions. The DEIS does not identify a preferred alternative. In general terms, the impacts associated with implementation of the proposed Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances are expected to be beneficial compared to No Action.

EPA commends the approach of developing a comprehensive aquatic management strategy to address potential impacts to listed and potentially listed fish and amphibian species. We agree that there are benefits to be derived from addressing these risks through a single permit rather than addressing the issue in the context of individual Timber Harvest Plan (THP) reviews. While we support the proposed plan in general terms, we have specific concerns related to water temperature impacts. These concerns, and additional recommendations and requests for clarification are included in our detailed comments (attached).

EPA has assigned a rating of **EC-2 (Environmental Concerns--Insufficient Information)** to the DEIS. Please refer to the attached "Summary of Rating Definitions" for further details on EPA's rating system. EPA appreciates the opportunity to review and comment on the DEIS. Please send a single copy of the Final EIS to the address above (Mail Code: CMD-2) when it is filed with EPA's Washington, D.C. office. If you have any questions, please feel free to contact me or Leonidas Payne, the point of contact for this project. Leonidas Payne can be reached at 415-972-3847 or payne.leonidas@epa.gov.

Sincerely,



Lisa B. Hanf, Manager
Federal Activities Office

Attached: Detailed Comments
Summary of EPA Rating Definitions

SUMMARY OF EPA RATING DEFINITIONS

This rating system was developed as a means to summarize EPA's level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the EIS.

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

Response to Comment F1-1

As a result of changes made to the DEIS in response to this comment and others and the inclusion of additional information, the Services have determined that the FEIS contains sufficient information to conduct the required analyses. As described in EIS Section 2.2.3, measures superseding those described under the No Action Alternative, plus additional Plan conservation measures, would include:

- Within the outer zone of the RMZ, at least 70 percent overstory canopy would be retained, except for Class I RMZs located below SMZs, where 75 percent overstory canopy closure would be retained (see AHCP/CCAA Section 6.2.1).
- Within the RMZ, no trees would be harvested that are judged likely to recruit to the watercourse (AHCP/CCAA Sections 6.2.1.2.4 through 6.2.1.2.6).
- During the life of the Permit, only a single harvest entry would occur into a Class I or Class II RMZ (AHCP/CCAA Sections 6.2.1.2 [Class I] and 6.2.1.4 [Class II]).
- Timber harvesting would be prohibited within all Class I and 2nd order or larger Class II RMZ inner zones that are located below SMZs (i.e. RSMZs) (see AHCP/CCAA Section 6.2.2.1), except for purposes of creating cable-yarding corridors when other options are impractical. Retention of a minimum 85 percent overstory canopy closure would be required in Class I and 2nd order or

Detailed Comments for Simpson Aquatic Habitat Conservation Plan DEIS

Water Temperature

F1-1 The DEIS indicates that harvest practices under the proposed alternative will decrease the amount of canopy, thus reducing shade. However, Page 7-21 concludes that there will be no measurable change in water temperature. EPA's own modeling of watersheds with varying characteristics, typical of those in the planning area, indicates significant cumulative impacts associated with reduced shade.¹ EPA recommends that the lead agencies apply a temperature/shade model (e.g., Qual2E/Shade or Basintemp) which can forecast the effects of reduced shade. These models are also capable of analyzing the cumulative effects of basin-wide shade reductions, including analyzing how small decreases in shade result in increases in temperature that can affect the entire hydrologic system.

F1-2 We also note that the DEIS does not explicitly address how the 85 percent overstory canopy requirement and the number of conifer stems are related to shade. EPA recommends that the amount of shade be monitored, as it is more directly related to stream temperature and can be measured quantitatively with a solar pathfinder. Alternatively, EPA recommends that shade be treated as specific standard to be met under the Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances (AHCP/CAAA).

F1-3 On Page ES-5 of the DEIS, the lead agencies conclude that "implementing the proposed AHCP/CAAA or the other action alternatives would result in either no change to the environment or in beneficial environmental effects. No significant adverse effects are anticipated to occur...." It may be necessary for NMFS to reconsider its "no significant adverse effect" conclusion based on the modeling discussed above. If any reductions in shade are expected, then changes in temperature are expected to occur. We note that EPA Total Maximum Daily Loads (TMDLs) for temperature have taken the position that any change in stream temperature is adverse to beneficial uses.² NMFS should also clarify the degree of change that it would consider to be significant and adverse in the context of temperature.

Sediment

F1-4 The sediment source analysis in the DEIS compares current rates of sediment to expected reductions. Although this type of analysis provides the lead agencies with a sound basis for determining whether sediment impacts resulting from harvest operations under the

¹ See EPA's South Fork Eel TMDL and draft North Fork Eel TMDL, available on the web at www.epa.gov/region09/water/tmdls. Technical appendixes available by request.

² Ibid.

larger Class II RSMZ outer zones. In addition, no timber harvesting would be allowed within the entire RSMZ in the Coastal Klamath and Blue Creek HPAs (see AHCP/CCAA Section 6.2.2.1.5).

As described on page 4-46 of the EIS, there would be an immediate net reduction of canopy closure of up to approximately 15 to 20 percent following timber harvesting in the outer zone of Class I and II RMZs that would be replaced within 5 to 10 years through recovery of the remaining tree crowns. On average, approximately 1,000 feet of watercourse would be influenced by the average-sized harvest unit (currently about 25 acres) if the unit surrounds or is adjacent to a watercourse. Canopy closure, while expected to slightly decrease immediately following harvesting, is expected to increase relative to current conditions in all stands as they regrow subsequent to timber harvesting. Preliminary experimental results that support the conclusion that proposed riparian conservation measures would not result in significant impacts to aquatic resources resulting from a slight change in water temperature are presented in EIS Section 4.3.3.2 and AHCP/CCAA Appendix C-5.2 (Class II Paired Watershed Temperature Monitoring).

Some models predict increased temperatures as a result of small decreases in shade, assuming that the shade reduction is present throughout a large proportion of the basin. Such modeling was not incorporated because the Proposed Action does not lead to consistent reductions in stream shading on a basin-wide scale. Only small reaches of streams would be affected, with temporary and modest reductions in canopy closure (not necessarily stream shading), and with an increase in canopy cover relative to existing conditions over the term of Plan. In addition, much of the Plan Area is subjected to the cool coastal climate. Since there is little evidence that temperatures in Primary Assessment Area streams would be significantly altered under the Proposed Action within the proposed harvest units, there is no basis to believe that cumulative temperature impacts would occur at a basin-wide level.

Response to Comment F1-2

The Plan contains conservation measures that are based on assessments and monitoring of the covered species and their habitats throughout Green Diamond's ownership. Overstory canopy retention standards are used as a quantifiable (measurable) and enforceable standard to provide a desired minimum level of shade canopy within RMZs. (See AHCP/CCAA Section 6.2.1.2.1.) The overall effectiveness of the overstory canopy retention conservation measures will be determined from monitoring. Monitoring includes both (1) implementation monitoring to determine the level of compliance with conservation measures, and (2) effectiveness monitoring to determine the success of conservation measures, including those that are expected to protect water temperature. If the result of the effectiveness monitoring program determines that water temperature measures are not producing the intended results, changes to the conservation measures will be implemented by way of the adaptive management process.

Riparian shade will not be monitored over time. Instead, stream temperatures will be measured and monitored directly. Because the primary species of interest are cold water adapted aquatic animals, measurement of this physical characteristic will provide direct information about this attribute of habitat quality without the need to measure the indirect attribute of riparian shade.

Response to Comment F1-3

The Services have evaluated the potential for implementation of the Plan to adversely affect water temperature. The Services find that, notwithstanding the fact that temperature problems do exist in some parts of the region where the Plan would be implemented, site-specific information provides sufficient certainty that implementation of the Plan would result in either no change or improved environmental conditions when compared to the No Action Alternative and current conditions. As explained in EIS section 4.3.3.2, implementation of the Plan would result in more robust canopy closure and tree retention standards overall than under current CFPRs. The Plan is expected to result in lower temperatures over the life of the Plan than exist under current conditions. The Services believe their conclusions in the EIS are correct.

Response to Comment F1-4

The Services agree with EPA that reduction of the negative adverse conditions related to sediment production is an important consideration, and one of the major motivations for the Services and Green Diamond in developing the Operating Conservation Program. The analysis of sediment impacts under the Proposed Action is contained in EIS Section 4.2.3. As stated therein, sediment control would improve relative to the No Action Alternative. As suggested in the comment, this analysis is based on the comparison of impacts under the Proposed Action to impacts under the No Action Alternative. This is the appropriate comparison in accordance with NEPA requirements. It is not necessary to compare impacts to natural conditions (see Master Response 1 regarding Baseline). The Services believe that issuance of the Permits is not likely to jeopardized the continued existence of the covered species.

Response to Comment F1-5

Comment noted. Additional text has been added to the EIS Abstract, Executive Summary, Section 1.5.2.1 (CWA) and Section 3.3.5 (Water Quality) to clarify that the proposed Plan is not intended to address Federal CWA / TMDL requirements.

Response to Comment F1-6

Although this is primarily a comment on the HCP, please see Master Response 17.

Response to Comment F1-7

Since California’s Z’berg-Nejedly Forest Practice Act was adopted in 1973, the CFPRs have been reviewed, amended and updated continually. Many amendments have dealt with water quality issues. The CFPRs have become more protective of environmental resources as a result of these amendments. However, while it may be reasonably foreseeable that additional change might be made, what those changes may be are not reasonably foreseeable. It would be speculative to predict specific changes in the rules, particularly where such change are not within the control of the Services. Accordingly, the Services chose not to attempt an analysis of benefits that might accrue from the specific changes the commenter predicts might occur. Additional discussion of issues associated with the cumulative effects analysis are addressed in Master Response 3.

Also see Master Response 10 for the number and range of alternatives.

F1-4

AHCP/CAAA are significant and adverse as compared to no action, we recommend that the lead agencies clarify whether or not it is concluding that the resulting sediment loads (as an increase over natural conditions) are considered to be significant adverse impacts.

Clean Water Act (CWA) Compliance/Total Maximum Daily Loads (TMDLs)

F1-5

Certain water bodies covered by the AHCP/CAAA are included on the Clean Water Act, Section 303(d) list, but no TMDL determination has been made; others have a completed TMDL, but no implementation plan. To prevent any confusion with the joint Habitat Conservation Plan/TMDL document prepared by Simpson to address its lands in Washington State, the FEIS should clarify that the proposed AHCP/CAAA is not intended to address CWA/TMDL requirements. EPA requests that this be noted in the abstract, the executive summary, and in applicable sections of the DEIS.

Road Management Plan

F1-6

The Road Management Plan outlined in the AHCP/CAAA describes processes and standards for decommissioning roads, and identifies funding to be applied to road management objectives. We recommend that the Road Management Plan be expanded to include decommissioning targets (expressed in miles of roads eliminated or hydrologically closed over the life of the permit). We believe that such targets are necessary to quantify the net reduction in road density at the end of the permit term as discussed on Page 4-15. An additional benefit of adopting decommissioning targets is that it would allow success to be measured in terms of specific mileage and road density reductions in addition to money spent and sediment delivery avoided.

Cumulative Impacts--Reasonably Foreseeable Changes to California Forest Practice Rules

F1-7

Several alternatives which proposed changes to operations (e.g., a cessation of clearcutting) or the adoption of protections embodied in federal forest plans were not carried forward for further analysis. These decisions assumed that such changes would cause severe operational or financial impacts to Simpson. Although we understand the rationale for removing such alternatives from detailed consideration in the DEIS, we believe that the cumulative impacts analysis would benefit from a brief discussion of the potential benefits and impacts associated with reasonably foreseeable changes to the California Forest Practice Rules. For example, what would be the potential benefits to the aquatic species discussed in the DEIS if clearcutting was curtailed or eliminated under California law? What environmental and operational impacts would result if an upper diameter limit (e.g., 30 inches diameter at breast height) was imposed to protect remaining old trees in the State? What additional benefits would be derived if riparian buffers were increased to achieve consistency with the direction of the Northwest Forest Plan?

Response to Comment F1-8

The Services agree with the suggestion to make the EIS understandable to the public. This was an objective in the preparation of the EIS, and the document was edited for readability prior to public review. Several factors have shaped the appropriate language in the document, including the following:

- It is necessary to accurately describe the methods and results from the technical analyses in order to demonstrate that the required findings and conclusions could be made.
- The Services anticipated that many of the likely reviewers of the EIS would be technically astute and familiar with the types of analyses presented (e.g., sediment and aquatic habitat in the North Coast).

Use of Plain English

We believe the Final EIS would benefit from a thorough edit to remove excessively technical language. Since this is a public disclosure document, plain English should be used whenever possible. We offer the following example of overly-technical language to make our point:

F1-8

Grain detachment typically results from mechanical disturbance, such as rain-drop impact, or by overland flow, but may be facilitated by other mechanical influences such as ground disturbance by animals and harvest-related ground disturbance. Detached soil grains are typically transported by water, either by entrainment or suspension in overland flow, or by siltation. (Page 4-11)

Group and Private Organizations: G

Letter - G1. Signatory -Redwood Sciences Lab.

Response to Comment G1-1

See Master Response 7. Further, the Plan does provide protection for headwall swales as described in AHCP/CCAA Sections 6.2.2.2 and 6.3.2.4. In addition, the author of the comment presumes that the limiting factor for all or most of the HPAs is related to headwater tributaries. However, Green Diamond's data indicate that LWD recruitment and sediment delivery from roads are most likely the limiting factors in most of the HPAs (see AHCP/CCAA Section 7). The conservation measures outlined in AHCP/CCAA Sections 6.2.1 through 6.2.4 are specifically designed to address these factors. Therefore, the Services believe that implementation of the Operating Conservation Program will protect critical habitat for salmonids, and sensitive amphibians.

Response to Comment G1-2

As stated in Master Response 11, the Plan's biological goals and objectives, which guided the development of the measures included in the Operating Conservation Program, are based on meeting the habitat requirements and life cycles of the covered species. One of the specific goals includes maintenance of cool water temperature regimes. Based on this goal, the yellow-light and red light temperature threshold monitoring and response system is expected to trigger different levels of review and response when stream temperatures exceed those suitable for juvenile coho salmon. Also see response to Comment F1-2.

Swift, Richard/SAC

From: Amedee_A_Brickey@r1.fws.gov
Sent: September 16, 2002 8:25 AM
To: Swift, Richard/SAC
Subject: Comments on Simpson HCP

Rick,

Please include this email as a public comment on the Simpson Project.

----- Forwarded by Amedee Brickey/AFWO/R1/FWS/DOI on 09/16/2002 08:24 AM -----

Gary Falxa
Brickey/AFWO/R1/FWS/DOI@FWS, James.F.Bond@noaa.gov
09/12/2002 11:08 AM
To: Amedee
cc: hwelsh@fs.fed.us
Subject: Comments on Simpson HCP

Amedee and JB,
See Hart Welsh's comments below. Could you please forward these to whoever is handling comments received on the Simpson HCP/CCAA, if its not yourselves. I'm guessing its you, as you're listed as the contacts in the federal register notice. Thanks. ..gary

----- Forwarded by Gary Falxa/AFWO/R1/FWS/DOI on 09/12/2002 11:05 AM -----

"Hart Welsh/PSW/USDAFS"
<hwelsh@fs.fed.us>
<hwelsh@fs.fed.us>
09/12/2002 10:47 AM
To: Gary_Falxa@r1.fws.gov
cc: "Hart Welsh/PSW/USDAFS"
Subject: Pending Simpson HCP

G1-1 [Gary:
I am sending these comments to you in hopes that you will forward them to the appropriate persons. I have not reviewed the entire Simpson HCP but have looked at its objectives. If the HCP does not provide protections beyond what is required by California Forest Practice Act rules for headwater tributaries (including zero order basins or headwall areas) it will fail to adequately protect the critical habitats of coho salmon, other salmonids, and sensitive amphibians like the tailed frog and southern torrent salamanders (see Welsh, H. 2000. Aquatic ecosystems of the redwood region, Pp. 165-199; and California forest management and aquatic/riparian ecosystems in the redwoods, Pp 255-261; both in R. Noss, ed. The redwood forest: history, ecology, and conservation of the coast redwoods. Island Press, Covelo, CA. Also see relevant discussion in Welsh and Lind. 2002. Multiscale habitat relationships of stream amphibians in the Klamath-Siskiyou region of California and Journal of Wildlife
G1-2 [66:581-602. On a second issue, that of the percent of basin data-based predictive models from our research in the Mattole indicate that for as with interior climatic conditions, removal of more than 20% of the forest

Letter - G1

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G1-2



cover at any one time will cause the stream temperatures to exceed those suitable for juvenile coho salmon (temperature threshold based on a recent field study of this species [Welsh et al. 2001. Distribution of juvenile coho salmon in relation to water temperatures in tributaries of the Mattole River, California. North American Journal of Fisheries Management 21:464-470]). I hope these comments are helpful. If you have any questions please give me a call.

Hartwell H. Welsh, Jr.
Redwood Sciences Lab
1700 Bayview Drive
Arcata, CA 95521
phone: (707)-825-2956
fax: (707)-825-2901
email: hwelsh@fs.fed.us <http://www.rsl.psw.fs.fed.us/projects/wild/herpwebpage>

Letter - G2. Signatory -California Indian
Basketweavers Association.

F A X

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NOV 12 2002

Nat'l Marine Fisheries SVC
Arcata, CA

To: **Ms. Amedee Brickey; Mr. James Bond**

Fax number: 8228411

From: **Jennifer Kalt**

Fax number:

Business phone:

Home phone:

Date & Time: 11/12/2002 11:40:49 AM

Pages: 8

Re: Simpson AHCP/CCAA/DEIS comments

Ms. Brickey, Mr. Bond:

Please submit these comments to the administrative record for Simpson's AHCP/CCAA/DEIS for Humboldt and Del Norte Counties. Thank you,
Jennifer Kalt

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Page 2

Response to Comment G2-1

Although LWD surveys have not been done in these tributaries, most of the streams have been assessed as part of amphibian surveys. See AHCP/CCAA Section 4.3.11. Many of these streams are high gradient, boulder and bedrock dominated channels. The pertinent literature suggests that LWD plays a lesser role in these channel types.

Response to Comment G2-2

See Master Response 4.



▲ California Indian Basketweavers Association ▲

November 11, 2002

Ms. Amedee Brickey
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(Yurok)
Klamath

Re: Simpson Resource Company Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement, Del Norte and Humboldt Counties, California

The California Indian Basketweavers Association (CIBA) is a state-wide, intertribal non-profit organization with over 900 members. CIBA's primary mission is to preserve, promote, and perpetuate California Indian basketweaving traditions while providing a healthy physical, social, spiritual, and economic environment for weavers. Our Resource Protection Program works to protect the native flora and fauna that Native people rely on for subsistence, and to promote alternatives to pesticides wherever possible, particularly in the vicinity of Native communities.

Our Northwestern Field Office serves over 250 basketweavers, and works to protect them and their families from health risks associated with pesticide use near their homes and gathering sites. Under a grant from the U.S. Environmental Protection Agency, we researched pesticide use, water quality, and risks of contamination in Native American communities. We found that Simpson's forestry herbicide use on and adjacent to the Yurok Reservation poses potential risks to Native people who hunt and fish on the reservation. Forestry herbicide use on and adjacent to the reservation also puts drinking water sources at risk of contamination.

Failure to Address Impacts of Forestry Herbicide Use

The Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances (AHCP/CCAA) and Draft Environmental Impact Statement (DEIS) proposed by Simpson Resource Company (Simpson) for its timberlands

G2-1

G2-2



Letter - G2

Page 3

Response to Comment G2-3

The analysis in the EIS considers impacts (individual and cumulative) associated with the Covered Activities associated with the Proposed Action, which is issuance of a Federal ITP and ESP. Green Diamond has not proposed to include herbicide use as a covered activity (see AHCP/CCAA Section 2.4.3), nor are the Services authorized to require its inclusion. However, comments regarding herbicide use have been addressed in Master Response 4.

Response to Comment G2-4

As noted above, Green Diamond has not proposed to include herbicide use as a covered activity and the Services are not authorized to require its inclusion. Herbicide use in the forestry context, including cumulative effects, has been discussed in Master Response 4.

G2-2

in Del Norte and Humboldt Counties, California does not adequately assess impacts of timber operations to the species addressed in the proposal because it fails to consider direct and cumulative impacts of forestry herbicide use which is an integral part of Simpson's timber operations in the region. Activities proposed for coverage under the AHCP/CCAA include all aspects of timber harvest, site preparation; and tree planting. Forestry herbicide use is an integral part of these activities under Simpson's current management practices and should be considered a covered activity under the AHCP/CCAA. The Proposed Action states that control of existing unwanted vegetation may be facilitated through use of contact and translocated herbicides (page 2-4). Chemical treatment of competing vegetation would generally be initiated at the end of the second growing season after timber harvest, and would continue until the stand is approximately 35 years of age (page 2-5). Repeated herbicide application as described is sure to have significant negative impacts on public resources in the forest environment, and should not be ignored in the Proposed Action.

G2-3

The Proposed Action appears to dismiss requirements for assessment of herbicide-related impacts by stating that the herbicides and adjuvants used would continue to be registered with the EPA. Although the pesticide regulatory program is a certified program under 14 Cal. Code Reg. § 15251 (i), no agency has taken responsibility for ensuring that sensitive species are protected from significant direct or cumulative impacts due to herbicide use. The majority of herbicide use on private timberlands in Humboldt County is conducted without any permit or review of local conditions and resources that could be impacted. Protecting sensitive species from impacts due to logging operations is not enough to ensure their survival if site preparation activities such as herbicide use are done without considering their impacts.

The U.S. EPA's settlement in a recent court case indicates that there are potentially significant negative impacts to listed plants and animals not considered in the pesticide registration process due to the EPA's failure to consult with the U.S. Fish & Wildlife Service prior to pesticide registration. Further evidence that the EPA and DPR registration processes are inadequate to protect sensitive species has been shown in studies of avian reproduction, in which it was shown that 13 of 17 pesticides examined were found to cause statistically significant impacts to reproduction at levels that did not cause parental toxicity.¹ These authors concluded that at least 10 of the pesticides examined should not have been registered without some assurance that these developmental effects would not occur in the wild.

The registration review process is a different project than a THP, and a different project than herbicide use on a THP; thus it cannot substitute for environmental review of forestry herbicide use. Furthermore, there is no evidence that the registration review process considers site specific impacts to public resources. The Proposed Action's wholesale reliance on the pesticide registration process for assessing impacts on these THPs is unlawful for several reasons.

G2-4

First, it is well settled that compliance with law alone is insufficient to find "no significant impact" under CEQA. See e.g., *Oro Fino Gold Mining Corporation v. County of El Dorado* (1990) 225 Cal. App. 3d 872, 881-882 (rejects contention that project noise level would be insignificant simply by being consistent with general plan standards for the zone in question.) The Forest Practice Act's and CEQA's requirement to assess environmental impacts assumes that the project applicant will comply with the law, but that adverse environmental impacts may still occur. Simpson cannot plausibly argue that herbicide applications in compliance with label directions have no potential for significant environmental impacts when introduced into the forest environment.

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Response to Comment G2-5

Comment noted. However, the CEQA (Cal. Pub. Res. Code Section 21000 et seq.; 14 Cal. Code Regs. Section 15000-15387) does not govern preparation of the EIS, approval of the Plan or issuance of the Permits and no State-issued approval is sought that would trigger CEQA review of this Plan.

Response to Comment G2-6

See Master Response 4.

Response to Comment G2-7

The Plan is subject to review and approval under the Federal ESA and NEPA. Therefore, issues related to CEQA are not pertinent to the analysis here. Of course, regardless of whether the Plan and Permits are approved or not, Green Diamond's THPs will be subject to all applicable laws, including CEQA. The Plan and Permits add a layer of regulation, and do not relieve the applicant of any regulatory or other legal responsibility (see Master Response 4).

Response to Comment G2-8

The impacts of timber operations and other covered activities on the Plan Area are analyzed in the Plan, as are the impacts of incidental take. See Master Response 4 regarding herbicide use in the Plan Area, Master Response 3 regarding cumulative effects and Master Response 1 regarding the September 2002 "die off" of fish in the Klamath River.

G2-5 Second, as a matter of CEQA law, here there is no question that the "project" approved by the pesticide agencies - the general registration of a pesticide product for use - is separate and distinct from the specific introduction by Simpson of potentially contaminating forestry herbicides into the environment of the North Coast coniferous forests. See 14 Cal. Code Reg. § 15253(a) ("environmental analysis document prepared for a project under a certified program...shall be used by another agency granting an approval for the same project...") (emphasis added).

G2-6 Third, Simpson has not produced any evidence showing that the registration review process specifically addressed the type of herbicide use and impacts proposed in this case. Neither the U.S.E.P.A. nor the state Department of Pesticide Regulation have assessed the short and long term impacts of forestry herbicides on forest ecology, including understory species important to wildlife such as oaks and ceanothus. The registration process did not take into account the specific uses of herbicides on these plans, including the time of application, the amounts, the chemical used, the terrain, the specific potential for surface water contamination given the soil type and slope, the application method, or the specific environmental resources potentially at risk.

G2-7 According to the California Forest Practice Rules and CEQA, a "project" is defined as the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (14 Cal. Code Reg. § 15378)(a) and 4 Cal. Code Reg. § 895.1). CEQA's definition of project goes on to explicitly state that "[t]he term "project" refers to the activity which ...may be subject to several discretionary approvals by governmental agencies. The term "project" does not mean each separate governmental approval." (14 Cal. Code Reg. § 15378(c)). THP submitters may not avoid CEQA review of impacts due to herbicide use simply by refusing to commit to the use of herbicides until after the plan is approved. In deferring the herbicide issue to a later date, the project is segmented into two pieces, which is not lawful under CEQA, since the cumulative impacts of the two parts of the project will not adequately be considered.

Potential for Impacts to Aquatic Species

G2-8 Forestry herbicide use, as well as increased sediment delivery to watercourses related to covered activities under the Proposed Action, have the potential to cause significant negative impacts to anadromous fish and other aquatic species that local Native people depend on as a major portion of their diet. Many culturally important and ecologically sensitive fish occur in the Lower Klamath River. Since Simpson owns and manages more than 85% of the land upslope from the Lower Klamath River, Simpson's land management practices have a tremendous impact on the health of these populations, and by extension, on the health of the cultures of the Native American communities in the area.

Simpson's management activities have direct and cumulative impacts on these aquatic species and their habitat. These fish populations may have been severely impacted by the massive fish kill on the Lower Klamath River in recent months; it is unknown at this time what the long-term impacts to these species will be, but it is known that over 30,000 chinook and coho salmon died before spawning. The Yurok, Karuk, Hupa and Tsungwe tribes depend on these fish for subsistence as well as cultural continuity. These fish cannot sustain additional impacts after the massive damage to their future generations that was apparently caused by combination of low water levels, high water temperatures, pesticide contamination, and sedimentation caused by logging, and erosion from poorly-maintained roads and culverts.

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Response to Comment G2-9

Comments relating to herbicide use have been addressed in Master Response 4.

Response to Comment G2-10

AHCP/CCAA (Section 6.3.2.4.1) requires Green Diamond to use a q/t value of -2.8, based on the preliminary calibrative work by Deitrich. That calibrative work did include two watersheds from the Korbel HPA Group. The Services recognize that a SHALSTAB calibration study was not performed specifically for the Plan and that a greater log q/t value would capture a greater percentage of the landscape and therefore landslide occurrences as well. However the cost/benefit of requiring a greater log q/t value compared to that for other possible conservation measures, such as roads, was inefficient and discouraging for both the Services and Green Diamond. Rather, the Plan proposes the “off-the-shelf” use of SHALSTAB in conjunction with a suite of other conservation measures for hillslope stability and other potential sediment sources such as roads and harvest related ground disturbance. See, e.g., AHCP/CCAA Sections 6.2.3 and 6.2.4. The relative importance of the SHALSTAB model must be considered in that context of the Operating Conservation Program as a whole. The percent of the watershed in SHALSTAB areas and the sediment contribution from SHALSTAB areas for the pilot watersheds are modeled and summarized in AHCP/CCAA Appendix F3 and Tables F3-3, F3-4, and F3-5.

Regardless of the specific log q/t value, the Plan does not propose any specific or enforceable capture rate of landslide occurrences.

Triclopyr butoxyethyl ester, (tradename Garlon 4), is highly toxic to many fish species, including coho salmon.ⁱⁱ This species was listed as federally threatened in 1997, and in 2000, the National Marine Fisheries Service stated in its 4(d) Rules for Pacific Salmon that concentrations of pesticides may affect salmonid behavior and reproductive success. Current EPA label requirements were developed in the absence of information about some of these subtle but real impacts on aquatic species such as salmonids.ⁱⁱⁱ According to an unreleased study by the U.S. EPA’s Region X, the average 70-year-old Native American in the Pacific Northwest has 50 times the cancer risk of non-Native residents of the region due to the high rate of fish consumption by tribal people, combined with the high levels of toxic chemicals found in fish tissue.^{iv}

G2-9

The Department of Pesticide Regulation has found triclopyr contamination in one-third of samples taken after aerial spraying by Simpson Timber Company in the Klamath watershed, indicating that the chemical does contaminate surface waters.^v Although triclopyr is the most abundantly used forestry herbicide in Humboldt County—more than 15,000 pounds were sprayed on private timberlands in 1999 alone^{vi}—potential impacts of these applications to salmon and other aquatic species are not assessed by any agency, even though the evidence indicates the potential for harm exists. Triclopyr is highly toxic to fish in its ester form and is known to be highly toxic to coho salmon, according to the EPA’s 1998 reregistration eligibility decision for triclopyr.ⁱⁱ Given this information, we believe that the potential impacts of triclopyr to damage aquatic species, domestic water supplies, and other public resources should be included in any assessment of impact of timber harvest and management.

G2-10

Herbicide use following clearcutting and other types of even-aged management has been shown to have the potential to contaminate deer meat, another major component of the diet of many Yurok, Karuk, Hupa and Tsungwe people. According to research conducted in Oregon, glyphosate residues in deer meat were detected at levels higher than EPA limits for meat for more than 25 days.ⁱⁱⁱ Residues of TCP, the metabolite of triclopyr (Garlon 4®), has been found in meat, meat byproducts and fat.ⁱ Deer hunting is quite common on the U.S. Forest Service lands and private lands adjacent to the timberlands managed by Simpson. It is not unlikely that deer could move from sprayed areas to unsprayed areas, where an unsuspected hunter could kill and eat highly contaminated meat.

G2-11

In addition to concerns for fish and deer, and human consumption of contaminated meat, we also have concerns for plant residues that remain in berries and other plant tissues consumed by people and wildlife. The Department of Pesticide Regulation found that herbicide residues can remain in plant tissues for as long as 80 weeks,^{viii} yet impacts to those that consume contaminated plants have not been addressed.

G2-12

Tanoaks are the primary target for many forestry herbicide spray applications, particularly when spraying occurs in preparation for a THP or in the silvicultural method termed regeneration or rehabilitation. We have serious concerns over the killing of tanoaks due to its importance as a subsistence food for Native California tribes, and also as a major food source for deer, elk, and other wildlife. The increasing threat of Sudden Oak Death only deepens our concerns, since the disease has been discovered in Humboldt County and is now known to infect more than twenty native plant species, including redwood and Douglas-fir.

G2-13

Simpson also practices prairie conversion, in which prairies and oak woodlands are sprayed, plowed, and planted with conifer seedlings. Prairies and oak woodlands are known to be in decline statewide due

SHALSTAB is proposed merely as a screening tool to trigger specific field verification for headwall swale landforms by Green Diamond staff. SHALSTAB itself cannot identify headwall swales. Headwall swales can only be identified by direct observation. Headwall swale features outside SHALSTAB areas may be identified and protected as well (AHCP/CCAA Section 6.3.4.2.1). It is likely that most headwall swale type landforms in the Plan Area will be identified and managed accordingly since the entire Plan Area, including both inside and outside SHALSTAB areas, will incrementally be evaluated in the field through the THP process by appropriately trained personnel.

Response to Comment G2-11

Comments relating to herbicide use have been addressed in Master Response 4.

Response to Comment G2-12

Comment noted. However, no specific measures associated with health hazards from ultramafic rocks have been incorporated into the Plan.

Response to Comment G2-13

The area included in the Plan is primarily classified as commercial timberland. Included within the commercial timberlands are other associated land classifications such as rock quarries, roads, and prairies. The Services do not possess any information to suggest that the approval of the Permits result in prairie conversions.

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Response to Comment G2-14

See Master Response 4.

Response to Comment G2-15

See Master Response 8.2.

Response to Comment G2-16

See Master Response 4.

to fire suppression, and are essential habitats for many species of wildlife, including deer, elk, small mammals, and many birds including raptors, woodpeckers, eagles, and owls.

Although the pesticide regulatory program is a certified program under 14 Cal. Code Reg. § 15251 (i), no agency has taken responsibility for ensuring that native flora and fauna are protected from significant direct or cumulative impacts due to herbicide use. The majority of herbicide use on private timberlands in Humboldt County is conducted without any permit or review of local conditions and resources that could be impacted, including herbicide use by Simpson Timber Company.

Forestry Herbicides as Endocrine Disruptors

G2-14 Many forestry herbicide—including 2,4-D, glyphosate, and atrazine—are endocrine disrupting chemicals which have been linked to significant impacts on hormonal processes, including nitrogen fixation,^{ix} reproduction and behavior. Low levels of atrazine are suspected to be a factor in worldwide declines in amphibian populations, and these levels are realistic exposures that suggest that other amphibian species exposed to atrazine in the wild could be at risk of impaired sexual development.^x Certain chemicals can affect normal endocrine function and can substantially reduce some animal populations. According to the U.S Environmental Protection Agency,

It has been reported that exposure to certain chlorotriazine herbicides (i.e., atrazine) will induce a persistent estrous condition in rats and that this condition is responsible for the early onset of mammary gland tumors in rats fed diets containing the chlorotriazines during the first year of life... [I]t is clear that atrazine, and apparently several other chlorotriazines, can disrupt ovarian function in the adult female rat and that an endocrine mechanism is involved.^{xi}

Endocrine disruptors have also been linked to human birth defects, changes in gender of babies born to pesticide applicators, and cancer.^{xii, xiii}

Yurok Tribe Domestic Water Sources

G2-15 Potential contamination of domestic water supplies is of concern for both Native and non-Native residents of the region, especially in rural areas where many people rely on drinking water from springs and streams originating in forested areas. Water monitoring studies in the Hupa and Karuk territories found no detectable pesticides. Monitoring in the Yurok territory, which has the highest pesticide use of the three territories due to surrounding land use and ownership, has found contamination in nearly two-thirds of samples taken after aerial spraying.⁷ Furthermore, there is no established maximum contamination limit for triclopyr, even though the vast majority of Yurok tribal members rely on surface waters downslope from Simpson lands for domestic water supplies.

Concerns for Native American Subsistence and Traditions

G2-16 Many Native Americans in the region are at risk of exposure to pesticides in conjunction with subsistence activities. Traditional practices remain strong in indigenous communities in the region, and many Indian people rely heavily upon subsistence activities to sustain them. Local forests provide subsistence in the forms of food from both plant and animal sources, such as deer, fish, eel, berries, and acorns; medicinal herbs; and basketweaving materials, such as beargrass, hazel, willow, and ferns. For many, these native plants and animals not only provide a significant portion of their diet, but also

Letter - G2

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Response to Comment G2-17

As discussed above with regard to CEQA, the CFPRs (14 Cal. Code Regs. Section 895 et seq.), including Technical Rule Addendum No. 2, do not govern preparation of the EIS, approval of the Plan or issuance of the Permits. As discussed in previous responses, herbicide use is not a Covered Activity. The Plan is subject to review and approval under the Federal ESA and NEPA. No State agency approvals are being sought in relation to this project. Therefore, issues related to the CFPRs are not pertinent to the analysis here. However, regardless of whether the Plan and Permits are approved or not, Green Diamond's THPs will be subject to all applicable laws, including CEQA. The Plan and Permits do not relieve the applicant of any other regulatory or legal responsibility.. See Master Response 4.

provide the means by which to perpetuate their cultural traditions. Few of the twelve tribes retain a land base sufficient to carry out their entire gathering needs, and therefore must rely upon their aboriginal gathering areas, now owned by public and private entities, which subject them to pesticides.

Subsistence gatherers are at risk of exposure to forestry herbicides and their breakdown products in several ways. Basketweavers can be exposed to herbicides while gathering and processing plant materials, since they use their teeth to strip bark and to hold the materials while weaving. Gathering of plant materials for food or medicinal use in areas that have been sprayed can also result in exposure to residues. Hunting near areas that have been sprayed can increase the risk of exposure, since deer can easily move from sprayed areas to adjacent lands.

Many of the plants targeted by herbicide spray programs are in fact native plants that are used by local Native Americans for food, basketweaving, and medicinal purposes, including tanoak, alder, and buckbrush. Many other native plants are sprayed even though they are not specifically targeted. Native American uses of these native plants and animals are not only essential to the material existence of local tribes, but they are also an essential part of the Native cultural traditions. Without salmon, deer, tanoak, basketweaving plants, and other forest species, the cultural traditions of California Indians would not be possible.

G2-16

Cumulative Impacts Assessment

Since the potential for direct environmental effects to fish and deer populations related to herbicide use are not addressed in the proposed HCP, the cumulative impacts assessment required by the California Board of Forestry's Technical Rule Addendum No. 2 is inadequate. Furthermore, long-term effects of breakdown products and combinations of forestry herbicides and their "inert" ingredients have never been assessed in the environment in which these chemicals are applied.

G2-17

CIBA requests that all agencies and Simpson add CIBA to the mailing list for all notices related to this proposal.

Please include this letter and all references cited herein into the administrative record for the Simpson Resource Company Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement, Del Norte and Humboldt Counties, California.

Sincerely,

Jennifer Kalt
Resource Protection Associate
Northwestern Field Office

cc: Yurok Tribal Fisheries Department
Yurok Tribal Environmental Program
Karuk Department of Natural Resources
Karuk Tribal Fisheries Department

Letter - G2

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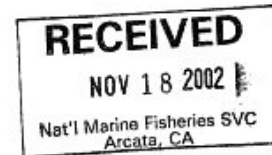
Hupa Tribal Fisheries Department
Tsunungwe Tribe
Californians for Alternatives to Toxics
California Department of Fish & Game
California Department of Pesticide Regulation
Environmental Protection Information Center
Humboldt Watershed Council
Klamath Forest Alliance
North Coast Regional Water Quality Control Board
North Coast Environmental Center

References:

- ⁱ Mineau, P., D.C. Boersma, and B. Collins. 1994. An Analysis of Avian Reproduction Studies Submitted for Pesticide Regulation. *Ecotoxicology and Environmental Safety* 29: 304-329.
- ⁱⁱ U.S. Environmental Protection Agency. Prevention, Pesticides, and Toxic Substances. 1998. Reregistration Eligibility Decision (RED): Triclopyr. Washington, D.C.
- ⁱⁱⁱ The ESA Proposed 4(d) Rules for Pacific Salmon. National Marine Fisheries Service, June 2000.
- ^{iv} U.S. EPA Region X, unreleased report cited by NewsChannel 8, Portland, OR. February 14, 2002.
- ^v Wofford, P. N. Bacey, and K.S. Goh. 2001. Surface Water Monitoring for Forestry Herbicides in the Yurok Aboriginal Territory of the Klamath River Watershed, Spring 2000.
- ^{vi} Department of Pesticide Regulation pesticide use database. Sacramento, CA.
- ^{vii} Payne, G. 1988. Pesticide residues in wildlife: Violating legal standards? *Journal of Pesticide Reform* 7: 18-19.
- ^{viii} Li, L.Y. 2002. Data Analysis of Forestry Herbicide Residues in Plants of Importance to California Tribes. Department of Pesticide Regulation. Sacramento, CA.
- ^{ix} Fox, J.E., M. Starcevis, K.Y. Kow, M.E. Burow, and J.A. McLachlan. Endocrine disruptors and flavinoid signalling. *Nature* 413: 128-129.
- ^x Hayes, T.B., A. Collins, M. Lee, M. Mendoza, N. Noriega, A.A. Stuart, A. Vonk. 2002. Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses. *Proceedings of the National Academy of Sciences* 99: 5476-5480.
- ^{xi} Crisp, T.M. 1997. Special report on environmental endocrine disruption: An effects assessment and analysis. U.S. Environmental Protection Agency, Washington, D.C. EPA/630/R-96/012
- ^{xii} Garry, V. F., M. E. Harkins, L. L. Erickson, L. K. Long-Simpson, S. E. Holland, and B. L. Burroughs. 2002. Birth Defects, Season of Conception, and Sex of Children Born to Pesticide Applicators Living in the Red River Valley of Minnesota, USA. *Environmental Health Perspectives* 110: 441-449.

Letter - G3. Signatory -American Lands Alliance.

November 12, 2002



TO: Amedee Brickey
US Fish & Wildlife Service
1655 Heindon Rd.
Arcata, CA 95521

James F. Bond
National Marine Fisheries Service
1655 Heindon Rd.
Arcata, CA 95521

FR: Daniel Hall
Director, Forest Biodiversity Program
American Lands

RE: **Comments on the Simpson Resource Company's Draft Habitat Conservation Plan, Draft Candidate Conservation Agreement, Draft Implementation Agreement, and Draft Environmental Impact Statement for the North Coast of California**

CC: Senator Barbara Boxer
Senator Dianne Feinstein
Representative Mike Thompson

We are writing to provide input on the Simpson Resource Co's draft Habitat Conservation Plan (HCP), draft Candidate Conservation Agreement (CCA), draft Implementation Agreement, and draft Environmental Impact Statement (EIS), for the Company's property in the North Coast region of California.

American Lands works with conservation organizations and citizens nationwide to protect and recover our wildlife and wild places. Our Forest Biodiversity Program promotes improved resource conservation and restoration on non-federal forestlands in the west, including through research, education, and encouraging more effective public policies and market incentives.

The HCP is required as mitigation for Simpson's proposed Incidental Take Permit, which will allow the company to kill, harm, degrade, or otherwise "take" threatened and endangered species and their habitats. CCAs also appear intended to function as HCPs for species which are imperiled but as yet unlisted. In particular, CCAs appear designed to provide landowners with "no surprises" guarantees for such species. The "take" permits associated with CCAs are known as Enhancement of Survival Permits.

American Lands ALLIANCE

Randi Spivak,
Executive Director

Daniel Hall,
Director, Forest
Biodiversity Program

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Todd Schulte
Center for Biological Diversity
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Organizations listed for identification purposes only.

Response to Comment G3-1

Regarding the CFPRs, see Master Response 7. Regarding the criteria for issuance of ESA Section 10 permits, see Master Response 8. A detailed description of the differences between the Proposed Action, other alternatives and the No Action Alternative is presented in EIS Table 2.7-1. Examples of measures that exceed the requirements of the CFPRs and provide additional protection for the covered species include:

- Within the outer zone of the Class I & II RMZ, at least 70 percent overstory canopy would be retained, except for Class I RMZs located below slope SMZs where 75 percent overstory canopy closure would be retained.
- Within the RMZs of Class I watercourses and the first 200 feet of Class II water courses, no trees would be harvested that are judged likely to recruit to the watercourse.
- During the life of the Permit, only a single harvest entry would occur into an RMZ except when cable corridors through an RMZ are necessary to conduct intermediate treatments.
- Timber harvesting would be prohibited within all Class I and 2nd order or larger Class II RMZ inner zones that are located below SMZs (i.e., RSMZs) (see AHCP/CCAA Section 6.2.2.1, as further described in AHCP/CCAA Section 6.3.2.1), except for purposes of creating cable-tying corridors when other options are impractical. Retention of a minimum 85 percent overstory canopy closure would be required in Class I and 2nd order or larger Class II RSMZ outer zones. In addition, no timber harvesting would be allowed within the entire RSMZ in

There are some positive elements to Simpson's proposed HCP/CCA. However, given our time limitations, we will focus our comments on areas where the HCP/CCA and its associated documents need to be improved to meet core biological, policy, and legal goals and requirements for HCPs, CCAs, Incidental Take Permits, Enhancement of Survival Permits and, of course, imperiled species' recovery.

General Comments

G3-1 We applaud Simpson for appearing to take the initiative to develop conservation measures for the covered species, i.e., chinook salmon, coast coho salmon, steelhead trout (which are listed as threatened), and cutthroat trout, rainbow trout, Southern torrent salamander, and tailed frog (which are currently unlisted). However, upon closer examination, it appears that the HCP/CCA's conservation measures barely expand upon those already required under the California Forest Practice Rules. These rules are widely known to be inadequate for the protection and recovery of the covered species. The HCP/CCA's conservation measures suffer from other problems discussed in detail below, including a failure to identify conservation measures needed for the covered species' recovery. Moreover, the HCP/CCA fails to utilize adequate monitoring and adaptive management, and along with the Implementation Agreement and its "no surprises" guarantees, is in fact designed primarily to preclude adaptive management and improvements to the HCP/CCA's conservation measures over time.

G3-2 As discussed further below, there is reason to think at the outset that many of the HCP/CCA's prescriptions are inadequate to avoid significant impacts to the covered species, their chances of survival, and their chances of recovery. For example, the HCP/CCA contains no measures designed to specifically protect the covered amphibians from the negative effects of timber harvest and other permitted activities, and will not generally be providing the older forest habitats associated with these species. Even if the plan's initial measures were adequate, history and common sense show that it is unrealistic and irresponsible to expect that measures which appear sufficient or properly designed today will continue to be sufficient or exactly what is needed half a century into the future. During such a time frame, it is inevitable that significant changes will occur in environmental conditions, in our knowledge of species' conservation needs, in the conservation status of different species, in available impact mitigation measures, in Simpson's forest management practices, etc.

Theoretically at least, these shortcomings could be addressed by identifying desired biological outcomes, and then using monitoring and adaptive management to ensure they are achieved over time. However, the HCP/CCA fails to identify biological conditions and outcomes which correspond to survival or recovery for each of the covered species. The HCP/CCA and its Implementation Agreement also severely constrain any improvements or supplementation which can be required of the HCP/CCA's mitigation measures through adaptive management or other processes, regardless of whether these changes are needed to address known initial shortcomings with the plan, foreseeable changing circumstances,

the Coastal Klamath and Blue Creek HPAs.

- Inventory of the road network every five years to ensure that management roads that are no longer needed for log transport or administrative access are changed to decommission status.
- Treatment of road-related sediment sources over the entire ownership and front-loading treatment of high- and moderate-risk sediment delivery sites by providing additional funding during the first 15 years of the Plan with treatment of all high- and moderate-risk sediment delivery sites by the end of the Permit period.
- Development of a response plan to large storm events that could result in major sediment inputs to stream channels.

The Plan also includes a substantial monitoring effort that includes effectiveness monitoring, response monitoring, population monitoring of some covered species, and an experimental watershed program as set forth in Plan Sections 6.2.5 and 6.2.7 and further described in AHCP/CCAA Sections 6.3.5 and 6.3.7. Conservation measures in the AHCP/CCAA can be changed over time through adaptive management based on the results of this monitoring. See AHCP/CCAA Sections 6.2.6, 6.3.6 and, specifically regarding the “feedback loop” connecting the monitoring program and the adaptive management program, see AHCP/CCAA Section 6.3.5.1.2. A process identifying the triggering and application of adaptive management measures and use of the Adaptive Management Reserve Account (AMRA) is described in AHCP/CCAA Section 6.3.6. See Master Response 15 regarding the AMRA. See also Response to Comments G3-2 through G3-57, which respond to the commenter’s specific comments on the AHCP/CCAA conservation measures, and response to Comment G10-57 regarding comparative analysis with CFPRs.

Response to Comment G3-2

The ESA requires that a conservation plan, *as a whole*, meet the requirements discussed in Master Response 8. In other words, the ESA does not require each specific measure to avoid impacts to species and habitats, but that the effect of the suite of measures together will meet the ESA requirements to minimize and mitigate the impacts of take to the maximum extent practicable and ensure that permitted take will not appreciably reduce the likelihood of survival and recovery of the species

in the wild. The habitat requirements of the covered species, as presented in AHCP/CCAA Section 3, represent the requirements of a suite of “cold-water adapted species” that all are sensitive to excess sediment inputs and benefit in a variety of ways to increased levels of LWD. Many of the conservation measures, such as those to reduce sediment inputs into streams (see, for example, the slope stability and road management measures in AHCP/CCAA Section 6.2.2 and 6.2.3), will benefit all of the covered species. Other measures, such as the Class II and III conservation measures along with the headwall swale measures are primarily designed to protect the amphibian covered species. Under the Plan, the RMZs will mature in age and size. See response to G3-4 relating to the maturing of RMZs under the Plan. AHCP/CCAA Sections 6.2.5 and 6.2.6 outline the monitoring program and adaptive management requirements. Adaptation is not expected to be unlimited [see the Five Points Policy, 65 Fed. Reg. 35242 (June 1, 2000)].

Response to Comment G3-3

Comments regarding whether Green Diamond should be required to attain biological goals and objectives have been addressed in Master Comment 12.

Response to Comment G3-4

See Master Response 8 regarding the ESA Permit issuance criteria; Master Response 12 regarding biological goals; and Master Response 6 regarding the relationship of this Plan to other HCPs. NMFS believes that the Plan does use “best available technology” for minimizing or mitigating impacts as required by Title 50 of the Code of Federal Regulations section 222.307(c)(1)(iv). For example, the monitoring techniques are current and credible and the road management measures and road assessment methodologies, based on Weaver and Hagens (1994), are best practices.

See Master Response 19 regarding assurances for unlisted species. The Services believe the conservation measures, adaptive management measures and triggers are sufficient to meet the issuance criteria for both the ITP and ESP. The Services provide assurances to land owners in recognition of two fundamental points: 1) implementation could provide many benefits for covered species and their habitats, including early protection for unlisted species and possibly, prevention of the need to list such a species in the future; and 2) existing laws often provide insufficient incentives for non-Federal landowners to include species conservation in their day-to-day management activities.

G3-2

problems with the plan’s measures which may not be foreseen, and other foreseen and unforeseen events and circumstances, even including changes in Simpson’s forest management practices.

G3-3

The HCP/CCA itself begins to acknowledge this problem, inasmuch as the Implementation Agreement describes the HCP/CCA as “prescription-based” and as *not* being expected to meet concrete biological goals for the covered species. This statement reveals a serious internal contradiction in the HCP/CCA and related analyses and planning documents. On the one hand, the HCP/CCA and related documents claim that the HCP/CCA’s conservation measures meet important conservation objectives for the covered species, and are sufficient to avoid “jeopardizing” their survival and recovery. On the other hand, the HCP/CCA is *not* required to actually produce concrete biological outcomes which correspond to the species’ survival and recovery.

G3-4

Put another way, one cannot rationally expect the HCP/CCA to be sufficient over time to avoid significant impacts to the covered species’ chances of survival, much less recovery, if the HCP/CCA does not identify biological outcomes which correspond to the species’ survival and recovery, if one does not require the HCP/CCA to produce these outcomes at different time frames, and if one does not require changes to the HCP/CCA which may be needed if these objectives are not being met. Unfortunately, this HCP/CCA and its Implementation Agreement do none of these things. In fact, many elements of the HCP/CCA and its Implementation Agreement are clearly designed to *preclude* these things.

Thus the HCP/CCA fails to meet ESA section 10’s issuance criteria for Incidental Take Permits that relate to species’ survival and recovery. Quite simply, an HCP/CCA which is not expected to meet biological goals corresponding to the covered species’ survival and recovery cannot be expected to avoid harming those species’ chances of survival and recovery. Moreover, because the HCP/CCA fails to include basic components for a scientifically valid HCP/CCA – biological goals that correspond to the covered species’ survival and recovery, sound initial mitigation measures designed to achieve these goals, monitoring and adaptive management provisions which ensure that the goals will actually be met over time, and landowner “assurances” provisions which do *not* preclude adaptive management changes -- the HCP/CCA fails to meet section 10’s other major issuance criteria: minimization and mitigation of the impacts of “take” to the “maximum extent practicable.” Similarly, the HCP/CCA fails to utilize the best available technology as required by the National Marine Fisheries Service’s (NMFS’) regulations for HCPs. It should also be noted that other HCPs for public and privately-owned commercial timberlands in the Western US *have* included some or all of these basic components.

It will be particularly inappropriate to provide Simpson with regulatory assurances in relation to tailed frog and Southern torrent salamander. As noted by the “no surprises” rule and Congressional intent for ESA section 10, unlisted species should only be covered by section 10 permits if they are addressed as if they were listed. However, the HCP/CCA has failed to do this. As discussed below, the HCP/CCA largely fails to provide mitigation measures specifically for tailed frog and Southern torrent salamander. As noted in HCP/CCA

The decision to include a proposed, candidate or other unlisted species in an HCP is a voluntary one made by a Permit applicant - not the Services. The amphibian covered species (tailed frog and southern torrent salamander) currently are unlisted. Even though incidental take coverage is not required for these species, Green Diamond has volunteered to include conservation measure and monitoring for these species. These conservation measures have been developed using the biological goals and objectives in the Plan (AHCP/CCAA Section 6.1).

Regarding old growth forests, several studies have reported that the covered amphibians have increased abundance in old growth forests relative to young forests, but no study to date has shown a dependence on old growth forests. As described in AHCP/CCAA Section 4.3.11, studies conducted within Green Diamond's ownership (Diller and Wallace 1996; 1999) indicate that these headwater amphibians are well distributed throughout the Plan Area (see Appendix C-11). Furthermore, they do not require old growth forests per se, but rather stream characteristics that are often more commonly found in old growth forests (i.e., cold water and "clean gravels"). These species have continued to persist throughout the Plan Area as a result of the combination of a cool coastal climate and favorable geology in much of the Plan Area. Furthermore, the conservation measures that specifically protect headwater streams - Class II, III and headwall swales (see AHCP/CCAA Sections 6.2.1.3 through 6.2.1.7) - would allow habitat conditions in these streams to continue to improve relative to current conditions. For example, the riparian areas for the majority of the Class II streams, where the covered amphibian species reside, would be made up of stands in excess of 100 years old by the end of the Permit term. The Plan does not have the objective to create old growth or late successional forests, because as previously stated, none of the covered species are directly dependent on these older forests. However, under the Plan, most of the streams would have riparian areas with late successional habitat characteristics by the end of the term of the Permits.

The Services believe the headwaters monitoring projects are designed appropriately to detect impacts to amphibians early on. The monitoring is a paired BACI design to provide for the most sensitive approach in detecting a management (harvesting) effect. If a significant effect is

detected, an assessment would be triggered (yellow or red light threshold) to determine how the impact should be corrected. See AHCP/CCAA Section 6.2.5.

Response to Comment G3-5

See the response to Comment G3-4. See also Master Response 15 regarding the adaptive management reserve account (AMRA).

Response to Comment G3-6

See Master Response 4. The monitoring as described above is designed to detect impacts to the covered amphibian species, that would result in significant changes to their population status, including environmental contaminants. However, it should be noted that covered amphibians do live in habitats with rapidly flowing water, which minimize the risk of significant exposure to these materials in contrast to amphibians in still-water habitats.

Response to Comment G3-7

As described in the Plan and EIS, the USFWS believes that the benefits to the covered amphibian species from Plan implementation would, if combined with conservation measures that could be applied on other similarly situated lands where these amphibians exist, contribute to their status sufficiently to avoid the need to list them under the ESA..

Response to Comment G3-8

The American Land Alliance's August 7, 2000, scoping letter has been incorporated. See response to Comments G3-98 through G3-193.

G3-4

Appendix D.1.6, tailed frogs are associated with late successional forests, and Southern torrent salamanders are heavily impacted by overstory removal. Other literature cited below also suggests that torrent salamanders are closely associated with old growth forests. Nevertheless, the HCP/CCA neither requires the maintenance of late successional forest conditions *anywhere*, nor does it adequately preclude overstory removal in upper stream reaches, seeps, and other important habitat areas for tailed frog and Southern torrent salamander, including in seeps and springs which have been impacted by past practices, which are lacking aquatic life, and which are thus not identified as class II waters. To the extent the HCP/CCA does include mitigation measures which may benefit the amphibians -- i.e., the HCP/CCA's riparian zone protections -- those measures are oriented towards the protection of lower stream reaches. Meanwhile, upper stream reaches are more important for amphibians, as noted by HCP/CCA figure 3-1 and Table 3-2. Moreover, as discussed below, the HCP/CCA's riparian zone protections allow larger and older trees to be logged in the majority of the riparian zones.

G3-5

Similarly, Congressional intent for ESA section 10 clearly indicated that HCPs were expected to benefit the covered species, in return for providing landowners with regulatory flexibility and assurances. However, Simpson's HCP/CCA does not require benefits to amphibians. In fact, flaws in the plan's monitoring and adaptive management thresholds could allow significant continued impacts to the species.

G3-6

The HCP/CCA also completely fails to address Simpson's likely use of herbicides and other chemicals which are likely to significantly impact tailed frogs and Southern torrent salamander, and their chances of survival and recovery.

G3-7

Thus it can not be reasonably concluded that the HCP/CCA minimizes and mitigates impacts to tailed frog and Southern torrent salamander to the maximum extent practicable, nor can it be reasonably concluded that issuance of a "take" permits for these species, based upon the measures provided in the HCP/CCA, would provide for these species' survival, much less their recovery.

G3-8

As discussed below, the HCP/CCA also fails to meet a number of other important biological and legal objectives and requirements for HCPs and CCAs and the recovery of the covered species.

The HCP/CCA and EIS also both fail to address many of the points raised in our scoping letter of August 7, 2000. Please note that we wish to incorporate our NEPA scoping letter into these comments by reference.

Given these problems, and those described in more detail below, we cannot support the issuance of an Incidental Take Permit or an Enhancement of Survival Permit to Simpson, particularly if "no surprises" type guarantees are associated with these permits. We urge the US Fish & Wildlife Service (USFWS) and NMFS (collectively, the Services) to correct the HCP/CCA's deficiencies before issuing these permits to the Company.

Response to Comment G3-9

See Master Response 19 regarding regulatory assurances and the treatment of unlisted species under CCAA/ESP as compared to an HCP/ITP. In addition, see EIS Section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8 regarding the Permit issuance criteria.

Response to Comment G3-10

Green Diamond is seeking take authorization for these species under ESA Section 10(a)(1)A). By definition, this section does not impose a “no take” standard. Instead, it provides authority for the Services to authorize incidental take and thereby grant an exception to the take prohibition in ESA Section 9 in the event these species become listed under the ESA during the term of the Permits. The issuance criteria for ESPs are listed in EIS section 1.3, AHCP/CCAA Section 1.4.1, and Master Response 8-- there is no requirement to “significantly enhance” a species’ chances of survival and recovery in these criteria, For example, populations of tailed frog and southern torrent salamander were well distributed across the Plan Area, and “significant enhancement” may not be required under the Plan to meet the ESP criteria.

Conservation and Permit Issuance Standards Which Should Apply to the Unlisted Species

The Services’ CCA regulations include some of the same conservation plan requirements and permit issuance standards required of HCPs and Incidental Take Permits. Inasmuch as this is the case, our comments that reference standards and requirements for HCPs will be equally applicable to the proposed CCA and Enhancement of Survival Permit. Examples include requirements to minimize and mitigate the impacts of “take” to the maximum extent practicable, and to avoid harming species’ chances of recovery, as well as their survival.

With regard to the unlisted species, the HCP/CCA should also be required to meet all other statutory, regulatory, and policy goals and requirements for HCPs, including the requirements of the Services’ HCP Handbook. To the extent that Simpson’s industrial forest management practices will “take” the covered unlisted species, it will be inappropriate and harmful to issue an Enhancement of Survival Permit for the covered species, particularly cutthroat trout, tailed frog, and Southern torrent salamander, unless the CCA also meets these other goals and requirements for HCPs.

To the extent that it is appropriate to give Simpson an ESA section 10 permit and associated regulatory assurances for these unlisted species, the permit and assurances should be accompanied by a conservation plan which, at a minimum, meets the ESA section 10 standards and the Services’ planning standards for HCPs. Likewise, the Services’ issuance criteria for such a plan should be the equivalent, at a minimum, to those for HCPs. HCPs are how Congress and ESA section 10 intended for the impacts of harm or “take” to imperiled species to be addressed, when permitting actions that may “take” imperiled species. The structure of ESA section 10 clearly suggests that permits for actions which may harm imperiled species are to be accompanied by mitigation plans, i.e., HCPs. Such permits are authorized by ESA section 10(a)(1)(B). Permits authorized by ESA section 10(a)(1)(A) are clearly for actions which only benefit, and do not harm imperiled species, since no mitigation plans are envisioned in connection with section 10(a)(1)(A), and since only enhancement of propagation and enhancement of survival activities are mentioned in 10(a)(1)(A).

As has been reflected in the final “no surprises” rule, Congress also intended for unlisted species to be addressed through ESA section 10 and covered by regulatory assurances only if they are addressed “as if listed.” Addressing them “as if listed” means developing an impact mitigation plan which meets all relevant requirements for HCPs, including the requirements of ESA section 10(a)(2), ESA section 7, the Services’ regulations for HCPs and other permits, and the Services’ HCP Handbook.

Simpson’s forest management operations are clearly likely to harm or “take” cutthroat trout, tailed frog, and Southern torrent salamander, and perhaps also rainbow trout. The potential for intensive industrial forestry practices like those employed now or potentially by Simpson to harm cutthroat trout and the amphibians is clearly indicated by information included in the HCP/CCA and related planning documents, the administrative records relating to cutthroat trout, and other scientific literature. Moreover, as discussed elsewhere in our comments,

G3-9

G3-10

Response to Comment G3-11

See Master Response 9 for response to comments regarding quantification of take.

Lands may be added to the Plan Area in accordance with AHCP/CCAA Section 1.3.2.3 and IA paragraph 11.2. To add commercial timberlands to the Plan Area within any of the 11 HPAs, Green Diamond would submit to the Services a description of the lands that it seeks to add, along with a summary of relevant biological and physical characteristics that such lands share with existing Plan Area lands in that HPA. Characteristics found relevant to planning and implementation of the Plan for each HPA have been described in AHCP/CCAA Section 4.4 and may include geology and geomorphology, climate, vegetation, habitat conditions (including water temperature, channel and habitat type, LWD inventory, and estuarine conditions), salmonid population estimates and covered species occurrence and status (see also Master Response 3.7 and 3.11 regarding the conditions on lands in the HPAs that could be added to the Plan Area in the future). The IA limits expansions of the Plan Area under this process to an additional 15 percent of the Initial Plan Area.

Based upon the analysis of the HPAs provided in the Plan, it is presumed that all commercial timberlands within each HPA in the Eligible Plan Area share similar relevant characteristics and, therefore, that adding such lands to the Plan Area during the term of the Permits will not likely result in adverse effects on the covered species different from those analyzed in connection with the original Plan Area. If the disagree that the relevant characteristics of the proposed lands within the HPAs proposed for

G3-10



Simpson is not likely to be significantly enhancing the amphibians' chances of survival and recovery; in fact, the HCP/CCA would allow significant impacts to tailed frog and Southern torrent salamander. Cutthroat trout are also equally or more sensitive to habitat modifications resulting from industrial forestry operations as the other covered salmonids, which are also expected to be "taken" by Simpson.

Adequacy of Conservation Planning and Impact Mitigation -- Impact Assessment

Requirements:

The NMFS regulations for HCPs state that HCPs must describe the HCP and Incidental Take Permit's anticipated impacts, including the amount, extent, and type of "take," as well as the anticipated impact on habitats and the likelihood of habitat restoration.¹

Sierra Club et al v. Bruce Babbitt et al found that HCPs need to determine how many individuals of affected species will be "taken," how many individuals will remain, what the distribution of the species is throughout its remaining habitat, and how this relates to the species' minimum viable population.²

Comments:

The HCP/CCA fails to meet these requirements.

The HCP/CCA's planning documents and Implementation Agreement also incorrectly assume that any timberlands which Simpson may purchase and request to include in the HCP/CCA and "take" permit will be similar to the original plan area, in terms of their ecological conditions and the impacts that will result from Simpson's management. While other timberlands in the area which have been managed by commercial timber companies may indeed be in a condition similar to those held by Simpson, Simpson could also potentially purchase other forestlands which are more ecologically intact, such as those which may be held by non-industrial private forestland owners in the area.

G3-11



Requirement:

The effects of likely future changes in environmental conditions, including those related to climate change, must be accounted for.

Comments:

The HCP/CCA largely fails to plan for future changes in environmental conditions, including those which may occur as a result of human-induced climate changes.

G3-12



addition to the Plan Area are sufficiently similar to existing Plan Area lands, the Services and Green Diamond will confer in good faith and pursue the informal dispute resolution mechanisms set forth in IA paragraph 13.6 in an effort to reach an agreement. Until concurrence is reached, such lands proposed by Green Diamond for inclusion will not become part of the Plan Area except pursuant to the formal amendment process set forth in IA paragraph 12.

Response to Comment G3-12

The Plan and IA do consider other changes in conditions that may occur over the term of the Plan and Permits [see, e.g., changed circumstances (AHCP/CCAA Section 6.2.9 and 1A paragraph 9) and unforeseen circumstances(AHCP/CCAA Section 6.2.10 and IA paragraph 4.3)]. The comment does not provide any information to explain how a cumulative impact could result from future changes in environmental conditions that might occur as a result of human-induced climate change, or provide a basis to conclude that any such change should be evaluated further here; such potential impacts are not reasonably foreseeable.

Response to Comment G3-13

The Plan and EIS pertain to ESA sections 10(a)(1)(A) and 10(a)(1)(B). Requirements under ESA section 7 will be addressed in the Services' biological opinions for the issuance of the ITP and ESP.

Response to Comment G3-14

The starting point for evaluation of potential effects is the baseline condition. The baseline is discussed in Master Response 1 and AHCP/CCAA Section 2, and is used as a point of comparison in the evaluation of the No Action Alternative in the EIS (see EIS Section 2.1 and, e.g., EIS Sections 4.22 and 4.4.2). Regarding the Plan's biological goals and objectives, the Services believe that "Explicit biological goals and objectives clarify the purpose and direction of the HCP's operating conservation program. They create parameter and bench marks for developing conservation measures, provide the rationale behind the HCP's terms and conditions, promote and effective monitoring program, and, where appropriate, help determining the focus of an adaptive management strategy....Biological goals provide broad, guiding principles for and HCP's operating conservation program and the biological goals are the rationale behind the minimization and mitigation strategies." (65 FR 35251). The "maximum extent practicable" ITP issuance criterion pertains to minimizing and mitigating the impacts of take, not the biological goals and objectives. Finally, the Services have determined that issuance of the ITP and ESP will not appreciably reduce the likely hood of survival and recovery of any of the covered species in the wild.

G3-13

G3-14

Requirement:

Under ESA section 7, the Services must, for each of the covered species, evaluate the cumulative impact of each form of "take" authorized by the Incidental Take Permit, across the plan area, across the larger ecological region, and across each of the species' ranges. The effects of other "take" authorizations on public and private lands must also be accounted for, as must other activities which may affect the covered species. The cumulative effect of the permitted activities in the plan area and across the species' ranges must be evaluated relative to conditions associated with each of the species' survival, and with each of the species' recovery.

Comments:

The HCP/CCA and EIS fail to adequately meet these requirements. The planning documents' cumulative effects analyses are quite cursory, and fail to account for impacts occurring outside the immediate plan area, including within the larger ecological region, and within the covered species' ranges. The analyses also completely fail to address impacts to the covered amphibian species, tailed frog and Southern torrent salamander. The analyses also fail to compare the outcomes of the HCP/CCA and other activities with outcomes that would correspond to the recovery and survival of each of the covered species.

Adequacy of Conservation Planning and Impact Mitigation – Biological Goals

General Comments on Biological Goals and Objectives:

The HCP/CCA's biological goals and objectives do not provide a sufficient basis for a biologically or legally adequate HCP or CCA. The plan's goals and objectives are extremely simplified and vague, fail to address a host of specific population and habitat variables, are not defined to the maximum extent practicable, do not include indicators and outcomes which correspond to the species' recovery, and are not sufficient to ensure that cumulative impacts to the species' survival and recovery are avoided.

Many of the goals and objectives are defined relative to current conditions, rather than conditions clearly associated with specific species' survival and recovery needs. Given that historical and current land management practices and habitat conditions are not sufficient for the species' survival and recovery, it is highly unlikely that objectives defined solely in relation to current conditions will adequately provide for the covered species' survival, much less recovery. Even the objectives for monitoring and adaptive management are defined relative to current conditions, meaning that these provisions will not function to address shortcomings in the plan's other goals, objectives, and conservation measures.

Response to Comment G3-15

The compliance of the Plan and Permits with the ESA Section 10 approval criteria is discussed in Master Response 8. Biological goals and objectives have been discussed in AHCP/CCAA Section 6.1 and Master Response 12. To meet the statutory criteria for approval of an HCP/ITP, Green Diamond’s conservation program must: (i) minimize and mitigate the impacts of authorized incidental take of covered species that may result from Covered Activities to the maximum extent practicable and (ii) ensure that any such taking will not appreciably reduce the likelihood of the survival and recovery of such species in the wild. While these statutory criteria themselves are biological in nature, NMFS and USFWS have issued an Addendum to the HCP Handbook (the “Addendum” also is referred to as the “Five Points Policy”) calling for an HCP to identify specific biological goals and objectives based on the Proposed Action that necessitates incidental take Permit issuance and the conservation needs of the covered species. As the Services explained in proposing the Addendum, the “biological outcome of the operating conservation program for the covered species is the best measure of the success of an HCP” (64 Fed. Reg. 11585). Further, the Service stated (at 65 Fed. Reg. 35251):

Explicit biological goals and objectives clarify the purpose and direction of an HCP’s operating conservation program. They create parameters and benchmarks for developing conservation measures, provide the rationale behind the HCP’s terms and conditions, promote an effective monitoring program, and, where appropriate, help determine the focus of an

G3-14

Requirements:

Specific, measurable biological goals and objectives must be identified for each of the covered species, and address target population levels, and all specific habitat components and conditions which are associated with each of the species’ recovery.

G3-15

Comments:

The HCP/CCA fails to meet these requirements with regard to each of the covered species.

G3-16

Specific, verifiable outcomes are not identified in relation to most habitat components and conditions for the covered species.

G3-17

The water temperature objective appears to be defined relative to current conditions and watershed sizes, and does not appear to be defined relative to specific objective conditions associated with each of the covered species’ conservation needs.

G3-18

Population targets are only provided for the amphibian species, and even then, they are identified relative to current conditions, not to population levels associated with the species’ survival or recovery. The amphibian population targets are also defined only in terms of percentages of area units in which amphibians are found, meaning that the presence of only one amphibian per unit area might be sufficient to meet the objective, even though this might correspond to a highly depressed population. The lack of objectives which correspond to specific habitat conditions needed by the covered amphibians also means that the presence of amphibians at any given time could also be a false indicator of their viability, since the degradation of habitat conditions may have a delayed impact on population levels.

G3-19

The large woody debris (LWD) objective fails to require provision of debris of sizes historically found in the planning area, i.e., sizes associated with habitat conditions required by the covered species. The objective also fails to require provision of source trees for woody debris on steep, unstable slopes, in headwall areas, along intermittent streams, and other areas which normally serve as sources of LWD into stream channels. Rather, the HCP/CCA simply requires source trees in the narrow riparian buffers along major stream channels. However, given the steep slopes found in the plan area, this means that trees falling into the stream channel will often span the channel well above the stream bed, and fail to provide the desired ecological function.

Requirements:

“Biological objectives are the different components needed to achieve the biological goal such as preserving sufficient habitat, managing the habitat to meet certain criteria, or ensuring the persistence of a specific minimum number of individuals.” “Biological

adaptive management strategy. . . Biological goals provide broad, guiding principles for an HCP's operating conservation program and the biological goals are the rationale behind the minimization and mitigation strategies.

The Addendum guides how biological goals and objectives are to be included in HCPs. Under this policy, one of the two ways is to structure an HCP using a prescription-based approach in which biological goals and objectives guide the development of specific measures that are included in the operating conservation program. In other words, under a prescription-based HCP, the measures are specific and enforceable, and the goals and objectives provide guidance. Green Diamond has elected to structure its Plan as a prescription-based HCP. The AHCP/CCAA Section 6.2 sets forth the specific conservation measures that are based on the Plan's biological goals and objectives. The AHCP/CCAA Section 6.3 supplements the Operating Conservation Program with further discussion of the intent, rationale and analysis that underlie the specific conservation measures and commitments outlined in AHCP/CCAA Section 6.2.

Response to Comment G3-16

The role of biological goals and objectives in a prescription-based HCP is not to provide "specific verifiable outcomes," but rather to guide development of specific measures that have been included in the operating conservation program (see response to Comment G3-15 and Master Response 12).

Response to Comment G3-17

Water temperature objective is appropriately targeted at the covered species' conservation needs. As discussed in response to Comments G3-15 and G3-16 and in Master Response 12, biological goals and objectives in a prescription-based plan guide development of specific measures that are included in the operating conservation program. Further, as the Services explained in the Addendum: "In the context of HCPs, biological goals are the broad, guiding principles for the operating conservation program of the HCP. They are the rationale behind the minimization and mitigation strategies. For more complex

HCPs, biological objectives can be used to step down the biological goals into manageable, and, therefore, more understandable units" (65 Fed. Reg. 35251).

As set forth in AHCP/CCAA Section 6.1.2.1, one of the intended results of Green Diamond's Operating Conservation Program is to "[m]aintain cool water temperature regimes that are consistent with the requirements of the individual species." This goal is "stepped down" in the summer water temperature objective set forth in AHCP/CCAA Section 6.1.2.2.1 and is designed to address the needs of the covered species. Together, the biological goal and objectives guided development of the riparian management and other specific measures set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2).

Response to Comment G3-18

As set forth in AHCP/CCAA Section 6.1.2.1, one of the intended results of Green Diamond's Operating Conservation Program is to "[a]llow for the maintenance or increase of populations of the amphibian covered species in the Plan Area through minimization of timber harvest-related impacts on the species." This goal is "stepped down" in the two-part amphibian population objective set forth in AHCP/CCAA Section 6.1.2.2.3; the objective of having no measurable impact on the population, along with a percentage presence, is a credible objective for the amphibian species. Together, the biological goal and objective guided development of the riparian management and other specific measures set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2). As explained in AHCP/CCAA Section 4 and Appendix C of the Plan, certain characteristic habitat types in each of the HPAs and certain existing factors appear to be limiting the survival and recovery of the covered species, their habitats or the proper functioning of healthy aquatic/riparian ecosystems. With this and the biological goals and objectives in mind, the conservation measures in the Operating Conservation Program have been developed to address these constraints.

Response to Comment G3-19

See Master Response 18. The data provided in the Plan indicates that the lack of the larger sizes of LWD is one of the key potential limiting

factors in the Plan Area. The riparian conservation measures (AHCP/CCAA Section 6.2.1) are specifically designed to allow for retention and maximum growth of those trees that have the greatest potential to provide functional LWD. However, without active intervention (e.g., direct placement of LWD in the streams), nothing can be done beyond retaining these riparian trees and allowing them to grow with the expectation that some of them will recruit to the stream. Further, the slope stability measures (AHCP/CCAA Sections 6.2.2 and 6.3.2) specifically provide for retention of trees on unstable slopes and headwall areas. The Services believe the LWD measures in the Plan are sufficient, particularly when considered in the context of the Plan as a whole.

Response to Comment G3-20

The quoted selections from the Addendum assume that this is a results-based HCP. However, Green Diamond's Plan is prescription-based. See response to Comment G3-15 and Master Response 12.

G3-20

Response to Comment G3-21

The quoted selections from the Addendum assume that this is a results-based HCP. However, Green Diamond's Plan is prescription-based. See response to Comment G3-15 and Master Response 12.

Response to Comment G3-22

Consistent with a prescription-based approach, the Plan's biological goals and objectives guide the development of specific measures that are included in the Operating Conservation Program. See response to Comment G3-15 and Master Response 12. Further, as explained in AHCP/CCAA Section 4 and AHCP/CCAA Appendix C, certain characteristic habitat types in each of the HPAs and certain existing factors appear to be limiting the survival and recovery of the covered species, their habitats or the proper functioning of healthy aquatic/riparian ecosystems. With this and the biological goals and objectives in mind, the conservation measures in the Operating Conservation Program (AHCP/CCAA Section 6.2) have been developed to address these constraints.

G3-21

G3-22

objectives should include the following: species or habitat indicator, location, action, quantity/state, and timeframe needed to meet the objective."³

Comments:

The HCP/CCA fails to meet most of these requirements. No timeframes are identified for meeting the plan's objectives for large woody debris, summer water temperatures, monitoring and adaptive management, and amphibians. Specific, measurable outcomes are not identified for most of the habitat conditions and parameters associated with the covered species and their recovery. As discussed above, adequate population and habitat targets are not identified for most of the covered species. Generally no locations are identified in relation to the goals and objectives.

Requirements:

"...each covered species that falls under that goal or objective must be accounted for individually as it relates to that habitat."⁴

Comments:

The HCP/CCA fails to provide goals and objectives specific to each of the covered species. Even where there are objectives specific to the amphibian species, they are so generalized as to not account for differences between the amphibian species and their conservation needs.

Requirements:

"The biological goals and objectives of an HCP are commensurate with the specific impacts and duration of the applicant's proposed action."⁵

Comments:

The HCP/CCA's biological goals and objectives are extremely vague and cursory, despite the fact that the HCP/CCA and "take" permit provide the applicant with regulatory assurances for 50 years -- or longer -- over an area of roughly half a million acres. (While the initial plan term is for 50 years, the Implementation Agreement allows the plan and its regulatory assurances to be extended for indefinite periods.) Nor do the goals and objectives correspond to specific conditions associated with the covered species' recovery, despite the plan's extensive and even indefinite duration. The goals and objectives are also not commensurate with the potential impact of the applicant's permitted land management activities, many of which have the potential to extirpate the covered species in the planning area.

Response to Comment G3-23

See Master Response 8.2.

Response to Comment G3-24

The concept of “measurable verifiable outcomes” is addressed in response to Comment G3-16.

G3-23

Requirements:

“...the Services will ensure that the biological goals are consistent with conservation actions needed to adequately minimize and mitigate impacts to the covered species to the maximum extent practicable.”⁶

Comments:

The plan’s goals and objectives are not defined to the maximum extent practicable, and do not include measures which correspond to mitigation measures which would offset impacts to the covered species to the maximum extent practicable.

Requirements:

Sierra Club et al v. Bruce Babbitt et al found that current data on species’ conditions and recovery needs must be used.⁷

Comments:

Population levels and habitat conditions and parameters associated with each of the covered species’ recovery are not identified, nor are they reflected in the plan’s goals and objectives. To the extent that any measurable and verifiable outcomes are identified in the plan’s goals and objectives, they typically are defined in relation to current conditions in the plan area, and are not necessarily defined in relation to conditions associated with the species’ survival or recovery.

G3-24

Adequacy of Conservation Planning and Impact Mitigation – Extent and Quality of Mitigation

Requirements:

ESA section 10(a)(2)(B)(ii) requires HCPs to minimize and mitigate the impacts of “take” to the “maximum extent practicable.”

NMFS’ rules for permits also state that the Administrator will consider whether the best available technology was used for impact minimization and mitigation.⁸

The Services’ HCP Handbook states that if the landowner cites economic considerations as the reason for failing to utilize an alternate land management approach, then the landowner must provide supporting economic information, unless it is proprietary.⁹

The Services must analyze and document whether the HCP has indeed minimized and mitigated “take” to the maximum extent practicable.¹⁰ The Services’ HCP Handbook also requires the Services to consider the cost of additional mitigation, the benefits of additional

Response to Comment G3-25

See Master Response 8 for information on the ITP issuance criterion of minimizing and mitigating the impacts of taking to the maximum extent practicable.

Best Available Technology

NMFS includes consideration of the use of “best available technology” for minimizing or mitigating impacts as one of the criteria for issuance of an ITP (50 C.F.R. Section 222.307(c)(1)(iv)). The measures included in the Operating Conservation Program are based on the best available information and the Services believe that the best available technology was employed here; therefore, the Plan meets the ESA approval criteria.

Economic Data

The Services’ guidance for implementing ESA Section 10, the HCP Handbook (at 7-3), recognizes that the Services’ consideration of the mitigation program proposed by a Permit applicant is based on two factors: First, the adequacy of the minimization and mitigation program and, second, whether it is the maximum that the applicant can practically implement and that the two considerations are not to be given equal weight:

“To the extent maximum that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, less emphasis can be placed on the second factor. However, particularly where the adequacy of mitigation is a close call, the record must contain some basis to conclude that the proposed program is the maximum that can be reasonably

mitigation, the amount of mitigation provided by other landowners, and the landowner’s own abilities.”¹¹

In the Natomas HCP case, the court agreed that the Services must consider HCP alternatives which would provide higher levels of mitigation than the proposed HCP, stating that “...the most reasonable reading of the statutory phrase “maximum extent practicable” nonetheless requires the Service to consider an alternative involving greater mitigation.” The court also found that the Services must have some basis for finding that higher levels of mitigation aren’t practicable, stating that “...the record should provide some basis for concluding, not just that the chosen mitigation fee and land preservation ratio are practicable, but that a higher fee and ratio would be impracticable.”¹²

Comments:

None of the preceding requirements have been met. The HCP/CCA clearly fails to mitigate and minimize impacts to each of the covered species to the maximum extent practicable. The plan also fails to use the best available technology. Simpson has also failed to provide economic data supporting the conclusion that more effective conservation measures would not be practicable. The EIS and HCP/CCA analyses also fail to adequately and independently examine the question of whether Simpson has used the most effective conservation measures practicable.

The HCP/CCA’s mitigation measures are heavily dependent upon measures for riparian zone buffers. However, the HCP/CCA’s riparian buffer measures are dramatically weaker and less sufficient for the covered species’ survival and recovery than riparian buffer measures included in other recent HCP’s and “take” permits approved for industrial forestry operations in the region, demonstrating that the HCP/CCA has not mitigated impacts to the covered species to the maximum extent practicable. The Pacific Lumber HCP, for example, provided the following measures: Class I streams: inner, no-harvest buffer to 100 ft.; outer, single-tree-selection-only buffer to 170 ft. Class II streams: inner, no-harvest buffer to 30 ft.; outer, single-tree-selection-only buffer to 130 ft.; outer, equipment-exclusion zone to 170 ft. Class III streams: 30 ft. no-harvest buffer; outer, equipment exclusion zone to 50 to 100 ft.

The HCP/CCA’s mitigation measures are also substantially weaker and more simplified than those employed in another HCP recently developed by Simpson for its timberlands in the Olympic Peninsula. Whereas the Olympic Peninsula HCP developed stream buffers and other mitigation measures which were tailored to a number of important variables for stream types and habitat conditions, the proposed HCP/CCA adopts a “one size fits all” approach that is far less likely to account for important variations in stream types and conditions.

Using longer timber rotations (i.e., allowing each timber stand to grow longer and reach more of its productive potential before being logged) across timber harvest units

G3-25

G3-26

G3-27

G3-28

required by that applicant. This may require weighing the costs of implementing additional mitigation, benefits and costs of implementing additional mitigation, the amount of mitigation provided by other applicants in similar situations and the abilities of that particular applicant.”

The requirement to minimize and mitigate the impacts of the taking is not calibrated primarily in terms of dollars; instead, the key consideration is whether impacts of take have been minimized or mitigated to a level of non-significance. Recognizing that the ESA does not require Permit applicants to affirmatively recover species (see discussion in Master Response 8), NMFS determined, consistent with the HCP Handbook, that the proposed mitigation program meets the threshold established in ESA Section 10(a)(2)(B)(ii).

The ESA does not prescribe specified mitigation measures for all HCPs. In fact, the HCP Handbook recognizes (at page 7-3) that it is the applicant’s decision which particular measures to propose. The Services are, however, responsible for determining whether the measures proposed meet the ESA standard to minimize and mitigate the impacts of take to the maximum extent practicable. In other words, the ESA does not direct NMFS to decide whether Green Diamond has proposed “the most effective” measures as the comment suggests, but only that the measures satisfy the ESA standard. The minimization and mitigation measures set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2) satisfy the ESA Section 10(a)(2)(B) standard.

Response to Comment G3-26

The Plan’s riparian management measures have been set forth in AHCP/CCAA Section 6.2.1. NMFS believes that these measures, when implemented together with the other provisions of the Operating Conservation Program (AHCP/CCAA Section 6.2), will minimize and mitigate the impacts of take to the maximum extent practicable (see Master Response 8). The ESA requires that a conservation program, as a whole, minimize and mitigate the impacts of take to the maximum extent practicable - it does not require that a proposed plan duplicate, equal or exceed the measures included in previously-approved plans on

a measure-for-measure basis (see Master Response 6, regarding comparison to the Pacific Lumber Company HCP). Many of the riparian protection measures in the Pacific Lumber Company HCP listed by the commenter are interim measures which can change throughout the Permit period as a result of watershed analysis and adaptive management requests by the permittee.

Response to Comment G3-27

See response to Comment G3-26. The Plan describes the covered species and their habitats in AHCP/CCAA Section 3, describes covered species and their habitats in the Plan Area in Section 4, describes potential impacts to covered species and habitats that may result in take in Section 5, proposes an Operating Conservation Program that provides conservation benefits by addressing the particular existing factors that appear to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystems in Section 6 and, in Section 7, assesses the conservation strategy’s effectiveness in meeting the purposes of the Plan. Based on species-specific, habitat-specific and area-specific inquiry and assessment, a conservation program tailored to meet those specifics, the Plan’s approach is far from “one size fits all.”

See Master Response 6, regarding comparison to the Pacific Lumber Company HCP. The same reasons apply to the comparison of the Green Diamond Northwest HCP with the Green Diamond California HCP. The key is whether the HCP as proposed meets the ITP approval criteria. The Plan is not required to duplicate other HCPs in order to meet these criteria.

Response to Comment G3-28

The Services do not believe that requiring longer rotations is needed to further minimize and mitigate impacts of take for the ITP species under the Plan. In addition, Green Diamond’s Plan, and application for the ITP and ESP, were based upon a 50-year rotation. The Services do not have the authority to select which measures a Permit applicant includes in its Plan, but only to determine if those proposed by the applicant meet the ESA Permit issuance criteria, which are discussed in AHCP/CCAA Section 1.4.1 and Master Response 8. The Services believe that, as a whole, the Plan meets these criteria.

Response to Comment G3-29

See responses to Comments C4-24 and G3-28.

Green Diamond satisfies State Law MSP obligations by meeting the requirements established in an MSP Plan developed under “Option A” of the CFPR Section 913.11 (see EIS Section 1.6.3.2). Further, although the AHCP/CCAA does not mandate a specific rotation age, Green Diamond must comply with maximum sustained productivity requirements under State law, independent of its obligations under the Plan. State law generally requires timber stands to reach the 50 year age class prior to regeneration harvest.

Response to Comment G3-30

As discussed in the response to Comment G3-26 and 27, ESA section 10(a)(1)(B) does not require that a conservation program to copy measures included in previously-approved HCPs on a measure-for-measure basis, but that the conservation program, as a whole, meets the criteria for issuing the Permits. Just as the approaches identified in the comment meet ESA requirements for the specific species, habitats and conditions of those HCPs, the approach proposed in this Plan’s Operating Conservation Program is appropriate for this Plan, these species and this Plan Area. See AHCP/CCAA Section 3 for a description of the covered species and their habitat, Section 4 for a discussion of the Plan Area and Section 6.2 for the Operating Conservation Program.

Response to Comment G3-31

See Master Response 8 and response to Comment G3-30.

G3-28

can substantially reduce cumulative watershed impacts (including from logging, road use, and chemical applications), allow for the development of more mature forest habitats, while also maintaining and potentially increasing timber yields, wood quality, and timber revenues, per acre, per year. At a minimum, rotations which reach culmination of mean annual increment (CMAI) should be used to maximize timber productivity. It should be noted that the use of commercial thinning can also extend the timeframe during which CMAI occurs, allowing for even longer rotations to be practicable and beneficial.¹³

G3-29

The discussion in section 2.4 of the HCP/CCA indicates that Simpson will be clearcutting its timber stands on rotations of 55 years. This falls well below CMAI for coastal redwood, and likely also below CMAI for Douglas fir and other commercial timber species in much of the plan area. Thus Simpson and its HCP/CCA are not maximizing timber production, and are missing opportunities to reduce watershed impacts and improve habitat conditions for the covered species, while maintaining and even improving timber quantity and quality. It should also be noted that the HCP/CCA does not actually require Simpson to use rotations of *any* particular length -- under the HCP/CCA, Simpson could choose to employ rotations much shorter than 50 years.

G3-30

Several existing HCPs explicitly require longer timber rotations or other improved silvicultural methods, further demonstrating their practicability. The Elliott State Forest HCP uses 80 to 240 year timber rotations and maintains significant late successional reserves above and beyond its narrow stream buffers. While the Elliott State Forest is public land, it is managed principally to generate revenue for the State, and is thus comparable to other commercial ownerships. The Port Blakely HCP also uses 70 year timber rotations, versus the 40 to 50 year industry norm for the area. Other non-industrial landowners and some industry landowners are also using selection forestry, longer timber rotations, tree-pruning, production of edible mushrooms and other nontimber forest products, and other strategies to make improved forest and habitat management cost-effective. The Yakima Indian Nation’s conservation plan and agreement with the USFWS also provides a point of comparison. The plan includes substantial reserve areas, maintains northern spotted owl populations, focuses on selective logging, and has relatively thorough monitoring provisions. Simpson’s HCP uses none of these approaches.

G3-31

Other HCPs have also used more comprehensive and rigorous monitoring and adaptive management protocol. Examples include the Plum Creek Timber Co’s Inland Fish HCP, and the Washington Department of Natural Resource’s HCP. While sometimes still flawed, these other HCP’s approaches are nevertheless more rigorous than Simpson’s.

G3-32

Simpson is also using clearcutting and even-aged forestry as the predominate silvicultural method when selection forestry is quite silviculturally and economically

Response to Comment G3-32

The commenter seems to be asking why an alternative that utilizes uneven-aged management was not developed and selected. In large part, such an alternative would not be consistent with Green Diamond's needs. Other significant factors in Green Diamond's analysis and planning included the tree species mix and environmental and physical conditions that affect growth and productivity. The conifers of primary economic value on Green Diamond's lands are coast redwood and Douglas-fir, which require substantial direct sunlight to grow rapidly at young ages. On the basis of the unique growing conditions in the region and the long-term management approach implemented by Green Diamond, the continued use of even-aged regeneration tools are necessary to support Green Diamond's management and business objectives. Further, even-aged management is key to the implementation of Green Diamond's achievement of maximum sustained production on their lands. To meet Green Diamond's needs, the Plan must be consistent with Green Diamond's management and productivity objectives that are based on their extensive site-specific and regional analysis and reflected in these various planning templates.

Furthermore, requiring a different silvicultural system as a new or additional measure in the Plan would not be necessary. The selection of specific prescriptions is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role in designing the conservation program is to "be prepared to advise" during the development of the Plan and to judge its consistency with the ESA approval criteria once the application is complete (HCP Handbook at 3-6 and 3-7). The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria are discussed in AHCP/CCAA Section 1.4.1 and Master Response 8. As explained in Master Response 8, the Services believe that the Plan, including its management approach, meets ESA section 10(a) approval criteria. Under these circumstances it would not be appropriate to require Green Diamond to change its silvicultural system.

Response to Comment G3-33

This comment is addressed in response to Comment G3-25.

Response to Comment G3-34

See response to Comment G3-25 and Master Response 8.

Response to Comment G3-35

See Master Response 18.

Conservation measures to maintain the riparian function in Class-III watercourses are set forth in AHCP/CCAA Section 6.2.1.5 and are described in greater detail in AHCP/CCAA Section 6.3.1.3. These measures include provisions for equipment exclusion (to minimize soil disturbance), existing LWD retention (to mitigate sedimentation), burning (to minimize bare soil exposure), as well as special provisions for Class-III watercourses with SSS, which are described as Tier B Protection Measures.

Class-III, Tier B Protection Measures are triggered by the gradient of slopes leading to a Class-III watercourse, depending on HPA (or initial default HPA Group). The slope gradient thresholds for the various initial default HPA Groups are the same as for SSS conservation measures, which were developed from empirical data from sites within the Plan Area. Compared to the other HPAs, the threshold gradients for Class-III, Tier B Protection Measures are the lowest in those HPAs that are dominated by poorly consolidated geology. Therefore, the conservation measures are sensitive to geologic conditions. Class-III, Tier B Protection Measures include wider equipment exclusion and ignition prohibition zones, existing LWD retention, hardwood and sub-

G3-32

practicable for the forest types found in much of the plan area, and can significantly reduce impacts.

G3-33

The planning documents do not include an analysis of whether the best available technology was used, and will not serve as an adequate basis for NMFS' determinations.

G3-34

The planning documents include virtually no analyses of Simpson's financial capacity or limitations on adopting more effective mitigation measures, and cannot serve as an adequate basis for the Services' determinations. The documents also lack an analysis of the potential costs and benefits of adopting more effective mitigation measures.

Requirements:

The HCP must include mitigation measures which provide each of the covered species with a high probability of recovery of resilient and abundant populations, and with fully functioning habitat conditions needed to support their recovery. ESA section 10 and the Congressional intent for section 10 clearly require that HCPs and Incidental Take Permits avoid harming species' chances of recovery, in addition to their chances of survival.¹⁴

Comments:

G3-35

The HCP/CCA relies heavily on riparian buffer zones to minimize and mitigate impacts to the covered species. Unfortunately, these zones are too narrow and poorly protected to adequately mitigate impacts from the intensive forest management operations permitted upslope and in the riparian zones themselves. Buffer zones with meaningful protection measures are absent for all practical purposes on class III streams. Protection measures for unstable and steep slopes do not include slopes above class III streams, meaning excessive and damaging levels of slides and sediment will likely be carried into class III streams and, in turn, class II and I streams.

G3-36

The HCP/CCA's buffer zones for class I streams are only 150 ft. Zones for class II streams are only 70 to 100 ft. Zones for class III streams range from 30 to 50 ft. While these widths may sound substantial, much of the plan area is characterized by steep slopes, as noted by the HCP/CCA. Since the HCP/CCA's buffer widths are measured on the slope, their actual horizontal distance will be considerably shorter. As noted below, buffer widths need to be considerably wider to provide full riparian ecological function for the covered species. Windthrow impacts to the outer portion of the riparian buffers are also likely to render the HCP/CCA's narrow buffers even less effective.

G3-37

In some particular areas, the HCP/CCA requires some additional buffering where steep unstable slopes extend beyond the normal riparian zones. However, these limited situations will likely not be sufficient to provide adequate full riparian

merchantable conifer retention except as necessary to safely fall or yard merchantable trees, and merchantable conifer retention where such trees act as control points or contribute to maintaining bank stability, and one retained merchantable conifer per 50 feet of stream length.

Additionally, AHCP/CCAA Section 6.2.2.2 provides conservation measures for Headwall Swales in the Plan Area. Such landforms are characterized as steep convergent slopes within steep valleys upstream of Class III watercourses, where accumulation of thick soils and shallow subsurface run-off tend to be concentrated. Such landforms can also be found above Class II watercourses, depending on local conditions. Default conservation measures for field verified headwall swales are individual tree selection with even spacing of retained trees, retention of all hardwood and only one entry to such landforms during the term of the Permits.

Response to Comment G3-36

See Master Response 18.

Response to Comment G3-37

See Master Response 18 and the “likelihood to recruit” provision in AHCP/CCAA Sections 6.2.1.2 and 6.2.1.4. This provision is expected to insure that all the trees that are the most likely to recruit and become functional LWD must be retained. Factors which would be used to consider which trees will be retained as “likely to recruit” are shown in AHCP/CCAA Section 6.1.2.5. As a result of these considerations, most of the largest trees that are also likely to recruit will be retained. It will be possible to take a few large trees out of the RMZs if they have a low probability of recruiting to the watercourse. See Master Response 5 regarding “likelihood to recruit.”

Response to Comment G3-38

Master Response 18 discusses why the RMZ conservation measures provide equal or possibly greater LWD benefit than no-harvest buffers. The Plan gives redwoods priority for harvesting because the root mass does not die when a redwood is cut down. The few trees that Green Diamond would be allowed to harvest in the RMZ will act as a commercial thinning action. The Services believe that this should accelerate the growth of the remaining trees, some of which eventually will recruit to the stream as LWD. Also, as explained in Master Response 8, the Services believe that the Plan, taken as a whole, meets the ESA Section 10(a) approval criteria, and that it is not necessary or appropriate to require additional measures on this subject as a condition of Permit approval.

Response to Comment G3-39

Southern torrent salamanders may occur in locations of unconsolidated geology. Additional protective measures for Class III watercourses are not proposed in these areas. The selection of specific prescriptions, including whether to include additional protective measures for Class III watercourses, is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role during the development of a conservation program is to "*be prepared to advise,*" and to judge its consistency with the ESA approval criteria as a whole once the application is complete (HCP Handbook at 3-6 and 3-7). The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria have been discussed in AHCP/CCAA Section 1.4.1, EIS Section 1.3 and Master Response 8. The Services believe, based on the analysis

G3-37

function across the landscape. Moreover, the HCP/CCA's prescriptions allow the largest trees within steep slope management zones to be logged, defeating the areas' natural function as a source of LWD.

G3-38

The HCP/CCA fails to include any no-harvest buffer zones along streams, with the limited exception of inner zones in areas with particularly steep slopes. All buffer zones normally allow substantial logging, and allow the largest trees to be removed, defeating objectives for the recruitment of large woody debris (LWD). The HCP/CCA also states, in the context of class I streams, that redwoods will be given priority for logging, meaning that the trees which would ultimately provide the most durable LWD will not be allowed to mature and become LWD.

G3-39

The HCP/CCA's buffer zones for class II streams also fail to cover the entire stream reach in some cases.

G3-40

The HCP/CCA's buffer zones for class III streams also fail to require adequate retention of mature trees and other trees for the recruitment of LWD. In fact, no vegetation need be retained whatsoever on class III streams targeted for "tier A" measures.

G3-41

The HCP/CCA also fails to require the identification of streams which currently lack aquatic life, and are thus normally classified under the California Forest Practice Rules as class III, but which would normally support aquatic life were it not for past and/or current forest management impacts, and which therefore should be classified as class II streams, to provide for the recovery of the covered species.

G3-42

The HCP/CCA fails to identify and protect seeps and springs which would normally support Southern torrent salamander and other aquatic life, but which currently do not due to the impacts of past or current logging and forest management practices. Only seeps which are found to support aquatic life are identified as class II waters. Other seeps receive no protection. Section 3.2.2 of the HCP/CCA notes the importance of seeps to Southern torrent salamander.

G3-43

The HCP/CCA's riparian buffers are far weaker than those identified as being necessary for the covered species' survival and recovery, or even to simply avoid "take" of salmonids. According to NMFS' EIS for the Pacific Lumber HCP, full mitigation of "take" of salmonids would require no-harvest stream buffers of 340 ft. on each side of class I streams, 170 ft. on class II streams, and 100 ft. on class III streams.¹⁵

G3-44

USDA FS et al (1993), Huntington (1998), Pollock et al (1998), and the Draft EIS for the Pacific Lumber Headwaters HCP (USFWS et al (1998)) all indicate that buffer widths approaching two site potential trees (roughly 340 ft., depending on site) are necessary to *begin* providing microclimate effects and habitat for riparian species.¹⁶ Amphibians and reptiles comprise a large portion of the ecosystem in all water

provided in the Plan and EIS, that implementation of the Operating Conservation Program meets ESA requirements.

Response to Comment G3-40

Green Diamond's studies on Class III and headwater streams (described in AHCP/CCAA Appendices C4 and C11) indicate that mature trees do not necessarily become functional LWD in Class III watercourses. Mature trees in the headwater streams tend to be too large and span the small channels without providing any LWD benefit to the channel. Much of the functional wood in these headwater streams can be provided by limbs and other logging debris from the timber harvest. Tier A Class IIIs are only EEZs, because Green Diamond's studies indicate that they are not sensitive to the impacts of tree removal. See Master Response 18 regarding riparian widths..

Response to Comment G3-41

See response to Comment G3-42.

Response to Comment G3-42

This statement presumes that many seeps and springs that historically supported salamanders no longer do so. Historical unregulated timber harvesting impacted many headwater streams, but studies done within the Plan Area and described in the Plan (Diller and Wallace 1996) indicate that seeps and springs were comparatively less impacted. These data indicate that many of these features are less sensitive to management activities, because they are generally disconnected from roads, skid trails and other headwater streams that have the potential to transport sediment to the site.

In addition, this statement incorrectly assumes that southern torrent salamanders and other aquatic life must be present before Class II protection is provided to a seep or spring. AHCP/CCAA Section 6.3.1 indicates that for a feature to be given Class II designation, it is only necessary to have habitat for aquatic vertebrates, not species presence. Even if the aquatic vertebrate life had been eliminated by the direct effects of past management activities, habitat for aquatic life will still be

present at a seep or spring and the site will be classified as Class II and be provided with the commensurate protections.

Response to Comment G3-43

Green Diamond is seeking take authorization for the listed covered species under ESA Section 10(a)(1)(B). By definition, this Section does not impose a "no take" standard. Instead, it provides authority for the NMFS to authorize incidental take and thereby grant an exception to the take prohibition in ESA Section 9 and applicable regulations when the Services determine that the applicant's proposal meets the ITP issuance criteria.

Riparian buffer widths and management within them are discussed in Master Response 18. See response to Comment G3-26 regarding the ESA benchmark for an adequate HCP. Regarding comparison with the Pacific Lumber Company HCP in particular, see Master Response 6.

Response to Comment G3-44

See Master Response 18 regarding riparian widths and Master Response 6 regarding the relationship of this AHCP/CCAA to other HCPs. In addition, the literature that is cited by the commenter is not specifically relevant to the Plan Area. For example, a reference is made to Rudolph et al. (1990). This publication, in The Southwest Journal, states that amphibian and reptile populations are lower in aquatic habitats with narrow buffer widths. However, no evidence for this in coastal regions of the Northwest has been cited and the Services are unaware that any exists. Evidence provided in the Plan indicates that the covered amphibian species will be adequately protected by implementing the proposed conservation measures.

Response to Comment G3-45

The commenter does not define “intermittent and ephemeral streams”, but the comment seems to imply that all intermittent and ephemeral streams will not receive protection. Most streams that are “intermittent” in the sense of having discontinuous flow (i.e., portions with subsurface flow) will be classified as Class II streams, because they commonly support southern torrent or Pacific giant salamanders. Streams that are “intermittent and ephemeral” in the sense of completely drying up during portions of the year may be given Class II or III protection depending on the length of time that they are dry. Those that only dry up during the late summer and fall will be generally classified as providing habitat for aquatic vertebrates and given Class II protection. If a watercourse is dry most of the year, it will be given Class III protection. Determinations will be done on a case-by-case basis.

Those intermittent and ephemeral streams that receive Class II protection are not expected to have adverse effects on downstream habitat, because of the riparian buffers provided. Those that are classified as Class III watercourses will not have adverse effects on water temperatures downstream, because they do not carry water most of the year when water temperatures could potentially become excessive. The primary potential downstream effect from these Class III watercourses is related to sediment transport. However, the Class III protection measures (AHCP/CCAA Sections 62.1.5 through 6.2.1.7) along with slope stability measures (AHCP/CCAA Section 6.2.2) are designed to minimize and mitigate the effects of this potential impact.

G3-44

G3-45

G3-46

G3-47

systems and are an integral part of the food web. Adverse effects to amphibian and reptilian populations can lead to adverse impacts on aquatic species such as salmon and trout. Changes in microclimate conditions can alter the ecosystem of the riparian environment for amphibians, reptiles, and other plant and animal species. Buffer widths that allow increased direct and indirect solar radiation into the riparian zone will increase air temperature and decrease relative humidity in that area. If these measurements move beyond the tolerance levels of terrestrial riparian flora and fauna, these species may perish or be forced to find other suitable habitat to complete their life cycle. Rudolph et al (1990), for example, reported amphibian and reptile populations were significantly lower in aquatic habitats with narrow buffer widths (<30 meters) than those with wider buffer strips due to greater shading (i.e., less solar radiation and lower air temperatures) and open understory vegetation.¹⁷

The HCP/CCA’s measures for intermittent and ephemeral streams are particularly likely to be inadequate for water quality, downstream fish habitat, and amphibians, invertebrates, and other aquatic and riparian species. Intermittent streams normally provide important nutrients and food sources for fish and aquatic systems. Conversely, when impacted by logging and roading, these streams can significantly affect stream temperatures, sedimentation, hydrology, and other conditions downstream. The importance of intermittent, upslope streams to downstream fish habitat conditions is noted in USFWS (1999), NMFS (1998), and Reid et al (1999), as well as in NMFS’ critical habitat notices for Oregon Coast coho and Upper Columbia steelhead.¹⁸

The HCP/CCA’s narrow, inadequately protected, and -- in the case of class III streams -- virtually nonexistent riparian buffer zones will also likely lead to adverse impacts to amphibian populations. The resulting lack of forest cover means that evapotranspiration rates are likely to increase with increasing air temperature and may contribute to a lowering of the groundwater table and soil moisture content. This may prematurely dry up intermittent streams, depriving flora and fauna of an important water source during the dry season. Intermittent streams also provide important primary habitat for a number of amphibians and other species, including species that do not tend to utilize larger streams as frequently.¹⁹ Equally important, roading, logging, and other operations within and adjacent to intermittent streams is likely to lead to significant amounts of erosion and sediment loading in downstream channels, including areas needed for salmon spawning and other functions.

The HCP/CCA also fails to provide habitat conditions associated specifically with torrent salamanders. Torrent salamanders require stable soils and microclimates (i.e., cold water, and rocky or gravelly substrate without fine sediment) which are created and maintained in mature to old-growth forests (Nordstrom, 1997). Torrent salamanders are associated primarily with old-growth forest (>250 years) more often than mature, young, or clear-cut forests (Grialou et al., 2000; Bury et al. 1991; Carey, 1989; Bury and Corn, 1988b; Mierza, 1988; Bury, 1983). Carey (1989) found the abundance of torrent salamanders in old-growth forest streams ten times greater than

Response to Comment G3-46

See Master Response 18. Further, uniformly, studies ranging in focus from agriculture to forest hydrology indicate that the removal of vegetation reduces evapotranspiration and increases soil moisture (AHCP/CCAA Section 5.2).

Response to Comment G3-47

There are a variety of functions performed by riparian zones and that a mix of conifer and deciduous trees provides for a fully functioning riparian system. It is acknowledged that conifers are particularly important to provide large and long-lasting LWD. This function of the riparian zone is addressed by the “likely to recruit” language (see AHCP/CCAA Section 6.2.1.2.5). In addition, AHCP/CCAA Sections 6.2.1.2.3 and 6.3.1.1.1 identify the minimum conifer retention standards, which preclude harvesting conifers when the stand is predominately made up of deciduous trees. See Master Response 5 regarding “likelihood to recruit.”

Response to Comment G3-48

Green Diamond is seeking take authorization under ESA Section 10(a). By definition, this Section does not impose a “no take” standard. Instead, it provides authority for the Services to authorize incidental take and thereby grant an exception to the take prohibition in ESA Section 9 and applicable regulations when the Services determine that the applicant’s proposal meets the ESA approval criteria.

As discussed in the response to Comment G3-26 and elsewhere, the ESA benchmark for an adequate HCP is that the conservation program minimizes and mitigates any impacts of take to the maximum extent practicable, not that its riparian protection measures meet or exceed those contained in other sources of restrictions on a measure-for-measure basis. The CFPRs are discussed in Master Response 7. Here, implementation of the Operating Conservation Program as a whole satisfies the ITP requirement to minimize and mitigate the effects of taking to the maximum extent practicable.

Response to Comment G3-49

As discussed in the response to Comment G3-26 and elsewhere, the ESA benchmark for an adequate HCP is that its conservation program minimize and mitigate any impacts of take to the maximum extent practicable, not that its measures for seeps, springs and other important riparian areas meet or exceed other sources of restrictions on a measure-for-measure basis. Here, implementation of the Operating Conservation Program as a whole

G3-47

in streams in closed canopy managed stands. As discussed elsewhere, the HCP/CCA fails to provide old growth forests, and in most cases, allows larger and older trees to be logged from the HCP/CCA’s riparian buffers.²⁰

G3-48

As indicated by Table 2.7-1 in the draft EIS, the HCP/CCA’s riparian zone measures are not substantially different than those currently required by the California Forest Practice Rules (CFPRs), i.e., the “no action” alternative. As noted in the listing decisions for the covered fish species and various other documents, the CFPRs are quite insufficient to avoid “take” of the covered fish species, and are thus incompatible with the species’ survival and recovery. HCP/CCA mitigation measures which closely resemble the CFPRs are also unlikely to be sufficient for the covered species’ survival, much less recovery.

G3-49

The HCP/CCA’s measures for seeps, springs, and other important riparian areas are also likely to be quite inadequate. USDA FS et al (1993) and USDA FS et al (1994) recommend no-harvest buffers of 1 to 2 site potential trees (i.e., roughly 170 ft. to 340 ft.) around different types of non-stream riparian areas.²¹

G3-50

To its credit, the HCP/CCA does begin to recognize the need to protect headwall swales and some other special areas. Whether the measures for these areas are sufficient is another question.

G3-51

As discussed above, the HCP/CCA and Implementation Agreement incorrectly assume that any forestlands which may be purchased by Simpson and subsequently included in the HCP/CCA and “take” permits will be in an equally degraded condition as Simpson’s existing forestlands. In fact, Simpson could purchase forestlands from non-industrial private forestland owners or other landowners who have managed their lands in a more balanced fashion and retained better quality habitats for the covered species. Inclusion of such properties in the HCP/CCA and “take” permits would allow significant, unmitigated impacts to habitats for the covered species, and would thus negatively impact those species and their chances of survival and recovery.

G3-52

The HCP/CCA also fails to minimize and mitigate direct and indirect impacts to the covered species, their habitats, food sources, etc., from the application of herbicides and other chemicals. Section 2.4.3 of the HCP/CCA indicates that Simpson is not seeking a “take” permit for chemical applications; however, the HCP/CCA and its mitigation measures do not preclude Simpson from applying herbicides and other chemicals. While we would applaud Simpson if indeed the company planned to rely solely on non-chemical means of vegetation control, we suspect this is not Simpson’s intention. In fact, the draft EIS specifically indicates that Simpson *will* be using herbicides for vegetation control.

G3-53

Because Simpson’s likely chemical applications will occur in the same areas covered by the “take” permits, and will likely impact the species and habitats covered by the permits, it will be difficult to distinguish between effects on the covered species’

satisfies the ITP requirement to minimize and mitigate the effects of take to the maximum extent practicable.

Response to Comment G3-50

Comment noted.

Response to Comment G3-51

See response to Comment G3-11.

Response to Comment G3-52

Consideration of the direct and indirect, individual and cumulative effects of herbicide use is addressed in Master Response 4.

Response to Comment G3-53

See response to Comment G3-6.

The Operating Conservation Program (AHCP/CCAA Section 6.2) is designed to address impacts of take in both younger and older forest stands. The measures are designed to satisfy the approval criteria for the Plan as a whole. The commenter gives no rationale for the assertion that impacts would be different in older forest stands with regard to the covered species.

Response to Comment G3-54

With the exception of cable rows that may be cut during commercial thinning, the riparian conservation measures only allow for a single entry into the riparian zones (see AHCP/CCAA Sections 6.2.1 and 6.3.1). During the time of entry at least 70 percent overstory canopy will be retained even in the outer zones. This is equivalent to a light commercial thinning that does not change the character of the forest, but rather stimulates the remaining trees to grow and achieve mature or old growth characteristics. As shown in Figure 7-2 of the AHCP/CCAA, the amount of older forest will increase so that by the end of the Plan period, the riparian stands will be composed of approximately 2/3 51-100 and 1/3 100+ year old stands.

Response to Comment G3-55

AHCP/CCAA Section 1.4.3 notes that the term of Green Diamond's NSO HCP is 30 years. The measures in the Plan that the Services expect primarily to benefit the covered amphibian species do not rely on the continuation of the NSO HCP to be successful.

G3-53

populations and habitats resulting from the covered activities versus effects resulting from chemical applications. Thus it will be inappropriate and arbitrary to overlook mitigation measures needed for chemical applications. Amphibians are known to be especially sensitive to chemicals; it would be arbitrary and capricious to overlook likely impacts to tailed frog and Southern torrent salamander.

As noted below, the HCP/CCA may also fail to mitigate impacts to older forest stands found in the plan area, leading to additional significant, unmitigated impacts on the covered species' chances of survival and recovery.

Requirements:

Sierra Club et al v. Bruce Babbitt et al recently held that replacement habitat must be provided for habitat destroyed pursuant to ITPs.²²

Comments:

G3-54

Table 2-2 of the HCP/CCA indicates that the plan area currently includes 11,921 acres of timber stands over 100 years old, and 18,729 acres between 81 and 100 years old. Since not even the HCP/CCA's riparian management zone prescriptions preclude the logging of larger and older trees, it is likely that all or most of these older forest stands will be logged under the HCP/CCA. Moreover, since all of the covered species and particularly tailed frog are known to be more abundant and successful in watersheds characterized by older, mature forest conditions, the logging of these older forest stands will significantly impact the covered species. Nevertheless, the HCP/CCA fails to provide any impact minimization or mitigation measures for the logging of these older forest stands. No replacement habitats are required.

G3-55

If these older forest stands are protected under Simpson's existing HCP for Northern spotted owl, the extent and duration of this protection should be clearly indicated in the proposed HCP/CCA. Otherwise, it should be assumed that these stands will be clearcut. However, even if these older forest stands are protected to some extent under Simpson's existing HCP, they should also be protected by the proposed HCP/CCA, since Simpson could choose to terminate its existing HCP at any time, and since failure to protect these older forest stands will likely impact the species covered by the proposed HCP/CCA.

Requirement:

Adverse modification of any listed species' critical habitat must be avoided.

Response to Comment G3-56

See response to Comment G3-45.

Response to Comment G3-57

See response to Comment G3-42 regarding seeps and springs.

The Services believe that the measures included in the Operating Conservation Program (AHCP/CCAA Section 6.2) are adequate to address the biological needs of the covered amphibian species if these species actually were listed under the ESA.

There is no evidence provided by the commenter suggesting that invertebrates will decrease as the result of the Permit approval and implementation of Plan measures. The Services are not aware of any food habit studies carried out in the region, thus, at the present time any assessment of foraging ecology for these covered amphibians is highly conjectural.

Response to Comment G3-58

As discussed in response to Comment G3-15, this is a prescription-based Plan in which the biological goals and objectives guide the development of specific measures that are included in the operating conservation program (see Master Response 12). Further, monitoring and adaptive management together form a key component of the Plan's science-based approach to management. The Plan proposes a wide variety of monitoring projects to evaluate the implementation and the overall effectiveness of the Operating Conservation Program and to allow for changes to the Plan as necessary through its adaptive management measures (see AHCP/CCAA Sections 6.2.5 and

G3-56

Comments:

The HCP/CCA allows substantial impacts to riparian and aquatic habitats along smaller and intermittent stream sections which are part of the designated critical habitat for the covered salmonid species.

Requirement:

Any unlisted species "covered" by the conservation plans and any regulatory assurances must be addressed and conserved as thoroughly and specifically as if they were listed, as was expected by Congress when ESA section. 10 was drafted, and as is required by the "No Surprises" rule.

G3-57

Comments:

The HCP/CCA fails to provide mitigation measures for important habitat areas for the amphibians covered by the HCP/CCA. For example, the HCP/CCA's mitigation measures fail to consistently protect seeps and springs, despite their importance to Southern torrent salamanders. Seeps and springs which would normally provide habitat for amphibians, but which are not currently utilized by aquatic species due to historical or current forest management impacts, are not classified as class II waters, and do not receive buffer zones and protective measures. The HCP/CCA also fails to provide mitigation measures for terrestrial and aquatic invertebrates that provide important food sources for the covered amphibians. The HCP/CCA's mitigation measures are also heavily geared to lower stream reaches. However, as noted in the HCP/CCA's discussion of the species' habitat requirements, and in our preceding comments, upper stream reaches are often equally or more important to amphibians.

G3-58

Adequacy of Implementation Measures -- Monitoring

Requirements:

According to the Services' HCP Handbook, "monitoring is a mandatory element of all HCPs."²³ The Services' HCP Handbook states that an HCP's monitoring provisions should be as specific as possible and be commensurate with the project's scope and the severity of its effects.²⁴ The Handbook also states that "the scope of the monitoring program should be commensurate with the scope and duration of the operating conservation program and the project impacts."²⁵

Comments:

The HCP/CCA's monitoring protocol are designed around the plan's biological goals and objectives -- which are themselves fundamentally oversimplified and inadequate,

6.2.6). Implementation monitoring projects will focus on evaluating and documenting Green Diamond's implementation of and compliance with this Plan, have been described in Section 6.3.7 and have been set forth in Section 6.2.7. Effectiveness monitoring would focus on measuring the success of both individual and collective conservation measures (see AHCP/CCAA Sections 6.2.5 and 6.3.5, and Appendix D of the Plan).

Response to Comment G3-59

The provisions set forth in AHCP/CCAA Section 6.2.6 establish a framework to address uncertainty associated with Plan implementation over the term of the Plan and Permits.

The commenter is correct in that IA section 6.5 provides for an extension beyond the initial Permit term.

Response to Comment G3-60

Regarding the quantification of incidental take, see Master Response 9.

Although the Permits allow incidental take of the covered species, the Plan was designed to minimize and mitigate the impacts of incidental take on the ITP species and it is expected that take will be minimal. There is no monitoring tool that would allow one to effectively monitor an event that is spatially and temporally highly disjunct. However, the effectiveness monitoring measures (AHCP/CCAA Section 6.2.5) are designed to monitor population levels and habitat of the covered species. The commenter correctly notes that the monitoring provisions include monitoring of habitat conditions. In fact, all relevant habitat variables will be monitored that are known to be influenced by the covered activities (see AHCP/CCAA Section 2) and have a potential to result in a significant negative impact on the covered species. For this reason, the Services believe that the provisions of the Plan's monitoring program (see also AHCP/CCAA Section 6.2.7 Implementation Monitoring Measures), are consistent with the HCP Handbook's recommendations for monitoring.

G3-58

as discussed above. Thus the monitoring requirements are equally inadequate, and must -- along with the plan's goals and objectives -- be supplemented substantially.

G3-59

The plan's monitoring requirements are also not commensurate with the very long duration of the HCP/CCA. The plan's initial duration is for half a century. The plan can also be extended for indefinite periods of time.

Requirements:

According to the Services' HCP Handbook, "the Services and the applicant must ensure that the monitoring program provides information to: (1) evaluate compliance; (2) determine if biological goals and objectives are being met; and (3) provide feedback information for an adaptive management strategy, if one is used."²⁶ The Handbook further states that "the monitoring program should reflect the measurable biological goals and objectives. The following components are essential... (1) Assess the implementation and effectiveness of the HCP terms and conditions....; (2) determine the level of incidental take of the covered species; (3) determine the biological conditions resulting from the operating conservation program....; and (4) provide any information needed to implement an adaptive management strategy, if utilized."²⁷

Population levels and specific habitat components for each of the covered species must be monitored on a regular basis. According to the Services' HCP Handbook, "effects and effectiveness monitoring includes, but is not limited to, the following: 1. Periodic accounting of incidental take that occurred in conjunction with the permitted activity; 2. Surveys to determine species status, appropriately measured for the particular operating conservation program (e.g., presence, density, or reproductive rates); 3. Assessments of habitat condition; 4. Progress reports on fulfillment of the operating conservation program (e.g., habitat acres acquired and/or restored); and 5. Evaluations of the operating conservation program and its progress toward its intended biological goals."²⁸

The Services' HCP Handbook states that monitoring must be sufficient to detect trends in species' populations.²⁹

Comments:

G3-60

The HCP/CCA's monitoring provisions are not sufficient to monitor the level of incidental take which will be occurring for each of the covered species. While the plan does include some monitoring of the species' populations over time, monitoring of habitat conditions fails to account for the full range of relevant and important habitat parameters, including food sources, water quality (in terms of chemical pollution), etc. Because impacts to habitat conditions may take some time to be reflected in population levels, yet will also often be lasting, it is important to monitor both population levels and habitat conditions.

Response to Comment G3-61

As discussed in response to Comment G3-58, effectiveness monitoring efforts would measure the success of both individual and collective conservation measures, have been set forth in AHCP/CCAA Section 6.2.5, and have been described in Section 6.3.5 and Appendix D of the Plan. As discussed in response to Comment G3- 15, Comment G3-58 and others, in a prescription-based plan such as this one, the biological goals and objectives guide the development of specific measures that have been included in the Operating Conservation Program (see Master Response 12). In turn, the Plan as a whole must meet the ESA section 10 issuance criteria for ITPs and ESPs which are listed in EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8. Further, the ESA does not require that ITPs recover species.

Response to Comment G3-62

The Services believe that implementation of the Operating Conservation Program as a whole, including the stream temperature monitoring provisions, will result in improved habitat conditions in the Plan Area over the term of the Plan and Permits.

The methods used for monitoring temperatures are adequate for monitoring whether the Plan conservation measures relating to stream temperatures are effective. AHCP/CCAA Section 6.2.5.5 states that the “red-light” thresholds for property-wide temperature monitoring has a maximum criterion of 17.4°C as established for Class I and II watersheds under 10,000 acres. As stated in AHCP/CCAA Section 4.4.1.1, of the 400 Class I temperature profiles developed within Green Diamond’s ownership since 1994, 93.8percent were or are at or below the 17.4°C threshold. This

G3-61

The HCP/CCA’s effectiveness monitoring provisions are not designed to assess whether the plan is providing for the recovery of each of the covered species. Similarly, the plan’s provisions are not designed to assess whether impacts to each of the species’ recovery opportunities are being prevented. Thus the plan’s effectiveness monitoring provisions are fundamentally flawed and inadequate.

G3-62

With one exception, the plan’s stream temperature monitoring requirements do not monitor absolute temperatures, nor do they measure temperatures relative to conditions associated with the recovery of the covered fish and amphibian species. Instead, they typically monitor temperatures relative to watershed size or to existing conditions -- conditions which are often already heavily degraded and not sufficient for the species’ survival, much less recovery. Thus potential monitoring results showing that stream temperatures are not worsened by Simpson’s activities under the HCP/CCA and “take” permits will not be sufficient to determine that the species’ continued survival is not being jeopardized, or that the species’ chances of recovery are not being compromised. As indicated in Appendix C of the HCP/CCA, current stream temperatures at a significant number of sites are already well above those temperatures which, according to HCP/CCA section 3.3.2.2.1, comprise healthy habitats for tailed frogs and Southern torrent salamanders.

G3-63

In the one case where the temperature monitoring references an absolute temperature (17.4° Celsius), this temperature is significantly above the range used by tailed frogs and Southern torrent salamanders (2° to 15.5° Celsius and 10° to 16° Celsius for tailed frogs and Southern torrent salamanders, respectively, as indicated by HCP/CCA section 3.3.2.2.1) and is well above the average temperature used by Southern torrent salamander (12.5° Celsius, according to Simpson and HCP/CCA section 3.3.2.2.1).

G3-64

Similarly, the population monitoring provisions for the covered amphibians are also fundamentally flawed in that they do not monitor post-logging population levels relative to population levels associated with the species’ recovery. Instead, the populations are monitored relative to populations which are likely to be significantly impacted or depressed. Specifically, the populations are monitored relative to those found in relatively young, intensively-managed second-growth timber stands which have been, and will be, heavily affected by logging, equipment operation, chemical applications, and other industrial forestry practices. Appendix D.1.6 indicates that the “control” areas will merely be forest units not scheduled for timber harvest -- meaning they are likely to be ones which have been recently logged. The fact that tailed frogs are known to be associated with old growth habitats, and that Southern torrent salamanders are known to be heavily impacted by logging and overstory removal (as is noted in HCP/CCA Appendix D.1.6) makes such areas particularly inappropriate as control sites. It should not be assumed that populations in the control areas are not impacted or depressed, or that they correspond to populations associated with the species’ survival or recovery.

threshold (MWAT) was developed from the National Marine Fisheries Service's (1997) Aquatic Properly Functioning Condition Matrix. However, Green Diamond believed that the MWAT threshold failed to account for natural variation in water temperatures due to geology, climate, and drainage area. As such, the MWAT was not considered the most protective and appropriate metric for measuring water temperature effects on aquatic life. As stated in AHCP/CCAA Section 5.5.2, for water temperatures less than lethal, the impacts of elevated temperature to aquatic life tends to be cumulative and therefore short-term increases, as measured by the absolute maximum temperature, are less likely to be harmful than chronic, long-term increases as measured by the 7DMAVG temperature. Therefore, as described in the Plan, "red and yellow light" threshold criteria were developed to adequately monitor and provide protection to covered species.

The Services believe that the proposed monitoring program's temperature criterion, which are based on watershed area, is sufficient to contribute to the Operating Conservation Program's ability to meet the ESA Permit issuance criteria discussed in Master Response 8 and to avoid jeopardy under ESA Section 7. As stated in AHCP/CCAA Section 3.3.1.3.1, to develop the temperature monitoring threshold values, 7DMAVG temperatures from monitoring studies conducted since 1994 was regressed on the square root of drainage area at locations known to support populations of the two covered amphibians and coho salmon species (the most temperature sensitive of the covered activities). This regression relationship is the basis of the "red and yellow light" temperature threshold criterion proposed for monitoring and it provides for variability in watershed characteristics as discussed above and not on an absolute maximal temperature or a temperature threshold value from the literature. Evidence from data collected indicates that existing water temperature conditions currently allow for the survival and reproduction of the covered species presently occurring in the streams being monitored. Using that temperature monitoring data to set monitoring criteria at a level intended to insure that future temperatures do not exceed current ones will ensure that habitat water temperatures remain at conditions suitable to covered species. Finally, given the "red and yellow light" monitoring threshold criteria, the Services believe that habitat conditions will likely improve in the Plan Area over the term of

the Plan and Permits.

Response to Comment G3-63

See response to Comment G3-62.

Response to Comment G3-64

The commenter seems to assume that the covered amphibian species are imperiled in the Plan Area. Furthermore, the commenter's presumption is that more robust amphibian populations exist, and that Plan Area populations should be compared to these more robust populations. To the contrary, the covered amphibians are both widespread and locally abundant in the Plan Area. Studies done by Diller and Wallace (1996 and 1999) and recent surveys conducted by Green Diamond biological staff, all of which are set forth in the Plan, indicate that portions of some stream reaches are likely to have reduced populations of the amphibian covered species relative to pre-disturbance conditions. However, these amphibians are not imperiled in the Plan Area and have persisted through extensive unregulated logging in the past when headwater streams were provided no specific protection. The Plan is expected to provide benefits to these species.

The criticism of using populations in a managed landscape as controls seems to result from a misunderstanding of the objectives of the monitoring or the experimental design of a before-after-control-impact (BACI) study. To clarify, the objective of the study is to determine if current timber operations have any effect on existing populations of the covered amphibians. Even if the control populations were declining, which the Services do not believe is likely based on information presented in the Plan, such populations still could be effective as experimental controls. The criterion that is necessary for a site to be used as a treatment control is that it not receive any treatment effects while having similar environmental covariates or nuisance variables (e.g. aspect, elevation, geology, climate and etc.) as does the treatment site.

Response to Comment G3-65

No specific dates are listed for the initiation of any of the proposed monitoring action, because they would be dependent on when the Permits are approved. However, we recognize that much of the monitoring program has been in progress since before the draft Plan was circulated. See AHCP/CCAA Appendix C11 regarding the headwaters amphibian monitoring effort that was initiated in 1997. Each of the specific monitoring techniques require different times of year for their implementation (e.g. tailed frogs - summer, torrent salamanders - fall, adult salmonid - winter and etc.). Further, water temperature monitoring will occur property-wide each summer (AHCP/CCAA Section 6.2.1.5.) The specifics of when the monitoring will be conducted is provided in the protocols for each monitoring technique (AHCP/CCAA Appendix D).

Response to Comment G3-66

The Plan proposes a wide variety of monitoring efforts to evaluate the implementation and the overall effectiveness of the Operating Conservation Program. The various timeframes and frequencies associated with them have been addressed. For example, turbidity monitoring “will occur continuously throughout each winter” (AHCP/CCAA Section 6.3.5.2.4). Summer water temperature monitoring and summer juvenile salmonid population monitoring both will occur annually during the summer months (AHCP/CCAA Sections 6.2.5.2.1, 6.2.5.2.10, 6.3.5.2.2). Out-migrant trapping monitoring also is an annual seasonal occurrence - it will occur each year after the winter (AHCP/CCAA Section 6.2.5.2.11). The interval between periods of spawning substrate permeability monitoring “is likely to be one to two years”

G3-64

Cascade or Columbia torrent salamanders are rarely found in forests logged 15 years prior (Nordstrom, 1997). Recolonization is difficult because torrent salamander are incapable of long-distance terrestrial movement (Grialou et al., 2000; Nussbaum et al., 1983) and are unlikely to wander far from aquatic habitat because of their extreme sensitivity to desiccation (Bury and Corn, 1988; Nordstrom, 1997).³⁰

G3-65

The amphibian monitoring provisions also do not indicate when monitoring will occur.

Requirements:

The Services’ HCP Handbook states that monitoring protocol must specify the frequency, timing, and duration of data collection; must specify how the data will be analyzed; and must specify who will do the analysis.³¹ The Handbook also states that “the monitoring program will be based on sound science. Standard survey or other previously established monitoring protocols should be used [and] [m]onitoring programs should use a multi-species approach when appropriate.”³²

Comments:

G3-66

In some cases, the HCP/CCA fails to specify timeframes and frequency for monitoring.

G3-67

As discussed above, the HCP/CCA’s monitoring provisions are also sometimes based on faulty assumptions, and are not sufficient to determine if the plan is adequately mitigating impacts to the covered species’ chances of survival, much less recovery. Thus the plan is not consistently and sufficiently based upon sound science.

Requirements:

According to the Services’ HCP Handbook, “the Services should verify adherence to the terms and conditions of the incidental take permit, HCP, IA, and any other related agreements....”³³ The Handbook also states that “...it is important for the Services to make field visits to verify the accuracy of monitoring submitted by the permittees.”³⁴ The USFWS regulations also state that by being granted an ITP, the landowner has agreed to grant access to Service staff to property, records, and other areas.³⁵ This should be reflected in the HCP and Implementation Agreement.

Comments:

G3-68

The HCP/CCA’s requirements for compliance monitoring are highly inadequate. The provisions fail to address or establish schedules or indicators for the Services to verify Simpson’s on-the-ground compliance with each of the HCP/CCA’s terms. The requirements for the content of compliance monitoring reports are also extremely cursory and non-specific.

(AHCP/CCAA Section 6.3.5.2.3). Tailed frog monitoring will occur annually “during the summer survey season immediately following [a winter high flow event]” and southern torrent salamander monitoring will take place during the first survey season following a natural or anthropogenic catastrophic event (AHCP/CCAA Sections 6.3.5.2.6, 6.3.5.2.7). Long-term habitat assessment monitoring and LWD monitoring, respectively, will occur at ten-year intervals, beginning 2004-2005 (AHCP/CCAA Sections 6.2.5.2.8, 6.2.5.2.9).

Response to Comment G3-67

The mitigation and monitoring measures are based on best science, which necessarily entails reliance on certain assumptions. The assumptions used in the development of the monitoring provisions will be tested through implementation over the term of the Plan and Permits. As the science develops and test results become available, the adaptive management program provides a mechanism to implement changes to the Operating Conservation Program as necessary (see IA paragraph 10.0 and AHCP/CCAA Sections 6.2.6 and 6.3.6). As discussed in Master Response 12, the role of biological goals and objectives in a prescription-based HCP like this one is to guide the development of the Operating Conservation Program’s prescriptions. Where the Plan’s adaptive management provisions are triggered in the future, the applicable goals and objectives also will guide the development of any changes to the Operating Conservation Program’s management practices and measures.

Response to Comment G3-68

Paragraph 8.5 of the IA memorializes the Services’ authority to conduct inspections and monitoring in connection with the Permits in accordance with Federal regulations. This paragraph also alludes to the Federal regulations regarding permittee consent for the Services to access property, records and other areas: “Green Diamond consents to and shall allow entry at any reasonable hour by agents or employees of the Services in the Plan Area where covered activities are conducted and premises where records relating to such covered activities are kept” (IA paragraph 8.5).

On the ground compliance reviews by the Services are limited only by workload and budgetary constraints. There will be annual reviews for the first five years of the Plan. In the second and fourth years, the annual meeting will be followed with a field review of implemented conservation measures to allow technical evaluation of conservation measure implementation (AHCP/CCAA Sections 6.2.7.4 and 6.3.7; IA paragraph 8.5). Biennial reports notwithstanding, the Services may request any additional available information reasonably related to implementation of the Plan in its possession or control, or in the possession or control of any of its affiliates, contractors or other third parties covered by the Permits for the purpose of assessing whether the terms and conditions of the Permits and the Plan, including the Plan’s adaptive management plan, are being fully implemented. Green Diamond is required to use its “best efforts” to provide any such information within 30 days of the request (IA paragraph 8.3)

Response to Comment G3-69

Green Diamond’s compliance with the Plan, Permits and IA will be monitored and enforced in accordance with the provisions discussed above in response to Comment G3-68 and applicable Federal regulations. Remedies, enforcement and penalties have been addressed in IA paragraph 13. Nothing in the IA is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law (IA paragraph 13.4). Injunctive and temporary relief are available (IA paragraph 13.3), as are stipulated penalties under certain circumstances (IA paragraph 13.5). Plan enforceability also has been discussed in Master Response 14.

Response to Comment G3-70

As stated in response to Comment G3-69, Green Diamond’s compliance with the Plan, Permits and IA will be monitored and enforced in accordance with applicable law.

Response to Comment G3-71

The HCP Handbook suggests that an oversight committee of experts may, but is not required to, periodically review an HCP’s monitoring program. Nevertheless, in this Plan, monitoring results can trigger convention of a scientific review panel, consisting of three independent experts, to provide technical analysis of data and any other relevant and available information, and thereby to assist in the development of a course of action to address adverse conditions (AHCP/CCA Section 6.2.6.1.2).

- G3-69 [The Implementation Agreement also fails to require the Services to conduct on-the-ground verification of Simpson’s compliance with the HCP/CCA’s terms.
- G3-70 [The HCP/CCA and Implementation Agreement fail to require the Services to verify the accuracy of Simpson’s effectiveness monitoring claims.

Requirements:

According to the Services’ HCP Handbook, “for large-scale or regional HCPs, oversight committees, made up of representatives from significantly affected entities (e.g., State Fish and Wildlife agencies), are often used to ensure proper and periodic review of the monitoring program...”³⁶ According to the Handbook, “...oversight committees should periodically evaluate the permittee’s implementation of the HCP, its incidental take permit, and IA and the success of the operating conservation program in reaching its identified biological goals and objectives. Such committees usually include species experts and representatives of the permittee, the Services, and other affected agencies and entities.”³⁷ Further, “oversight committees should meet at least annually and review implementation of the monitoring program and filing of reports as defined in the HCP, permit, and/or IA, if one is used.”³⁸

Comments:

- G3-71 [The HCP/CCA fails to meet these requirements. Simpson’s HCP/CCA covers nearly half a million acres, and is clearly “large-scale.” Nevertheless, the HCP/CCA fails to establish oversight committees for the plan’s monitoring program.

Adequacy of Implementation Measures – Adaptive Management

General Comments on Adaptive Management:

- G3-72 [The HCP/CCA’s adaptive management provisions are extremely narrow and constrained. Indeed, adaptive management is completely non-existent for many plan objectives and elements. Many adaptive management-related provisions are actually designed to limit or preclude changes and improvements to the HCP/CCA, rather than facilitate them. The plan’s adaptive management triggers are also fundamentally flawed. The process for making adaptive management decisions is also unduly controlled by Simpson. In short, the HCP/CCA fails to include necessary, effective, and credible adaptive management provisions.

Requirements:

Adaptive management should be required when any biological goal has not been met. The goal of adaptive management should be to identify concrete improvements to the HCP’s conservation measures which may (or may not) be needed to address problems in meeting

Response to Comment G3-72

The ESA does not require inclusion of adaptive management provisions. However, in accordance with guidance provided in the Addendum to the HCP Handbook (which addendum also known as the “Five Points Policy”), Green Diamond has elected to incorporate them in the Plan to address uncertainty about the effectiveness of some of the conservation measures.

Response to Comment G3-73

The adaptive management program is provided as a mechanism to revise the Operating Conservation Program as monitoring results determine is necessary. The Adaptive Management Program and its triggers have been set forth in AHCP/CCAA Section 6.2.6. Further, if the Services believe that one or more of the adaptive management provisions in the Plan have been triggered and that Green Diamond has not changed its management practices accordingly, the Services will notify Green Diamond. Within 30 days of such notification, Green Diamond is required to initiate the adaptive management changes set forth in the adaptive management program and to report to the Services on what actions have been taken (IA paragraph 10.2).

Response to Comment G3-74

As discussed in response to Comment G3-66, monitoring events will occur at appropriate intervals. If the results of these efforts indicate that one or more revisions of the Operating Conservation Program (AHCP/CCAA Section 6.2) is/are necessary, the adaptive management measures (AHCP/CCAA Section 6.2.6) provides a mechanism to do so. Green Diamond will initiate reviews and implement such measures in response to the triggers or in response to receipt of notification by the Services pursuant to IA paragraph 10.2. Pursuant to this paragraph, if the Services believe that one or more of the adaptive management provisions in the Plan have been triggered and that Green Diamond has not changed its management practices accordingly, the Services would notify Green Diamond. Within 30 days of such notification, Green Diamond would be required to initiate the adaptive management changes set forth in the adaptive management section of the

the HCP's biological goals, unforeseen implementation problems, changes in the permittee's land management practices, changing circumstances, etc.

The Service's HCP Handbook states that if new habitat is being created as mitigation, then the habitat must be created through techniques that are proven and reliable or, if relatively new, then those techniques must be augmented by contingency measures and adaptive management.³⁹

Comments:

G3-73

The HCP/CCA fails to establish adaptive management triggers (or "monitoring thresholds") and adaptive management responses for all aspects of Simpson's permitted activities which are likely to significantly affect the covered species. Given the significant gaps in Simpson's mitigation measures, as well as the HCP/CCA's extended duration, it will be important for monitoring and adaptive management to be comprehensive in scope, and not be limited to a subset of the HCP/CCA's already limited mitigation measures. Unfortunately, the HCP/CCA fails to even establish triggers and adaptive management requirements for all of the mitigation measures which are included in the HCP/CCA.

G3-74

The HCP/CCA also fails to require sufficient and necessary changes when and if the monitoring thresholds are reached. Reaching a "yellow light" threshold does not clearly require Simpson to modify or supplement the HCP/CCA's mitigation measures to ensure the plan fully mitigates impacts to the covered species' chances of survival and recovery. Rather, the HCP/CCA merely states that Simpson will make vague "appropriate" changes to the HCP/CCA. Similarly, while reaching a "red light" threshold triggers a more formal adaptive management process, the objectives for that process remain murky, and do not clearly require that the HCP/CCA's mitigation measures be modified or supplemented to fully mitigate impacts to the species' chances of survival and recovery.

G3-75

Instead of using a comprehensive adaptive management program to correct potential shortcomings and unforeseen outcomes with Simpson's management practices and the HCP/CCA's conservation measures, the HCP/CCA severely constrains changes to its mitigation measures which might occur as a result of adaptive management. In fact, section 6.2.6.2 of the HCP/CCA states that the only changes which can be made in response to adaptive management are changes to the plan's riparian zone management measures, steep slope management measures, and roads provisions. No changes are required or allowed in response to the monitoring thresholds for the covered amphibians. No other changes are required or allowed where they might be necessary to restore stream temperatures and other water quality parameters for the covered fish. No changes are required or allowed if necessary to address problems which may arise with Simpson's upslope management. Changes are not even required if Simpson chooses to use more intensive logging practices in the future.

Operating Conservation Program and to report to the Services on what actions have been taken. The AMRA, which is discussed in Master Response 15 and set forth in AHCP/CCAA Section 6.2.6.6, will fund adjustments over the term of the Plan and Permits provided that there is sufficient balance in the account to make the change. Therefore, the Plan does provide for changes deemed by the Services to be sufficient and necessary.

Response to Comment G3-75

See Master Response 15.

Response to Comment G3-76

See response to Comment G3-72. The AMRA does potentially constrain implementation of the Plan’s adaptive management measures because there is a cap.

Response to Comment G3-77

The Services believe the adaptive management measures and triggers are sufficient to meet the issuance criteria for both the ITP and ESP. The Services provide assurances to land owners in recognition of two fundamental points: 1) implementation could provide many benefits for species and their habitats, including early protection for unlisted species and possibly, prevention of the need to list a covered species in the future; and 2) existing laws often provide insufficient incentives for non-Federal landowners to include species conservation in their day-to-day management activities. See Master Response 19 regarding No Surprises assurances.

Response to Comment G3-78

The Plan’s biological goals and objectives (AHCP/CCAA Section 6.1) have been addressed in Master Response 12 and discussed in response to Comments G3-15 through G3-17, G3-22, and others. Just as biological goals and objectives in a prescription-based HCP like this one guide development of specific measures that have been included in the operating conservation program (see response to Comment G3-15), so too will they guide development of revised measures if and when the Plan’s adaptive management provisions (AHCP/CCAA Section 6.2.6) are triggered in the

G3-76

Adaptive management changes to the HCP/CCA are further constrained by the plan’s use of an “adaptive management reserve account” (AMRA). Any additional adaptive management must be “paid for” from this account; if the account is depleted, adaptive management changes will not be required. The size of this account -- 1,550 acres -- is miniscule in the context of the HCP/CCA, the intensity of Simpson’s forest management practices and impacts, and the HCP/CCA’s extensive duration, and is unlikely to be sufficient to address many foreseeable adaptive management changes. Indeed, 1,550 acres comprises only 0.3% of the 479,001 acres covered by the HCP/CCA.⁴⁰ The HCP/CCA’s mitigation measures for the covered amphibians, for example, are particularly likely to be inadequate. However, the upper stream reaches that are important to the amphibians cover a much higher percentage of the plan area than 0.3 %, meaning that the AMRA will severely constrain any adaptive management which might prove necessary for tailed frog and/or Southern torrent salamander.

G3-77

Adaptive management changes are further constrained by the Implementation Agreement’s use of “no surprises” guarantees.

Requirements:

Adaptive management “triggers” must be identified for each of the covered species. These should correspond to the biological goals for each of the covered species.

The HCP Handbook states that “thresholds” (i.e., triggers) for adaptive management review should be linked to key elements of the HCP and its monitoring protocol. Further, the thresholds must be based on measurable criteria.⁴¹

Comments:

G3-78

As discussed above, the HCP/CCA’s biological goals and objectives are quite inadequate. Improvements to these goals and objectives must also be reflected by corresponding improvements to the plan’s adaptive management triggers (or “monitoring thresholds”).

G3-79

The HCP/CCA fails to identify monitoring thresholds for all major relevant habitat variables for each of the covered species.

G3-80

The point of reference for many of the HCP/CCA’s monitoring thresholds is fundamentally flawed and likely to be insufficient to avoid substantial impacts to the covered species’ chances of survival, much less their chances of recovery. As discussed above, the HCP/CCA’s monitoring thresholds for water temperature and salmonid populations are defined relative to existing population levels and/or population levels and habitat conditions found elsewhere in Simpson’s young, intensively managed timber stands and watersheds -- rather than population levels and habitat conditions known to be sufficient to achieve recovery of each of the covered

future. Responses to adequacy of the triggers are set forth subsequently.

Response to Comment G3-79

For certain variables (e.g., gravel permeability), data have not been collected for a sufficient time and over a large enough geographic area to understand the range of natural variability. In these cases, thresholds will be established in the future, allowing sufficient time to collect additional data - we estimate this to occur within 3-5 years following issuance of the Permits. In other cases, such as pool-riffle ratios or LWD volume, the response time is sufficiently long (possibly hundreds of years for LWD) that establishing thresholds is impractical relative to the term of the Permits. There is no requirement for the Plan to contain monitoring thresholds for all habitat variables.

Response to Comment G3-80

See response to Comment G3-64.

Response to Comment G3-81

AHCP/CCAA Section 6.2.5.5.3 states that a red light will be triggered if there is “a statistically significant decline in larval populations of tailed frogs in treatment streams relative to control streams in >50 percent of the monitored sub-basins in a single year.” A statistically significant decline in the larval population does not mean that the population is extirpated or even imperiled. In fact, this result is just as likely to occur when both populations (experimental and control) are increasing, but the population in the treatment stream is increasing at a lesser rate. In addition, a statistically significant decline does not mean that it is a biologically significant decline. The factors influencing populations are highly complex and a population may increase or decline for demographic or stochastic (random) reasons that have nothing to do with habitat quality.

Regarding populations of southern torrent salamanders and as explained in the AHCP/CCAA Appendix D, Section 1.6.3.1, torrent salamanders appear to exist as a meta-population in the Plan Area with hundreds of known sub-populations and literally thousands that have not yet been surveyed (>538 populations to date with only approximately 25 to 30 percent of the habitat areas surveyed). Many of these torrent salamander sites occur in unstable headwater areas that periodically “torrent.” See response to Comment G3-47. These debris torrents have the potential to extirpate the site, but based on information described in the Plan, these sites are typically recolonized in a few years. Therefore, periodic extirpation of a site typically occurs in nature and it would only become a problem if the extinction rates exceeded the recolonization rates. The headwaters amphibian monitoring program in the Plan is designed to insure that extinction rates do

G3-80

G3-81

G3-82

G3-83

species. Existing populations of the covered species and habitat conditions elsewhere in the plan area are likely to be quite degraded due to past and ongoing management practices, and are not likely to be sufficient for the covered species’ survival, much less their recovery. Moreover, because the control areas for the HCP/CCA’s population and habitat monitoring thresholds for the covered amphibians will be other habitat areas which have been, and which will continue to be, affected by intensive forest management practices similar to those being employed in the areas being “tested,” it is entirely possible that populations and/or habitat conditions in *both* the control areas and the “test” areas will continue to decline -- meaning that corrective actions will not be triggered even though the HCP/CCA’s mitigation measures are not functioning as intended and substantial impacts to the covered species’ survival and recovery are occurring.

The plan’s monitoring thresholds are also often set at levels which would allow substantial impacts to the covered species’ chances of survival, as well as their chances of recovery. For example, one of the “red light” thresholds for tailed frog would require half of the baseline population levels to be extirpated before adaptive management is triggered. Even then, corrective actions might not be triggered, if sufficient agreement is not reached between Simpson and the Services, or within the scientific review panel established by both Simpson and the Services to oversee some adaptive management decisions. Similarly, extinction of subpopulations of Southern torrent salamander is only considered a “yellow light” threshold, and does not trigger a full adaptive management review. As discussed above, the one monitoring threshold which includes an absolute temperature standard also sets the standard well above temperatures associated with healthy habitat for tailed frog and Southern torrent salamander.

The HCP/CCA’s monitoring thresholds also fail to include stream temperatures which are consistent with the survival and recovery of the covered amphibian species. As noted elsewhere in the HCP/CCA, the covered amphibian species often require cooler water temperatures for their survival and recovery than do the covered fish species.

Requirements:

According to the Services’ HCP Handbook, “a practical adaptive management strategy within the operating conservation program of a long-term incidental take permit will include milestones that are reviewed at scheduled intervals during the lifetime of the incidental take permit and permitted action.”⁴²

Comments:

The HCP/CCA fails to include such milestones.

not exceed colonization rates in the Plan Area as a result of the covered activities during the term of the AHCP/CCAA and Permits.

Response to Comment G3-82

Figure 6-11 of the AHCP/CCAA indicates that the headwater amphibian species are currently found in water temperatures that are consistent with studies done in pristine habitats and that are substantially lower than those for the fish species. The thresholds were scaled accordingly so that the headwater amphibians found in small sub-basins have lower thresholds than those for the fish species. For these reasons, the Services believe that the Plan's stream temperature measures are appropriate.

Response to Comment G3-83

The fuller text of the language quoted in part by commenter is set forth in Addendum to the HCP Handbook (65 Fed. Reg. 35242) which says:

“Often, a direct relationship exists between the level of biological uncertainty for the degree of risk that an incidental take permit could pose for that species. Therefore, the operating conservation program may need to be relatively cautious initially and adjusted later based on new information, even though a cautious approach may limit the number of alternative strategies that may be tested. A practical adaptive management strategy within the operating conservation program of a long-term incidental take permit will include milestones that are reviewed at scheduled intervals during the lifetime of the incidental take permit and permitted action. If a relatively high degree of risk exists, milestones and adjustments may need to occur early and often.” Id. at 35252.

This Plan provides for biennial reports describing Green Diamond's activities, including any responses to changed circumstances and the prior two years' results of the monitoring program” (IA paragraph 8.1). Further, it provides for annual reviews for the first five years of the Plan and, in the second and fourth years, for field reviews of the implemented conservation measures and technical evaluation of conservation measure implementation (AHCP/CCAA Sections 6.2.7.4, 6.3.7; IA paragraph 8.5). “Milestones” in this context include results and conclusions drawn from these reports, meetings, reviews and evaluations indicating that

conservation efforts are proceeding as planned. Moreover, the monitoring element of the Plan contains milestones early and often to validate the Plan's premises, e.g., regarding the control of sediment under the accelerated road program, the efficacy of geologic measures. Under certain conditions, monitoring results can lead to the convention of a scientific review panel, consisting of three independent experts, to provide technical analysis of data and any other relevant and available information, and thereby to assist in the development of a course of action to address adverse conditions (AHCP/CCAA Section 6.2.6.1.2). Accordingly, the Plan contains sufficient milestones at appropriate intervals to comport with the requirements of the ESA and the guidance of the HCP Handbook and its Addendum (65 FR 35242).

Response to Comment G3-84

The scientific review panel will consist of three independent experts. The Services and Green Diamond each will appoint one member of the scientific panel, and together these two experts will select the third (AHCP/CCAA Section 6.2.6.1.2). Moreover, the Services independently and by law may review at any time the functioning of the Plan and compliance of Green Diamond with the Plan's measures and may revoke the permits with cause.

G3-84

Response to Comment G3-85

See the response to Comment G3-2. Further, evidence in the Plan indicates that the covered amphibian species exist in sufficient spatial distribution and numbers within the Plan Area (see response to Comment G3-81) that additional measures are not necessary to ensure that the conservation measures, in combination with appropriate measures being implemented on other necessary properties, would preclude or avoid the need to list these species in the future. See Master Response 8, regarding Permit approval criteria, and Master Response 19 regarding No Surprises assurances and treatment of unlisted species covered under an ESP.

G3-85

Requirements:

Adaptive management reviews should be conducted by objective parties that are independent of the permittees.

Adaptive management reviews and proposals should be reviewed by a panel of independent scientists.

Comments:

While the HCP/CCA does require participation of a scientific review panel in some extremely limited circumstances (i.e., when Simpson and the Services can not agree on changes needed to respond to "red light" thresholds), the panel's composition will be heavily influenced by Simpson, and will not be sufficiently independent. The panel's independence will be all the more important since failure on the panel's part to reach agreement over proposed adaptive management changes will lead to the non-adoption of the management changes for a period of at least 5 years.

Adequacy of Implementation Measures -- Landowner Assurances and "No Surprises" Guarantees

Requirements:

Any landowner or regulatory assurances should be proportionate (in terms of breadth, duration, etc.) to the probability that the HCP's conservation measures will succeed in recovering abundant, resilient, and well-distributed populations and fully functioning habitats of the covered species, including as noted by the Services' HCP Handbook.

A different level or extent of assurances may be suitable for different species, different HCP elements, different locations, etc., given any differences in the quality of the HCP's conservation measures in relation to different species, different conservation needs, different site conditions, etc.

The duration of assurances should also be limited to time periods during which implementation of the HCP's conservation measures, monitoring, and adaptive management provisions can be guaranteed. The Services' HCP Handbook states that "the Services will also consider the extent of information underlying the HCP, the length of time necessary to implement and achieve the benefits of the operating conservation program, and the extent to which the program incorporates adaptive management strategies."⁴³

Comments:

The two covered amphibian species (tailed frog and Southern torrent salamander) should not receive "no surprises" guarantees or similar regulatory assurances. The

Response to Comment G3-86

The Services provide assurances to land owners in recognition of two fundamental points: 1) implementation could provide many benefits for species and their habitats, including early protection for unlisted species and possibly, prevention of the need to list a covered species in the future; and 2) existing laws often provides insufficient incentives for non-Federal landowners to include species conservation in their day-to-day management activities. See also Master Response 19.

The Plan’s monitoring program is set forth in AHCP/CCAA Section 6 and is discussed in IA paragraph 8. Specifically, implementation monitoring will focus on evaluating and documenting Green Diamond’s implementation of and compliance with the Plan (AHCP/CCAA Sections 6.3.7 and 6.2.7). Effectiveness monitoring will focus on measuring the success of both individual and collective conservation measures (AHCP/CCAA Section 6.3.5, Appendix D and Section 6.2.5). The Services may conduct inspections and monitoring in connection with the Permits in accordance with their regulations (IA paragraph 8.5). The Plan’s adaptive management program establishes a framework to address uncertainty associated with Plan implementation (AHCP/CCAA Sections 6.2.6 and 6.3.6). The feedback loop connecting the monitoring program and the adaptive management program is described in AHCP/CCAA Section 6.3.5.1.2.

Changed circumstances are “changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Services and that can be planned for (e.g. a fire or other natural catastrophic

G3-85

HCP/CCA has failed to include mitigation measures designed for the two amphibian species, and fails to require Simpson to provide populations and habitat conditions which correspond to the species’ recovery. Moreover, the HCP/CCA has failed to address the two amphibian species as if they were listed.

G3-86

“No surprises” guarantees should not be given to Simpson for the full 50 year duration of the HCP/CCA, much less into any additional extension periods. As discussed above, the HCP/CCA fails to include adequate monitoring and adaptive management provisions to correct deficiencies in the HCP/CCA’s mitigation measures which may develop over time, to address foreseeable changing circumstances, to address changes in Simpson’s own forest management practices, etc. Moreover, as noted in the Implementation Agreement, the HCP/CCA is a “prescription based” HCP/CCA that is not necessarily expected to meet specific biological goals. Therefore, it cannot be assumed, especially for extended periods of time, that the HCP/CCA will continue to be sufficient to avoid harm to the covered species’ chances of survival, much less their recovery. Indeed, flaws in some of the plan’s monitoring thresholds would actually permit conditions to become worse over time without triggering corrective actions. Assurances should be limited to the first 10 years of the HCP/CCA’s term, or a comparable period.

Requirement:

Beyond a short initial “time-out” period, assurances provisions must not preclude the permittees’ responsibility for adopting modified or additional mitigation measures, as may be identified through monitoring, adaptive management, or other processes which are integral to the HCP’s long-term effectiveness and/or ensuring that the Incidental Take Permit and plan will not impact the covered species’ chances of recovery over time.

If standard “no surprises” language is used, all potential modifications or additions to the HCP’s conservation measures which may be needed over time to address known deficiencies in the HCP’s conservation measures, areas where the efficacy of the HCP’s measures are known to be uncertain, etc., must be identified inclusively in the HCP as “changing circumstances.” The permittee must also be responsible for making improvements to the HCP’s mitigation measures to respond to these changing circumstances.

Comments:

G3-87

The HCP/CCA fails to meet these requirements.

The final “no surprises” rule envisioned that HCP/CCAs would identify circumstances which can reasonably be foreseen as changing over time, and where “no surprises” guarantees thus shouldn’t apply. However, the Simpson HCP/CCA’s discussion of “changing circumstances” not only fails to identify a number of changes which can reasonably be foreseen, but also functions primarily to exempt Simpson from making meaningful changes to the HCP/CCA in response to reasonably

event in areas prone to such events.)” (50 CFR Sections 17.3 and 222.102; IA paragraph 3.2). Changes that will constitute changed circumstances, and the responses to those circumstances, have been described in AHCP/CCAA Section 6.2.9 and IA paragraph 9. Specifically, five types of changes have been identified in the Plan as potential “changed circumstances.” They include the following: 1) Fire covering more than 1,000 acres within the Plan Area or more than 500 acres within a single watershed within the Plan Area, but covering 10,000 acres or less; 2) complete blow-down of more than 150 feet of previously standing timber within an RMZ, measured along the length of the stream; but less than 900 feet of trees within an RMZ, due to a windstorm; 3) loss of 51 percent or more of the preharvest total tree basal area within any SSS, headwall swale, or Tier B Class III watercourses as a result of Sudden Oak Death or stand treatment to control Sudden Oak Death; 4) landslides that deliver more than 20,000 cubic yards and less than 100,000 cubic yards of sediment to a channel; and 5) listing of a species that is not a covered species but is affected by the covered activities (AHCP/CCAA Section 6.2.9).

Response to Comment G3-87

Reasonably foreseeable circumstances, including the listing of a new species or natural catastrophes that could occur in the area, have been addressed in AHCP/CCAA Section 6.2.9 (Changed Circumstances) and IA paragraph 9. The term “changed circumstances” is defined in IA paragraph 3.2 and 50 CFR Sections 17.3 and 222.102. Changed circumstances include fire, windthrow, earthquakes, floods, infestation by pests or pathogens, landslides and the new listing of a species. Specifically, five types of changes have been identified in the Plan as potential “changed circumstances.” They include the following: (1) Fire covering more than 1,000 acres within the Plan Area or more than 500 acres within a single watershed within the Plan Area, but covering 10,000 acres or less; (2) complete blow-down of more than 150 feet of previously standing timber within an RMZ, measured along with the length of the stream; but less than 900 feet of trees within an RMZ, due to a windstorm; (3) loss of 51 percent or more of the preharvest total tree basal area within any SSS, headwall swale, or Tier B Class III watercourses as a result of Sudden Oak Death or stand treatment to control Sudden Oak Death; (4) landslides that deliver more than 20,000

cubic yards and less than 100,000 cubic yards of sediment to a channel; and (5) listing of a species that is not a covered species but is affected by the Covered Activities (AHCP/CCAA Section 6.2.9). No others have been suggested in the comment.

If additional conservation and mitigation measures are deemed necessary to respond to changes in circumstances that have been provided for in AHCP/CCAA Section 6.2.9, Green Diamond will be expected to implement the measures specified in the Plan (63 Fed. Reg. 8859, 8868 (Feb. 23, 2998)). Meaningful responses to changed circumstances have been set forth in AHCP/CCAA Section 6.2.9. For example, in the event that a non-covered species that may be affected by covered activities becomes listed under the ESA, Green Diamond will not have incidental take authority with respect to such newly-listed species unless and until the appropriate Permit is amended to include such species or other authorization is provided pursuant to the ESA. Upon receipt of notice of the potential listing of a species that is not a covered species (IA paragraph 9.3), Green Diamond is obligated to seek the technical assistance of the USFWS and/or NMFS, and, as appropriate, the Services shall provide such assistance, to (i) identify possible measures to avoid take and avoid causing jeopardy to such species; (ii) determine whether incidental take coverage for such species is appropriate and, if so, (iii) identify any modifications to the Plan that may be necessary to provide coverage for the new species and assist Green Diamond in determining whether to amend the Plan and the applicable Permit (or, in the case of the USFWS, to seek issuance of an ITP if appropriate) to include the newly-listed species as a covered species--all in the event the species ultimately is listed. These provisions and this process to address changed circumstances are consistent with the No Surprises rule.

Response to Comment G3-88

The American Lands Alliance’s August 7, 2000, scoping letter has been incorporated. See response to Comments G3-98 through G3-193.

Response to Comment G3-89

The coastal cutthroat trout, southern torrent salamander and tailed frog are unlisted species under the jurisdiction of the USFWS. Green Diamond is seeking coverage for these species under an ESP, therefore there is no need to include the potential for future listing of these species under the ESA as a changed circumstance. Instead of waiting to implement conservation measures for certain unlisted species (i.e., coastal cutthroat trout, southern torrent salamander and tailed frog), Green Diamond has elected to include them as covered species in the Plan and the USFWS will name them in the ESP, although the effective date as to the Permit for such species will be delayed until future listing. By addressing these species as though they were listed, the Plan provides conservation benefits before the ESA could require them. In this way, implementation of the Operating Conservation Program contributes early protection to others’ conservation efforts in the hopes that such efforts will prevent the need to list these species in the future. The provisions of IA paragraph 9.3 and AHCP/CCAA Section 6.2.9.7 will apply to future listings of species not covered by either the ESP or the ITP.

Response to Comment G3-90

If changed circumstances occur, Green Diamond will implement the supplemental prescriptions set forth in AHCP/CCAA Section 6.2.9. In some cases the conservation measures set forth in other

G3-87

foreseeable changing circumstances. This both violates the intent of the final “no surprises” rule, and makes it even more likely that issuing the “take” permit to Simpson will significantly impact the covered species’ chances of survival and recovery over time.

G3-88

The HCP/CCA fails to identify reasonably foreseeable changing circumstances identified in our scoping letter of August 7, 2000. Please note that we wish to incorporate our NEPA scoping letter into these comments by reference.

G3-89

The HCP/CCA also fails to include the listing of tailed frog and Southern torrent salamander as “changing circumstances.” As noted by the HCP/CCA and the “no surprises” policy, the listing of unlisted species -- particularly those which have been designated at one time or another as “candidate” species, as were tailed frog and Southern torrent salamander -- is entirely foreseeable.

G3-90

With one exception (the retention of unspecified levels of additional conifers in steep slope management zones, should the efficacy of those zones be compromised by sudden oak death disease), none of the requirements of the HCP/CCA’s “changing circumstances” provisions actually require Simpson to undertake corrective actions to ensure that the HCP/CCA will remain biologically effective despite the changing circumstances. Generally, the HCP/CCA fails to require Simpson to provide replacement mitigation habitats, should the initial mitigation areas be lost to natural disturbances, nor does the HCP/CCA require Simpson to modify the HCP/CCA’s mitigation measures to make them more resilient to natural disturbances (for example, by widening riparian buffers to protect them from windthrow).

G3-91

The HCP/CCA and Implementation Agreement then add insult to injury by stating that Simpson will only be required to respond to changing circumstances in ways that are expressly identified in the HCP/CCA.

Requirements:

As indicated by Congressional intent for ESA section 10 and the final “no surprises” rule, any unlisted species covered by regulatory assurances must be addressed as if they were listed.

Comments:

G3-92

As discussed above, the HCP/CCA fails to address tailed frog and Southern torrent salamander as if they were listed.

parts of the Operating Conservation Program will be adequate to address changed circumstances, in which case there is no basis to require the Permit applicant to undertake corrective actions in addition to those already provided in the Operating Conservation Program (see, e.g., AHCP/CCAA Sections 6.2.9.4 (occurrence of a less than a 100-year flood event), 6.2.9.5 (infestation by a generally recognized type of forest pest or pathogen)). In other cases, such as the occurrence of an earthquake of a magnitude 6 or less on the Richter scale, the occurrence of a changed circumstance would produce little, if any, visible change, and apparently no significant impact to wildlife or fishery habitat (see, e.g., AHCP/CCAA Section 6.2.9.3). In still other cases, the occurrence of a changed circumstance may benefit the covered species or their habitat, and so would not provide a basis to require the Permit applicant to undertake any corrective action at all. This would be the case, for example, in the event of small-scale windthrow. Such events may actually benefit aquatic species through natural modifications to stream habitat by, for example, introducing LWD into streams that currently may lack this habitat-forming element (see, e.g., AHCP/CCAA Section 6.2.9.2).

Some affirmative change in the conservation program may be required, for example, in the event of infestation of *Phytophthora ramorum*, which causes sudden oak death disease. If 51 percent or more of the preharvest total tree basal area within any steep streamside slope (SSS) headwall swale, or Tier B Class III watercourses is lost as a result of sudden oak death or stand treatment to control sudden oak death, then an on site review will be made by a registered geologist (RG) and a registered professional forester (RPF) to develop additional prescriptions to compensate for the loss of hardwood root strength through retention of additional conifers (AHCP/CCAA Sections 6.2.9.5 and 6.3.9.5.2). In this way, forestry professionals will make conditions-appropriate corrective action determinations about how to compensate for the changed circumstance. This type of site-specific approach is preferable from a conservation perspective rather than establishing a one-size fits-all type of approach.

The typographical error in AHCP/CCAA Section 6.2.9.5 has been corrected as follows:

“...If 51 percent or more of the preharvest total tree basal area within any SSS, headwall swale, or Tier B Class III watercourses is lost as a result of sudden oak death or stand treatment to control sudden oak death, on site review will be made by an ~~RF~~ RG and RPF to develop additional prescriptions to compensate for the loss of hardwood root strength....”

Response to Comment G3-91

The purposes of the changed circumstances section of the Plan is to list events and consequences that can be reasonably expected to occur and thus, plan for, which will enhance certainty for the applicant and the species. See Master Response 8.

Response to Comment G3-92

See responses to Comments G3-9, G3-10, G3-66 and G3-89.

Response to Comment G3-93

Sufficient financial assurances are set forth in IA paragraph 7. There, Green Diamond warrants that it has, and will spend, such funds as may be necessary to fulfill its obligations under the Plan and agrees to notify the Services promptly of any material change in its financial ability to fulfill its obligations (see also IA paragraph 8.1 (requirement to submit biennial budgets)). Additional financial assurances have been provided (IA paragraph 7) to ensure that Green Diamond will provide adequate funding for the acceleration of the Road Implementation (AHCP/CCAA Section 6.2.3.2.1) and the Monitoring Projects and Programs (AHCP/CCAA Section 6.2.5.2), both of which have material out-of-pocket costs for the first 15 years of the Plan.

These are more than a mere promise of future actions; these obligations are continuing obligations to have and spend such monies as may be required and are sufficient to ensure the Plan is carried out.

Response to Comment G3-94

See Master Response 14 regarding Plan enforceability. Remedies, enforcement and penalties have been addressed in IA paragraph 13. In addition, nothing in the IA is intended to limit the authority of the United States government to seek civil or criminal penalties or otherwise fulfill its enforcement responsibilities under the ESA or other applicable law (IA paragraph 13.4). Injunctive and temporary relief is available (IA paragraph 13.3), as are stipulated penalties under certain circumstances (IA paragraph 13.5). Because the Services can enforce the terms of its agreement with Green Diamond in accordance with the full extent of its authority,

Adequacy of Implementation Measures -- Enforcement and Implementation Assurances

Requirements:

There must be assurances of adequate funding to implement the HCP's conservation measures, monitoring, and adaptive management provisions over time. The permittees should provide up-front guarantees of future financing, if the HCP envisions that "take" will occur prior to implementation of the plan's mitigation measures, as noted by the Services' HCP Handbook.

The HCP Handbook states that large scale HCPs may also need perpetual funding to cover long term monitoring and mitigation.⁴⁴ The Service's Handbook states that the landowner should provide up-front legal or financial assurances, such as a letter of credit, if mitigation measures will be implemented after "take" occurs.⁴⁵

Comments:

G3-93 [The HCP/CCA and Implementation Agreement do not provide sufficient assurances of future funding. As noted below, the mere promise of future actions is not sufficient to meet the ESA's standards.

Requirements:

The HCP Handbook states that enforceable mitigation should be included in HCPs.⁴⁶ The Implementation Agreement for the HCP must include enforceable remedies and relief provisions, in the event that the HCP's conservation measures are not implemented, and "take" is thus not properly mitigated, as noted by the Services' HCP Handbook.

The HCP Handbook states that mitigation habitat should be permanently protected.⁴⁷ The HCP Handbook also anticipates that conservation easements can be used to ensure the HCP "runs with the land."⁴⁸

Likewise, the mere promise of future actions is not sufficient to meet the ESA's protection standards.⁴⁹

Comments:

G3-94 [The HCP/CCA and Implementation Agreement do not provide sufficient remedies and relief provisions. The plan also fails to provide permanent protection for mitigation areas. The HCP/CCA and Implementation Agreement also fail to include guarantees that Simpson will implement the promised mitigation measures over time. While there are limited requirements for the provision of post-revocation mitigation should the "take" permits be revoked for non-compliance, there are no requirements for continued mitigation should Simpson choose to withdraw from the plan.

the Plan and IA do provide sufficient remedies and relief provisions.

Duration of the Conservation Commitment

The comment refers to HCP Handbook page 3-22 as authority for the idea that mitigation habitat should be protected permanently. However, this statement is not a mandate that permanent set-aside of land is a prerequisite to HCP approval. Reading this provision in context the issue of establishing permanent mitigation habitat is raised in the discussion of permanent habitat loss (the discussion begins on HCP Handbook page 3-21):

“One common issue raised during the HCP negotiations is how long mitigation lands must be conserved. When habitat losses permitted under an HCP are permanent, protection of mitigation lands normally should also be permanent (i.e., ‘in perpetuity’). Mitigation for temporary habitat disturbances can be treated more flexibly; however, management logistics and other considerations may still dictate permanent mitigation for temporary impacts, though typically at a lesser rate than for permanent ones.” HCP Handbook at 3-22.

Here, none of the impacts of authorized take will be permanent and, further, all will be minimized and mitigated to the maximum extent practicable. See Master Response 8. Therefore, other forms of “permanent protection” are not necessary (see Master Response 3).

Post-termination Requirements

As noted, post-termination mitigation is provided for in IA paragraph 6.2.1. NMFS believes that the amount of post-termination mitigation required is sufficient.

Post-relinquishment Requirements

The commenter’s criticism of remedies for Green Diamond’s voluntary relinquishment of the Permits does not take account of substantial provisions made in the IA for such circumstances. Under IA paragraph 6.3, Green Diamond may relinquish the Permits (or “withdraw from the

Plan,” in the words of the comment) before expiration of the full term of the Plan and Permits in accordance with the regulations currently codified at 50 C.F.R. Sections 13.26, 17.32(b)(7) and 222.306(d). Green Diamond’s post-relinquishment mitigation requirements have been set forth in IA paragraph 6.3.1 and include the following: (a) provide notice in accordance with IA paragraph 6.3.1(a); (b) maintain the prescriptions in all areas where Green Diamond has conducted covered activities and applied the Operating Conservation Program’s prescriptions for the remainder of the 50 year term that the Plan would have been in effect absent relinquishment (subject to certain conditions set forth in IA paragraph 6.3.1(b)); (c) deed restrict property transferred under the circumstances described in IA paragraph 6.3.1(c); (d) complete road management measures for the duration of the calendar year in which relinquishment occurs (see IA paragraph 6.3.1(d); and (e) submit a report to the Services detailing the status of Green Diamond’s compliance with the terms of the Operating Conservation Program through the end of the calendar year in which relinquishment or termination occurs.

Response to Comment G3-95

See Master Response 8 regarding the ESA Section 10(a) approval criteria.

Response to Comment G3-96

The term of the AHCP/CCAA and Permits is discussed in IA paragraph 6. The 50-year initial term (IA paragraph 6.1) can be extended “upon the agreement of the parties [the Services and Green Diamond] and compliance with all applicable laws [including, without limitation the Endangered Species Act]... under regulations of the Services in force on the date of such extension.” IA paragraph 6.5. The Services may require modifications to the Plan and IA at the time of any such extension (IA paragraph 6.5). Because current law at the time of any extension will govern conservation requirements for the duration of any extended term, such requirements will “update” required mitigation, if necessary, and provide conservation benefits in full accordance with the law.

Response to Comment G3-97

The American Lands Alliance’s August 7, 2000, scoping letter has been incorporated. See response to Comments G3-98 through G3-193.

Other Comments on the Implementation Agreement

G3-95 [Section 2.1.d of the Implementation Agreement states that the HCP/CCA minimizes and mitigates the impacts of “take” to the maximum extent practicable, and that issuing the “take” permits will not impact the covered species’ chances of survival and recovery. This is simply untrue, as discussed above.

G3-96 [The Implementation Agreement allows for extensions to the HCP/CCA and “take” permits for unspecified lengths of time. This is unjustified and irresponsible. The certainty with which one can say that the HCP/CCA and its various measures will be sufficient for the covered species’ survival and recovery will inevitably decrease over time -- and all the more so given the HCP/CCA’s lack of adequate biological goals, monitoring, and adaptive management provisions. The HCP/CCA and “take” permit cannot justifiably be extended for indefinite periods of time.

Comments on the EIS

G3-97 [The EIS fails to address many of the points raised in our scoping letter of August 7, 2000. Please note that we wish to incorporate our NEPA scoping letter into these comments by reference.

Notes

¹ 50 CFR 222.22(b)(5)(i) & (ii).
² *Sierra Club et al v. Bruce Babbitt et al* (Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.).
³ Final Addendum, Federal Register, 65;106, June 1, 2000.
⁴ Final Addendum, Federal Register, 65;106, June 1, 2000.
⁵ Final Addendum, Federal Register, 65;106, June 1, 2000.
⁶ Final Addendum, Federal Register, 65;106, June 1, 2000.
⁷ *Sierra Club et al v. Bruce Babbitt et al*.
⁸ 50 CFR 222.22(c)(iv).
⁹ USFWS et al. 1996. Endangered Species Habitat Conservation Planning Handbook. US Fish & Wildlife Service and the National Marine Fisheries Service. Washington, DC. Page 3-36.
¹⁰ *Sierra Club et al v. Bruce Babbitt et al*.
¹¹ USFWS et al (1996). Pp. 3-36 and 7-3.
¹² *National Wildlife Federation et al v. Bruce Babbitt et al*. (Civ. S-99-274 DFL JFM, Memorandum of Opinion and Order, August 15, 2000, US District Ct., E. District, CA).
¹³ Burkhardt, Hans. 1994. Maximizing Forest Productivity: Resource Depletion and a Strategy to Resolve the Crisis; Examples from the Forests of Mendocino County, California. Curtis, Robert. 1997. “The Role of Extended Rotations.” in Kohm et al. (1997). Curtis, Robert. 1995. Extended Rotations and Culmination Age of Coast Douglas Fir: Old Studies Speak to Current Issues. Research Paper PNW RP 485. Pacific Northwest Research Station, USDA Forest Service, Portland,

- OR. Curtis, Robert & Andrew Carey. 1996. "Managing for Economic and Ecological Values in Douglas Fir Forests." *Journal of Forestry*. September, 1996: McComb, William, et al. 1993. "Douglas Fir Forests: Managing for Timber and Mature Forest Habitat." *Journal of Forestry*. 91;12.
- Newton, Michael & Elizabeth Cole. 1987. "A Sustained Yield Scheme for Old Growth Douglas Fir." *Western Journal of Applied Forestry*. 2;1. Robinson, Gordon. 1988. *The Forest and the Trees: A Guide to Excellent Forestry*. Island Press, Covelo, CA. Willer, C. 1999. "Community Based Forestry and Corporate Forestry, A Comparison." Coast Range Association. Corvallis, OR.
- ¹⁴ The Services have been correct in noting in different fora that Congress intended that ESA section 10's requirements to be interpreted similarly to ESA section 7's "jeopardy" analysis. However, the Services have been incorrect in claiming that this jeopardy analysis was intended to be reduced to consideration only of whether a "take" permit will impact a covered species' chances of survival. At the time Congress established section 10, the section 7 jeopardy standard was clearly understood as also requiring an analysis of whether an action would harm a species' chance of recovery *per se*.
- ¹⁵ USFWS et al. 1998. Draft Environmental Impact Statement/Environmental Impact Report for the Headwaters Forest Acquisition and the PalCo Sustained Yield Plan and Habitat Conservation Plan. Vol. II. Prepared by the US Fish & Wildlife Service, Arcata, CA, and the California Dept. of Forestry & Fire Protection, Sacramento, CA. Page 2-23.
- ¹⁶ USFWS et al (1998). USDA FS *et al.* 1993. Forest Ecosystem Management: an Ecological, Economic, and Social assessment. Report of the Forest Ecosystem Management Assessment Team. USDA Forest Service, USDO FWS, USDO BLM, US EPA, USDO NPS, and USDOC NMFS. (1993). Pollock, M. & P. Kennard. 1998. A Low Risk Strategy for Preserving Riparian Buffers Needed to Protect and Restore Salmonid Habitat in Forested Watersheds of Washington State. 1,000 Years Institute, Bainbridge Island, WA. Huntington, C. 1998. Comments on April '98 Draft W. Oregon State Forests HCP as a Mechanism for Restoring Aquatic Habitats and At-Risk Salmon. Clearwater BioStudies, Canby, OR.
- ¹⁷ Rudolph, D.C., and J.G. Dickson. 1990. Streamside Zone Width and Amphibian and Reptile Abundance. *The Southwest Journal*. 35(4):472-476
- ¹⁸ USFWS. 1999. Draft Environmental Assessment for the Issuance of an Incidental Take Permit...for the Incidental Take of the Northern Spotted Owl...to Boise Cascade Corporation for Property Located in Clatsop County, Oregon. US Fish & Wildlife Service, Portland, OR. NMFS. 1998. A Draft Proposal Concerning Oregon Forest Practices. Submitted to the Oregon Board of Forestry Memorandum of Agreement Advisory Committee and the Office of the Governor. National Marine Fisheries Service, Northwest Region, Portland, OR.
- Reid, L. & R. Ziemer. 1999. Evaluating the Biological Significance of Intermittent Streams. Review Draft. Pacific Southwest Research Station, USDA Forest Service, Arcata, CA.
- ¹⁹ American Lands. 1998. Examples of Fish and Wildlife Conservation Needs on Non-Federal Forestlands and Species Harmed by HCPs. Forest Biodiversity Program, American Lands, Portland, OR. Available at <www.americanlands.org> Benda, L., et al. 1998. Independent Scientific Review of Oregon Dept. of Forestry's Proposed W. Oregon State Forests HCP. John Hayes, ed. College of Forestry, Oregon State Univ. Corvallis, OR. USFWS. 1998. Letter of February 16, 1998, to Wille Stelle, Jr., Regional Administrator, NMFS, Conveying Comments on the NMFS "Draft Proposal to Improve Oregon Forest Practices." US Fish & Wildlife Service, Portland, OR.
- ²⁰ Bury, R.B. 1983. Differences in amphibian populations in logged and old growth redwood forest. *Northwest Science*. 57(3)167-178. Nussbaum, R.A., E.D. Brodie Jr., and R.M. Storm. 1983. *Amphibians and Reptiles of the Pacific Northwest*. University of Idaho Press. Moscow, ID.
- Nordstrom, N. 1997. Cascade torrent salamander (*Rhyacotriton cascadae*) and Columbia torrent salamander (*Rhyacotriton kezeri*). Pages 1.1-1.17 in E.M. Larsen (tech. coord.), Management

recommendations for Washington's priority species, Volume III: Amphibians and Reptiles. Washington Department of Fish and Wildlife. Olympia, WA. Grialou, J.A., S.D. West, and R.N. Wilkens. 2000. The effects of forest clearcut harvesting and thinning on terrestrial salamanders. *Journal of Wildlife Management*. 64(1):105-113. Bury, R.B., P.S. Corn, K.B. Aubry, F.F. Gilbert and L.L.C. Jones. 1991. Aquatic amphibian communities in Oregon and Washington. Pages pages 353-362 in L.F. Rugiero et al. (eds.), *Wildlife & Vegetation of Unmanaged Douglas-Fir Forests*: USDA Forest Service General Technical Report PNW-GTR 285. Carey, A.B. 1989. Wildlife associated with old-growth forests in the Pacific Northwest. *Natural Areas Journal* 9(3): 151-162. Bury, R.B. and P.S. Corn. 1988b. Douglas-fir forests in the Oregon and Washington Cascades: Relation of the herpetofauna to stand age and moisture. Pages 11-22 in R.C. Szaro, K.E. Severson and D.R. Patton (Tech. coords.), *Management of amphibians, reptiles, and small mammals in North America*. USDA Forest Service, Gen. Tech. Rept. RM-166. Mierzwa, K.S. 1988. Dispersal of the Olympic salamander, *Rhyacotriton olympicus*, into second growth forest. *Bull. Chi. Herp. Soc.* 22(11): 180.

²¹ USDA FS et al (1993) and USDA FS et al (1994)

²² *Sierra Club et al v. Bruce Babbitt et al.*

²³ Final Addendum, Federal Register, 65;106, June 1, 2000.

²⁴ USFWS et al (1996), p. 3-26

²⁵ Final Addendum, Federal Register, 65;106, June 1, 2000.

²⁶ Final Addendum, Federal Register, 65;106, June 1, 2000.

²⁷ Final Addendum, Federal Register, 65;106, June 1, 2000.

²⁸ Final Addendum, Federal Register, 65;106, June 1, 2000.

²⁹ USFWS et al. (1996), p. 3-27.

³⁰ Nussbaum, R.A., E.D. Brodie Jr., and R.M. Storm. 1983. *Amphibians and Reptiles of the Pacific Northwest*. University of Idaho Press. Moscow, ID. Nordstrom, N. 1997. Cascade torrent salamander (*Rhyacotriton cascadae*) and Columbia torrent salamander (*Rhyacotriton kezeri*). Pages 1.1-1.17 in E.M. Larsen (tech. coord.), *Management recommendations for Washington's priority species, Volume III: Amphibians and Reptiles*. Washington Department of Fish and Wildlife. Olympia, WA. Grialou, J.A., S.D. West, and R.N. Wilkens. 2000. The effects of forest clearcut harvesting and thinning on terrestrial salamanders. *Journal of Wildlife Management*. 64(1):105-113. Bury, R.B. and P.S. Corn. 1988b. Douglas-fir forests in the Oregon and Washington Cascades: Relation of the herpetofauna to stand age and moisture. Pages 11-22 in R.C. Szaro, K.E. Severson and D.R. Patton (Tech. coords.), *Management of amphibians, reptiles, and small mammals in North America*. USDA Forest Service, Gen. Tech. Rept. RM-166. Mierzwa, K.S. 1988. Dispersal of the Olympic salamander, *Rhyacotriton olympicus*, into second growth forest. *Bull. Chi. Herp. Soc.* 22(11): 180.

³¹ USFWS et al (1996), p. 3-27.

³² Final Addendum, Federal Register, 65;106, June 1, 2000.

³³ Final Addendum, Federal Register, 65;106, June 1, 2000.

³⁴ Final Addendum, Federal Register, 65;106, June 1, 2000.

³⁵ 50 CFR 13.21(e)(2) and 13.47.

³⁶ Final Addendum, Federal Register, 65;106, June 1, 2000.

³⁷ Final Addendum, Federal Register, 65;106, June 1, 2000.

³⁸ Final Addendum, Federal Register, 65;106, June 1, 2000.

³⁹ USFWS et al (1996), p. 3-22.

⁴⁰ This figure includes the original 411,961 acre plan area, 4,560 acres which have been added to the area, and 62,480 acres which can be added to the plan area under the HCP's terms.

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⁴¹ USFWS et al. (1996), p. 3-25.

⁴² Final Addendum, Federal Register, 65;106, June 1,2000.

⁴³ Final Addendum, Federal Register, 65;106, June 1,2000.

⁴⁴ USFWS et al (1996), p. 3-24.

⁴⁵ USFWS et al (1996), p. 3-22.

⁴⁶ USFWS et al (1996), p. 1-16

⁴⁷ USFWS et al (1996), p. 3-22.

⁴⁸ USFWS et al (1996), p. 6-30

⁴⁹ See *LaFlamme v. FERC* (852 F.2d 389, 400 (9th Cir 1988), and *ONRC v. Daley* (1998 WL 296838) (D.Or 1998), as cited in Arum (1998), as well as *Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.

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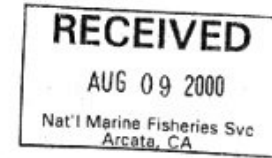
August 7, 2000

TO: James Bond
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Amedee Brickey
USFWS
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FR: Daniel Hall, Director
Forest Biodiversity Program
American Lands

RE: NEPA Scoping Comments on Simpson Timber Company
Incidental Take Permit and Enhancement of Survival Permit for
Del Norte and Humboldt Counties



**American Lands
ALLIANCE**

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Enclosed, please find our comments on the scope and contents of the Environmental Impact Statement (EIS) to be prepared in relation to the Simpson Timber Co.'s proposed application for an Incidental Take Permit (ITP) and Enhancement of Survival Permit (ESP), as per the notice in the July 11, 2000, Federal Register (65;133).

American Lands is governed by and represents citizens from across the United States who seek to protect and restore our forests, watersheds, and biotic resources for the benefit of future generations. American Lands' Forest Biodiversity Program is dedicated to promoting improved biodiversity conservation and resource management on non-Federal forestlands in the west, including through incentives and more effective policy implementation.

Where the following comments refer to Habitat Conservation Plans (HCPs) and/or Incidental Take Permits (ITPs), they should generally be understood to also refer to Candidate Conservation Agreements (CCAs) and/or Enhancement of Survival Permits (ESPs).

Thank you for providing this opportunity to comment. Our apologies for any redundancies in the following comments and suggestions; we only recently learned of the opportunity for public comment, and have had little time to prepare these comments.

Response to Comment G3-98

Regarding applicable standards, the application requirements and approval criteria for an Enhancement of Survival Permit (ESP) as they compare to the requirements and criteria for an Incidental Take Permit (ITP) are discussed in Plan Section 1.4.1 and in Master Response 8. Applicants for an ESP must, in a CCAA, contribute to efforts to avoid the need to list currently unlisted covered species by providing early conservation benefits to these species which may be at risk of ESA listing in the future. The standard for issuance of an ESP and CCAA is that the benefits of the Plan for the ESP species, when combined with the benefits for those species that would be achieved if it is assumed that the Plan's conservation also were implemented on other necessary properties, would preclude or avoid any need to list those species. 50 C.F.R. §17.32(d)(2); 64 Fed. Reg. 32726, 32729 (June 17, 1999). Regarding the suggestion that Green Diamond's proposed CCAA/ESP should be required to meet all policy standards required for HCPs/ITPs, the Services note that Green Diamond is obligated to meet all applicable *legal* standards - including legal standards relating to CCAAs and ESPs - but not *policy* ones. Applicable legal standards are set forth in AHCP/CCAA Section 1.4.1, 1.4.2 and 1.4.3 and EIS Section 1.5, and Permit approval criteria are discussed further in Master Response 6. These standards, rather than the HCP Handbook or other policy guidance, control, the Services also believe that the Plan, EIS and IA are consistent with relevant policy guidance documents, including the HCP Handbook.

To meet the statutory criteria for approval of an HCP/ITP, Green Diamond's conservation program must minimize and mitigate the impacts of authorized incidental take of covered species that may

I. Overarching Issues

Depending on how the policy standards for CCAAs/ESPs are interpreted, those standards might provide the covered species with a lesser chance of recovery than when the standards for HCPs/ITPs are properly implemented. It is not clear, for example, whether CCAAs must minimize and mitigate the impacts of "take" to the maximum extent practicable, as is required for HCPs, nor is it clear whether CCAAs are required to provide measures sufficient to amount to species' recovery, as is also required by the ESA for HCPs/ITPs.

To guard against the possibility that Simpson is proposing to use a CCA/ESP to avoid meeting important (though often insufficient) HCP standards, Simpson's proposed CCA/ESP should be explicitly required to meet all policy standards required for HCPs/ITPs, including those listed in Section III of our comments. Failure to do so might allow Simpson to circumvent the requirements for covering unlisted species in an HCP, including the overarching, Congressionally-mandated requirement that those species be addressed as if they were already listed. (It should also be noted that while it may be beneficial to address unlisted species in an HCP, the species should not be included in the ITP *per se* until such time as the species are listed and other requisites are met, as discussed in Section III of our comments.)

Moreover, the EIS should fully assess the impacts of any differences in the policy standards for HCPs/ITPs and CCAAs/ESPs, any subsequent gaps between Simpson's proposed CCA conservation measures and those measures that would be required of an HCP, and any subsequent impacts to the unlisted species' chances of recovery.

The proposed actions' impacts on the covered species' existing and likely-to-be-designated critical habitats must also be carefully examined, since the proposed HCP/ITP (or CCA/ESP) may not be legally issued if it adversely modifies the species' critical habitats, as per ESA s. 7(a)(2). The logging, site preparation, roading, chemical applications, other operations likely to be permitted by the HCP/ITP and CCA/ESP are likely to adversely modify and seriously impact critical habitat for several of the covered listed species, as discussed in Section III of our comments below.

II. Basic Goals and Standards for the EIS

The EIS should meet each of the following goals and standards.

Alternatives Analysis

Under NEPA, an EIS must "rigorously explore and objectively examine all reasonable alternatives." [40 CFR 1502.14(a).]

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result from the covered activities “to the maximum extent practicable.” This criterion necessarily is bounded by the *extent* of the impacts that would result from the authorized taking. In other words, the requirement is not to provide to the maximum extent practicable conservation measures without regard to the extent of the impacts of taking. Rather, the requirement is to provide measures that minimize and mitigate the impacts of taking to the maximum extent practicable. The Services provide the following guidance regarding the “maximum extent practicable” finding in the Habitat Conservation Planning Handbook at 7-3:

This finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can practically be implemented by the applicant. To the extent that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, less emphasis can be placed on the second factor.

See also Master Response 8. See also *National Wildlife Federation v. Norton*, 2004 WL 415226, *7 (Feb. 4, 2004; “the statutory language does not suggest that an applicant must ever do more than mitigate the effect of its take of species”). Regarding critical habitat, the Services will assess in their respective biological opinions whether issuance of the Permits will result in the destruction or adverse modification of critical habitat. Regarding the “covered activities”, see AHCP/CCAA Section 1.3.4 and Section 2.

Response to Comment G3-99

Based on EIS Section 2 (*Proposed Action and Alternatives*) and AHCP/CCAA Section 8 (*Alternatives Considered*), as further discussed in Master Response 10 (*Analysis of Alternatives in the Plan and EIS*), the Services believe that the number and range of alternatives considered in the DEIS and Green Diamond’s AHCP/CCAA are both reasonable and sufficient to permit a reasoned choice.

Regarding funding for Plan implementation, see IA Paragraph 7.0.

Under NEPA, where economic preferences are used to select the preferred alternative, the decision must not be based on misleading, biased, or incomplete economic information. [*Seattle Audubon v. Lyons* (871 F. Supp. 1291, 1324 (W.D. Wash. 1994), aff'd 80 F.3d 1401 (9th Cir. 1996), as cited in Arum (1998)]

The existence of a "viable but unexamined alternative renders an environmental impact statement inadequate." [*Alaska Wilderness Recreation & Tourism v. Morrison* (67 F.3d 723, 729 (9th Cir. 1995), as cited in Arum (1998)] Likewise, an agency may not "consider only those alternatives with [the same] end result." [*Resources Ltd. v. Robertson* (35 F.3d 1300, 1307 (9th Cir. 1994), as cited in Arum (1998)]

The EIS must analyze in detail, and evaluate the comparative merits of, a range of several different alternatives for protecting old growth, late seral and riparian ecosystems and species dependent on such ecosystems. All alternatives selected for detailed analysis must *avoid or substantially reduce* the significant environmental impacts of the proposed project. (40 C.F.R. § 1502.14; 14 Cal. Code Regs. § 15126(d).) Thus, a "straw man" alternative which authorizes more timber harvesting than the HCP will not satisfy the agencies' obligations under NEPA and CEQA. The alternatives analysis also should not be constrained by what the applicant deems economically "practicable" or "feasible." (See HCP Handbook, p. 3-35.)

The "no action" alternative must accurately describe baseline conditions and assume full compliance with and enforcement of existing federal and state laws. A no action alternative that assumes minimal or compliance with or enforcement of the ESA, and therefore seriously overestimates the purported "benefits" of the HCP's mitigation program, is not acceptable. The no action alternative must account for the likelihood that currently imperiled species will be listed in the future and subject to ESA restrictions.

At a minimum, the following alternatives should be identified and fully studied:

- 1) A credible "no action" alternative that assumes full "take" avoidance, including in compliance with ESA rules that are consonant with the covered species' recovery needs, such as is required of ESA s. 4(d) rules. Such an alternative would recognize Simpson's responsibility to protect what little habitat remains for endangered species within the context of its much larger ownership, and the fact that Simpson has already profited substantially by harming imperiled species and their habitats.
- 2) A recovery-oriented HCP that fully meets all goals and standards for HCPs/ITPs, as discussed in Section III of our comments. Among other things, such an alternative would use longer timber rotations, habitat reserves, and site protections to provide both habitat for sensitive species and reasonable income for the landowner. Forests managed for older, more diverse timber stands can provide competitive revenues from higher-quality, higher-priced timber, edible mushrooms, harvest of medicinal plants, clean water, sequestration of atmospheric carbon, and other non-timber forest products and ecosystem services. Timber companies with publicly-owned stocks that are concerned about leveraged takeovers that

Response to Comment G3-100

The EIS does provide an independent analysis of the No Action Alternative and other action alternatives, including the Proposed Action, and discloses adequate information for the Services' decision makers. To evaluate possible environmental impacts associated with the Proposed Action, the Services selected CH2MHill to draft the EIS.

Regarding the Services' independent evaluation and peer review, the Services have reviewed the protocols contained in Green Diamond's studies in support of the Plan, and have determined, based on this review, that the protocols do not reflect bias as to any particular desired conclusion. The protocols selected were the most current available and were scientifically sound. With few exceptions (e.g., general property-wide water temperature monitoring and stream and LWD assessments), all of the studies and monitoring were designed to meet the criteria for publication in peer-reviewed scientific journals. (Only a portion of the work has actually been published at this point, primarily because most of the studies and monitoring being undertaken require a long-term data set to be judged scientifically significant.)

All of the studies and monitoring have been undertaken in consultation with local and regional experts in the respective fields of study. See generally AHCP/CCAA Volume 2. For example, Dr. Bill Trush of McBain and Trush was retained as a consultant to help develop the long-term channel monitoring protocol. Dr. David Hankin from Humboldt State University was consulted on juvenile salmonid population estimation and Dr. Eric Bjorkstedt from NMFS assisted with the development of coho smolt estimates from out-migrant traps. Drs. Tom Lisle and Robert

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may result from restoring their timber inventories may dedicate conservation easements to restrict timber harvests to sustainable levels.

3) Simpson's proposed HCP/ITP and CCA/ESP.

4) In conjunction with each of the preceding alternatives, funding for habitat restoration measures to be secured from other major California timberland owners who have benefitted financially from industrial forestry and the degradation of salmonid habitat. Such funding would be in addition to funding from Simpson and any other sources.

Impacts Analysis – Independent Analysis

The Services must take a "hard look" at the environmental consequences of approving an action, i.e., an ITP/HCP. [*Kleppe v. Sierra*, 427 U.S. 390, 410 n.21 (1976).]

The EIS must independently evaluate the effectiveness of all HCP components and outcomes. To date, most NEPA documents for forest HCPs simply reiterate the rationale for the plan found in the HCP (which is usually drafted by the landowner's consultant), and do not provide any additional, objective information. Some HCPs even use the same document as both the HCP and the NEPA analysis. An EIS that simply paraphrases or otherwise reiterates the discussion in the HCP, or is artificially constrained by the assumptions and conclusions in the HCP, will be insufficient to meet the agencies' obligations under NEPA.

G3-100

Contractors for NEPA documents need to be selected by the Services. Moreover, the contractors should not have a financial or other interest in the outcome of the project. [See section 1506.5(c) of the NEPA regulations.] The HCP Handbook also states that the Services are responsible for drafting the NEPA document. [USFWS *et al* (1996), p. 2-4.] The EA or EIS should be developed by an objective third party, i.e., either a NMFS or USFWS office separate from the office which is negotiating the ITP with the landowner, or a consultant other than the consultant hired by the landowner to develop the HCP or other major projects for the landowner.

Independent (and presumably, academic) scientific peer review panels should be consulted during HCP development, particularly for more significant plans. [Kareiva *et al* (1999)]

Impacts Analysis – Basic Scope

G3-101

Under NEPA, environmental impacts which must be considered include impacts to ecological, aesthetic, historical, cultural, economic, social, and health values, including direct, indirect, and cumulative impacts. [Mueller *et al* (1997).] The HCP Handbook also states that impacts to air quality, water quality, and land use patterns should be addressed. [USFWS *et al* (1996), p. 1-6]

Impacts to all other environmental values should be assessed.

Ziemer from the Redwood Sciences Lab and Frank Ligon with Stillwater Ecosystem, Watershed & Riverine Sciences, Inc. provided input on the Class III sediment monitoring. The headwaters amphibian studies and monitoring were conducted collaboratively with Dr. Richard Wallace from the University of Idaho. The critical steps of study design and statistical analyses were performed with the assistance of Drs. Layman and Trent McDonald of WEST, Inc. Numerous other individuals could be listed who provided input to the design and analysis of the Plan's studies and monitoring program. The Services believe that care was taken to collect and analyze data in a scientifically valid and meaningful manner and that the data as reported for the Plan Area is as unbiased as possible given the current state of science in the respective areas.

Response to Comment G3-101

Potential impacts to environmental values are addressed in detail in DEIS Section 4.0 (Environmental Consequences). Tribal consultation is described in DEIS Section 1.7. In August and September 2000, Green Diamond held a series of six informational meetings with State and Federal agencies, the Yurok Nation, and the Hoopa Tribe. In addition to the consultation with the various tribes, a large staff of fisheries biologists working for the Yurok Tribal Fisheries Program assisted with much of the field work conducted in preparation for the Plan in the lower Klamath River watersheds.

Response to Comment G3-102

Covered activities, including Green Diamond's timber operations and related land management activities in the Initial Plan Area, are described in AHCP/CCAA Section 1.3.4 and Section 2. Herbicide use is not a covered activity - see Master Response 4 regarding consideration of herbicides in the Plan and EIS. Baseline conditions, including information about the status of aquatic habitat and the covered species in the Plan Area on an HPA-by-HPA basis, are discussed in AHCP/CCAA Section 4 and in Master Response 1. Approval of the Plan and issuance of the Permits does not absolve Green Diamond of compliance with any otherwise applicable legal requirement (see generally EIS Section 1.5 and AHCP/CCAA Section 1.4). Therefore, approval of the Plan and issuance of the Permits will have no effect on any otherwise applicable requirement to comply with the Water Quality Control Plan for the North Coast Region (the "basin plan"). Details regarding the mitigation measures are set forth in AHCP/CCAA Section 6.2 - the Operating Conservation Program - and are further described in AHCP/CCAA Section 6.3. These measures are supported by scientific data as described in the Plan, including its appendices, as well as in the EIS.

G3-101

Off-reservation American Indian treaty rights must be considered, including through consultation with the relevant tribes, according to the HCP Handbook. [USFWS et al (1996), p. 3-9]

Impacts Analysis – Activities Examined

The EIS must fully assess the impacts of each forest management activity (i.e., specific types of logging operations, site preparation operations, road construction plans, specific herbicide applications, specific silvicultural regimes and resulting forest growth, etc.) permitted by the ITP and ESP on all environmental resources, including water quality, air quality, watershed and geologic impacts, land use, etc.

In order to adequately evaluate the impacts of the HCP on water quality, the EIS must include adequate baseline data which specifically describes the habitat structure and quality of all Class I, II and III streams in the HCP area. This includes stream temperature, sedimentation and turbidity, percentage of shade canopy, and the location, quality and quantity of large woody debris, spawning gravel, riffles, pools, fish spawning and rearing sites, and key forest plant and animal species. All Class I, II and III watercourse, roads, road crossings, landings and skid trails must be described and mapped. In addition, the EIS must identify the steepness, stability and erosion hazard rating of slopes, and the location of any previous slope and road failures, erosion and mass wasting incidents. The EIS also must assess and map upslope activities that would potentially deliver sediment to streams and are potential sources of slides, erosion and mass wasting.

G3-102

The EIS must analyze impact of the HCP on each of these baseline parameters, including stream sedimentation, temperature and turbidity; canopy retention; recruitment of large woody debris; late seral forest characteristics of stream corridors; and wildlife and vegetative structure and diversity, both during harvest and over the long term. The EIS must examine the impact of construction and maintenance of roads, road crossings, landings and skid trails, wet weather operations, operations on steep slopes and near watercourses, and the ability of culverts to accommodate projected and unanticipated storm events.

The EIS also must evaluate the impact of timber harvesting and other activities authorized by the HCP on the ability of Class I, II and III streams in the HCP area to meet applicable basin plan limitations, water quality objectives, total maximum daily loads, and antidegradation requirements over the life of the HCP. Finally, the EIS must evaluate the adequacy of the HCP's mitigation measures, such as leave tree standards, stream buffers, canopy retention and recruitment of large woody debris to offset the adverse impacts of the HCP.

The details of HCP mitigation measures must be explicitly described and accompanied by data on their effectiveness. The likely success of each measure must be evaluated, as must the overall effectiveness of mitigation measures at minimizing and offsetting "take." [Kareiva et al (1999)]

Response to Comment G3-103

As explained in the Plan, the six covered species are dependent on a variety of stream habitats in the Initial Plan Area. A general description of the covered species and their habitats is set forth in AHCP/CCAA Section 3 and is supplemented with additional detail in Plan Appendix A. See also EIS Section 3.4 (*Aquatic Resources*). An HPA-by-HPA assessment of habitat conditions and the status of covered species, as well as other specific information about the Plan Area, is provided in AHCP/CCAA Section 4 and elements of the "affected environment" are set forth in EIS Section 3. In AHCP/CCAA Section 5, the Plan assesses potential impacts to the covered species and their habitats that could result in take. In AHCP/CCAA Section 7 and EIS Section 4 (*Environmental Consequences*), earlier analysis is extended and expected outcomes evaluated. As noted above, approval of the Plan and issuance of the Permits does not absolve Green Diamond of compliance with any otherwise applicable legal requirement (see generally EIS Section 1.5 and AHCP/CCAA Section 1.4). Therefore, approval of the Plan and issuance of the Permits will have no effect on the ESA Section 9 take prohibition as it applies to any other federally-listed species or on any species listed under the State endangered species act, whether animal or plant. Regarding plants, see EIS Section 3.5 (*Affected Environment - Vegetation/Plant Species of Concern*) EIS Section 4.5 (*Environmental Consequences - Vegetation/Plant Species of Concern*). Similarly, the scoping letter suggests that the Services must comply with the ESA Section 7 consultation process. The Services have done so.

Quantification of take is addressed in Master Response 9. The biological goals and objectives are set forth in AHCP/CCAA

Impacts Analysis – Species Impacts Analysis

G3-103

The EIS must include a detailed biological analysis of the impacts of timber harvesting, resource extraction and other activities authorized by the HCP and ITP on *each* wildlife and plant species (whether listed or unlisted) to be "covered by" the HCP (i.e. each species for which "no surprises" regulatory assurances will be given) and all designated critical habitat areas. (HCP Handbook, pp. 3-12, 3-38, 4-4.)

Impacts to all threatened, endangered, candidate, proposed-listed, sensitive, rare, endemic, or otherwise at-risk or ecologically, socially, or economically important plant and animal species should be assessed, *regardless* of whether those species are officially "covered" by the HCP.

Impacts should be assessed explicitly for each listed and unlisted species covered by the HCP, as should the relationship between the landowner's forest management practices and each species' conservation needs, including the species' recovery needs.

In addition, the EIS must analyze the impact of activities on all species "occurring or potentially occurring" on all Simpson lands subject to the HCP, regardless of whether they will be "covered" by the HCP. If any wildlife or plant species occurring or potentially occurring on lands subject to the HCP will *not* be "covered" by the plan, the EIS must analyze the impacts of the HCP on these species, why they are not "covered," and include mitigation measures for any significant impacts identified.

The HCP Handbook notes that the Services must consider impacts on Federally-listed plants, during ESA s. 7 consultation, regardless of whether those plants are "covered" by the HCP. Plants protected by state laws are among those which must be addressed, pursuant to ESA s. 9. [USFWS et al (1996), pp. 1-6, 3-8, & 3-17]

Determinations of which species are likely to be using the property should be based primarily on field surveys. It is not safe to assume that past land management eliminated all sensitive species and their habitats, or on state species databases, which are notoriously inadequate for private lands. Determinations about species which will need habitats to be restored on the property for their recovery should consider the site's potential natural habitats, based on soils, potential vegetation, elevation, local climate, etc.

For each species, the analysis must: (1) specifically indicate how the HCP and ITP will affect species' survival *and* recovery prospects; (2) describe activities that may result in take of covered species; and (3) *quantify* the anticipated level of take resulting from all activities authorized under the HCP. (HCP Handbook, pp. 3-12 - 3-14, 3-20.) The EIS must indicate whether the impacts of the HCP and ITP on each of these species will be significant, and if so, include *species specific* mitigation measures and management actions for *each* significant

Section 6.1 and are discussed further in Master Response 12. Baseline data is provided in EIS Section 3 (*Affected Environment*) and in AHCP/CCAA Section 4, among other places. The Services believe that the impacts analysis in the EIS, as supplemented by analysis in the Plan, meets all statutory and regulatory requirements and is supported by accurate and adequate baseline data.

impact identified. (40 C.F.R. § 1502.16(h).) Generalized habitat based mitigation measures which do not account for individual species needs are unacceptable.

The EIS must provide: 1) detailed, thorough, and quantitative descriptions of the habitat and population conditions that will correspond to each covered species' recovery, 2) detailed, quantitative habitat and population projections for each species covered by the HCP, for each alternative, and 3) compare the alternatives' outcomes identified in step (2) with the indicators of recovery identified in step (1).

HCPs -- particularly those covering large areas or large amounts of a species' range -- should inventory, summarize, and document available data on each species and their distribution, abundance, population trends, ecological requirements, life history, and causes of endangerment. [Kareiva et al (1999)]

Quantitative estimates of the impacts of "take" on species' viability should be provided, especially for larger or more significant plans. At a minimum, best and worst-case scenarios should be identified. [Kareiva et al (1999)]

Impacts of "take" should also be evaluated, particularly for larger or more significant plans, including by determining whether the habitats being "taken" correspond to population "sources" or "sinks," whether genetically unique subpopulations are being "taken," and whether unique habitat/species combinations are being impacted. [Kareiva et al (1999)]

HCPs need to quantify the plans' biological goals. [Kareiva et al (1999)]

An HCP's adequacy is questionable if the plan fails to adequately address one or more of the following: species' status reviews, analyzing the proposed "take," assessing the impacts of "take," planning and assessing mitigation measures, and planning and assessing monitoring provisions. [Kareiva et al (1999)]

Where possible, assertions made in HCPs should be supported by quantitative information. [Kareiva et al (1999)]

The EIS likewise must objectively analyze the likely short-term *and* long-term effectiveness of each of the HCP's proposed measures to minimize and mitigate incidental take of covered species and provide a scientifically justifiable reason why and how these measures will mitigate any significant adverse impacts to species to a level of insignificance. (HCP Handbook, p. 3-19.)

The analysis in the EIS must be supported by accurate and adequate baseline data (including field surveys), scientific studies, population viability analyses, and other information which provides a scientifically justifiable basis for the environmental document's conclusions. Specifically, the EIS must include comprehensive biological assessments for each covered species (and particularly listed species), and their associated habitats. Such assessments should

Response to Comment G3-104

The cumulative effects analyses, including under the ESA and NEPA, are discussed in Master Response 3. Although these legal authorities require slightly different analysis of cumulative effects, the conclusions under each analysis in this case are the same:

Because of the way the Plan has been designed, the effect of its implementation will be to provide for overall improvement in important habitat factors so that Plan implementation will slightly reduce cumulative adverse environmental conditions, including current adverse conditions where they exist, relative to existing conditions and the conditions that are expected to occur over time under the No Action Alternative. To reach this conclusion, the Services considered the interaction in space and time of the incremental impact of the Federal action - approval of the Permits under the conditions of approval described in the Plan - together with the impacts of other past, present, and reasonably foreseeable future actions regardless of what agency, Federal or non-Federal, or person undertakes such other actions. Although it is possible that one or more landowners will apply for an ITP in the future, the geographic area, timing and conditions of permit approval for such possible ITPs cannot be predicted with sufficient certainty to include in the analysis for this action.

In the Plan, discussions of the potential effects of take resulting from timber operations, including cumulative impacts, are provided in AHCP/CCAA Sections 5 and 7, which build on the analyses and assessments set forth in AHCP/CCAA Section 3, regarding the covered species' biology and habitat needs, and AHCP/CCAA Section 4, regarding baseline habitat conditions in the Plan Area. In the EIS, cumulative impacts are discussed in

G3-103

address such issues as species abundance and distribution, habitat requirements (e.g. important food sources and foraging habitat, and nesting, roosting and dispersal habitat), biologically important symbiotic relationships with other species, life history and population trends, both range-wide and within the plan area.

Impacts Analysis – Cumulative Impacts

Cumulative effects analyses are also required as part of the ESA s. 7 consultation process for HCPs, as per 50 CFR 402. HCPs should evaluate the cumulative impacts of multiple plans and their interactions. The percentage of local *and* global populations that will be “taken” should be assessed. [Kareiva et al (1999)]

A thorough cumulative effects analysis should be conducted to address all Federal and non-Federal actions affecting each species covered by the ITP/HCP. The analysis should also address all past, present, and reasonably foreseeable actions across the species' ranges.

G3-104

The cumulative impacts of the HCP also must be evaluated in conjunction with the anticipated impacts on all species affected by the HCP of ESA section 4(d) rules for the covered species, the effects of public lands management activities under the Northwest Forest Plan, and the impacts of timber harvesting under the "salvage logging rider" (Pub. L. No. 104-19, section 2001 (1995)) and other relevant laws and policies. Further, the cumulative impacts analysis must also evaluate the HCP's and ITP's impact on the effectiveness of existing federal and non-federal conservation strategies over the short term and the long term.

The EIS must evaluate the cumulative impacts of timber harvesting and other land-disturbing activities on each species affected by the HCP. This cumulative effects analysis must account for the amount of incidental take of species authorized by each incidental take permit and incidental take statement that has been approved or is currently being prepared for federal and non-federal lands throughout the Pacific Northwest (e.g. California, Oregon and Washington). The analysis should also account for the possibility that landowners who have not yet applied for an incidental take permit to take existing habitat and species on private lands will do so in the future, and estimate the amount of incidental take that will be authorized by those permits in light of existing precedents.

Impacts Analysis – Institutional Issues

G3-105

The EIS must objectively and independently evaluate any assertions by the HCP applicant that certain mitigation measures are "impracticable" or "infeasible." Such assertions must be supported by reliable and specific documentation of impracticability or infeasibility. (HCP Handbook, p. 7-3.)

G3-106

Activities on other lands not subject to the HCP's Implementation Agreement should be considered as speculative, and not counted as mitigation for “take” authorized by the ITP.

Sections 4.1.2 (Introduction), 4.2.8 (Geology, Geomorphology and Mineral Resources), 4.3.8 (Hydrology and Water Quality), 4.4.8 (Aquatic Resources), 4.5.7 (Vegetation/Plant Species of Concern), 4.6.7 (Terrestrial Habitat/Wildlife Species of Concern), 4.7.7 (Air Quality), 4.8.7 (Visual Resources), 4.9.7 (Recreation), 4.10.7 (Cultural Resources), 4.11.7 (Land Use) and 4.12.7 (Socioeconomic Conditions).

As discussed in EIS Section 4.1.2.3, other regional actions within the Plan Area, including implementation of NWFP on United States Forest Service and Bureau of Land Management lands, were assessed as part of the cumulative impacts assessment. See also EIS Section 4.9.7, regarding expected recreational benefits for anglers as a result of continued implementation of the NWFP on Federal lands. Regarding baseline conditions generally, see Master Response 1.

Regarding estimated quantification of take, see Master Response 9.

Response to Comment G3-105

HCP Handbook, p. 7-3, cited in the scoping letter, recognizes that the applicant decides, with input from the Services, which measures to include in an HCP but that the ultimate decision whether the mitigation program as a whole meets the statutory ITP issuance criteria rests solely with the Services. As with NEPA analyses, the ESA does not require the selection of any particular alternative. The HCP Handbook emphasizes that “[n]either FWS nor NMFS have the authority to impose a choice among the alternatives analyzed in the HCP. The Services’ role during the HCP development phase is to advise the applicant in developing an acceptable HCP.” (HCP Handbook at 3-36.) Here, the Services have evaluated the Operating Conservation Program (AHCP/CCAA Section 6.2) and believe that it satisfies the Permit issuance criteria discussed in Master Response 8.

Response to Comment G3-106

Regarding consideration of activities on lands not subject to the Plan or Permits, the Services have not, and do not, consider them to be

“mitigation” for the impacts of take on the covered species. However, where such activities are legally required of Federal or State agencies on lands within the Plan Area, they are considered as part of the regulatory background (EIS Section 1.5) and in the cumulative impacts assessment (see, e.g., EIS Section 4.9.7).

The mechanisms for funding the mitigation and monitoring measures described in the AHCP/CCAA are discussed in Paragraph 7 of the Implementation Agreement between Green Diamond and the Services. See also AHCP/CCAA Section 6.2.3.2.1, regarding funding for acceleration of the Road Implementation Plan, and AHCP/CCAA Section 6.2.5.2, regarding funding for monitoring projects and programs. No alternate funding mechanisms are necessary. NEPA does not require that an EIS analyze the adequacy of funding commitments.

Response to Comment G3-107

See Master Response 14 regarding Plan Enforceability and Master Response 19 regarding the No Surprises rule.

Response to Comment G3-108

The Services are not authorized to require Green Diamond to provide additional mitigation measures beyond those necessary to meet the Permit issuance criteria described in EIS Section 1.3. See Master Response 19 regarding the No Surprises rule.

Response to Comment G3-109

EIS Section 4 analyzes the environmental consequences of the Proposed Action. In particular, environmental consequences of the Proposed Action on terrestrial habitat and species of concern are assessed in EIS Section 4.6, potential impacts on aquatic resources are assessed in EIS Section 4.4, and impacts on hydrology and water quality are assessed in EIS Section 4.3. These assessments take into account the changes in the environment or other changed circumstances that are foreseeable. However, these assessments do not consider the impacts of changed circumstances that are unforeseeable. By their nature, unforeseeable changes cannot be meaningfully predicted and assessed.

In the Plan, measures for changed circumstances, including fire, wind, earthquake, flood, pest or pathogen infestation, landslide and the listing of a new species that is not a Covered Species, are set forth in AHCP/CCAA Section 6.2.9 and are described further in AHCP/CCAA Section 6.3.9. See also IA Paragraph 9. The Services believe that this suite of changed circumstances and the

G3-106

The EIS must analyze the adequacy of the commitments for funding the mitigation and monitoring measures in the HCP to support long term species conservation. The analysis must include financial and other data, which accounts for inflation, depreciation of assets, increased real estate values, and other contingencies, to support the conclusions reached. If the EIS concludes that the funding mechanisms are inadequate, it must propose alternate funding mechanisms which would achieve long term conservation of species for the life of the permit.

G3-107

The EIS must analyze the reasonably foreseeable biological impacts of including a "no surprises" provision in the HCP and implementing agreement. The effects of the "no surprises" policy over both the short and the long term are extremely likely to be significant. Thus, if 1) the HCP fails to achieve its stated goals, 2) the HCP conditions prove inadequate to protect species, 3) new scientific information is discovered which affects the assumptions in or conclusions of the HCP, and/or 4) unanticipated circumstances significantly change the environmental baseline, then federal and state agencies may be restricted in their enforcement and ability to respond in order to conserve the species.

G3-108

The EIS should evaluate the availability of federal and state funds to meet any future mitigation requirements. If the availability of federal and/or state funds is a likely possibility, then the EIS must also analyze the biological effects resulting from the permittee's and/or the government's future unwillingness or inability to provide adequate mitigation or HCP implementation funding on Fish and Wildlife Service determinations pursuant to Section 7.

G3-109

The EIS should fully analyze the impacts of both foreseeable and unforeseeable changed circumstances on the assumptions, conclusions and mitigation measures contained in the HCP, and how these changed circumstances will affect species survival and recovery, population trends, habitat quality and quantity, water quality, and other environmental factors. Foreseeable circumstances include fire, flood, lightning, disease and other stochastic events. The HCP must contain mitigation measures to address such foreseeable circumstances, and specific, detailed procedures to address any unforeseen circumstances, as required by the ESA and its implementing regulations. These critical provisions cannot simply be passed off as a federal government obligation under the "no surprises" policy.

G3-110

The DEIS must also consider the significant economic benefits that Simpson will likely accrue by acquiring a valid ITP for various listed and unlisted species. Particularly when coupled with "No Surprises" guarantees, the ITP provides a level of regulatory certainty which is unprecedented in the business world, largely insulates Simpson from any future liability to adopt additional conservation measures to protect and recover listed and unlisted species, and may even increase Simpson's land values, assuming that the ITP and HCP could be potentially transferred or otherwise adopted by subsequent landowners.

G3-111

Information on listed species, as well as monitoring data from HCPs should be made accessible in a centralized location, to facilitate better planning and plan evaluation. [Kareiva et al (1999)]

measures to address them adequately address reasonably foreseeable changes in habitat conditions and the status of covered species in the Plan Area. In addition, the conservation measures set forth in other parts of AHCP/CCAA Section 6.2 (Green Diamond's Operating Conservation Program) are adequate to address changed circumstances.

Changes in circumstances affecting a covered species or its habitat in the Plan Area that could not reasonably have been anticipated by Green Diamond or the Services at the time of the Plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species are called "unforeseen circumstances." Unforeseen circumstances are described in AHCP/CCAA Section 6.3.9 and stated in AHCP/CCAA Sections 6.2.10 and 6.3.10. Modifications to the Plan will be made to address unforeseen circumstances in accordance with the procedures set forth in Paragraph 4.3 of the IA.

Response to Comment G3-110

NEPA does not require an economic benefits analysis, and none is provided.

Response to Comment G3-111

Information on listed species is available in the Federal Register and on the Services websites. See, e.g., endangered species program information on the FWS website (<http://endangered.fws.gov/>) and endangered species conservation information provided by the NMFS Office of Protected Resources (http://www.nmfs.noaa.gov/prot_res/overview/es.html). Regarding Green Diamond's Plan, information about the covered species is provided in AHCP/CCAA Sections 3 and 4, in AHCP/CCAA Appendix A and in EIS Section 3.4.2. With regard to the suggestion regarding monitoring data, the Services thank the commenter for the suggestion.

Response to Comment G3-112

Minimization and mitigation measures are provided for the potentially significant impacts. See AHCP/CCAA Sections 6.2 and 6.3, regarding the measures, and Master Response 3, regarding cumulative effects and the environmental impacts analysis.

Response to Comment G3-113

See Master Response 1.3, regarding use of the best available scientific information in the Plan.

Response to Comment G3-114

See AHCP/CCAA Sections 3.0 (Description of the covered species and their Habitats) and 4.0 (Description and Assessment of the Current Status of Aquatic Habitat and covered species in the Area Where the Plan Will Be Implemented). Factors and conditions relevant to the planning and implementation of conservation measures for the covered species are identified and examined in AHCP/CCAA Sections 4.2 and 4.3, and the occurrence of the covered species within and among HPAs is discussed in AHCP/CCAA Section 4.4.

Response to Comment G3-115

The Plan and EIS must assess and mitigate potential adverse impacts associated with the Proposed Action and the other action alternatives relative to the No Action Alternative. As discussed in DEIS Section 2.2, the Proposed Action is implementation of the Plan and issuance of the Permits. Although many aspects of Green Diamond's timber operations and other forest management

Mitigation Measures

G3-112 [Mitigation measures should be provided for *each* significant impact under NEPA. [40 CFR 1502.16(h).]

III. Additional Suggestions for the Recovery-Oriented HCP Alternative; Additional Information for the EIS' Impact Analyses

The EIS should also include, in addition to the preferred alternative, which is likely to inadequately address key goals and standards for HCPs, an alternative which fully meets the following goals and standards for HCPs. As discussed above, CCAs should also meet all of the following goals and standards expected for HCPs.

Many of the following goals and standards are also directly relevant to the EIS' impact analyses.

Use of Best Available Science

G3-113 [ESA section 7(a)(2) and the Act's administrative rules require agencies to use the best available science. [16 USC 1536(a)(2).]

G3-114 [The HCP must address the covered species' including population levels, specific habitat conditions, specific ecosystem interactions, and other factors needed for the species' recovery.

G3-115 [The HCP and DEIS must assess and mitigate the impacts of all forest management activities, which may include site preparation; herbicide applications; fertilizer applications; pesticide applications; intrusion of invasive exotic plants and other species as a result of intensive logging practices; intensive short-rotation clearcut forestry practices; frequent and widespread vehicle use and human disturbance; high road densities; and other sources of impacts.

G3-116 [The HCP must address all influences on salmonid habitat related to the covered activities, including invertebrates and other food sources, pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, the impact of upslope logging and other practices on the timing and intensity of water flows, and various other factors.

G3-117 [The HCP must include specific measurable and verifiable performance standards and indicators, including with regard to water temperature, sediment, chemical pollution, invertebrates and other food sources, high and low summer and winter water flows, road densities, and other factors affecting the survival and recovery of the covered species.

activities will occur under the Plan and Permits (see AHCP/CCAA Sections 1.3.4 and 2.0 regarding “covered activities”), such activities are part of the baseline for NEPA purposes. Because these activities are the same for the Proposed Action and the No Action Alternative, potential environmental impacts associated with them are not properly part of the NEPA environmental impacts analysis. As discussed in Master Response 4, herbicide use is not a “covered activity.” See also DEIS Section 4.1.1 (*Scope of the Analysis*).

Response to Comment G3-116

Requirements for Permit issuance are discussed in EIS Section 1.3 and Master Response 8 (*Permit Approval Criteria*). Assessment of influences on salmonid habitat, as well as on other covered species and habitats, are discussed in AHCP/CCAA Section 5 (*Assessment of Potential Impacts to Covered Species and Their Habitats that May Result in Take*). This section covers potential effects on salmonid habitat and other covered species’ habitat in the context of the following potential project-related impacts: altered hydrology, increased sediment input, altered LWD recruitment, altered thermal regimes and nutrient input, barriers to fish and amphibian passage, and direct take due to equipment use.

Response to Comment G3-117

Requirements for Permit issuance are discussed in EIS Section 1.3 and Master Response 8 (*Permit Approval Criteria*). The ESA does not require inclusion of performance standards. Regarding consideration of water quality conditions in the Plan, see, e.g., AHCP/CCAA Sections 6.1 (*Biological Goals and Objectives*) and 6.2.5 (*Effectiveness Monitoring*). See Master Response 17 regarding road density.

Response to Comment G3-118

AHCP/CCAA Section 3 describes the covered species and their habitats, and AHCP/CCAA Section 4 describes and assesses the current status of aquatic habit and covered species in the area where the Plan will be implemented.

Response to Comment G3-119

The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to biological goals and objectives.

The Plan's biological goals and objectives are set forth in AHCP/CCAA Section 6.1 and are discussed in Master Response 12. Green Diamond has elected to use a prescription-based HCP approach in which biological goals and objectives guide the development of specific measures included in the Operating Conservation Program (see AHCP/CCAA Section 6.2, as further described in AHCP/CCAA Section 6.3).

The Sierra Club v. Babbitt decision cited in the scoping letter [15 F.Supp.2d 1274, 1283-84 (S.D. Ala. 1998)] is legally and factually inapposite to this Plan and Permits. In Sierra Club, the district court remanded two ITPs in part because accurate population data were "not available." Here, the Plan uses the best available scientific and commercial data (see Master Response 1.3). Information about the Covered Species and habitat conditions are provided in AHCP/CCAA Sections 3 (*Description of the Covered Species and their Habitats*) and 4 (*Description and Assessment of the Current Status of Aquatic Habitat and Covered Species in the Area Where the Plan Will Be Implemented*), and Appendices A (*Profile of the Covered Species*) and C (*Studies, Surveys, Assessments of Covered Species and their Habitats Conducted in the Current Plan Area*).

G3-118

The NMFS regulations state that HCPs must describe the status, distribution, seasonal distribution, habitat needs, feeding habitat, and other biological requirements of affected species or stocks. [50 CFR 222.22(b)(3).]

Identification of Biological Goals for the Species

The HCP must also meet, with regard to each of the listed and unlisted species proposed to be covered by the ITP and HCP, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.] As discussed below under Sections II-B, C, D, and E of our comments, the following biological goals must correspond to full mitigation of impacts to the species, minimization and mitigation of impacts to the maximum extent practicable, and species' recovery needs, and other basic impact minimization and mitigation standards.

"In the future, every HCP will include specific biological goals and objectives...." "The biological outcome of the operating conservation program for the covered species is the best measure of the success of an HCP." "Specific biological objectives are subsets of the biological goals and represent specific measurable targets for achieving the goals of the operating conservation program." The HCP must include specific measurable outcomes and targets, in terms of populations, reproduction, specific habitat components, specific impact levels which will be considered tolerable, etc., for most covered species.

G3-119

"Although the goals and objectives may be stated in habitat terms, each covered species that falls under that goal or objective must be clearly specified."

"The biological goals and objectives should be commensurate with the specific impacts and duration of the HCP applicant's proposed action."

"Available literature, State conservation strategies, candidate conservation plans, draft or final recovery plans or outlines, and other sources of relevant scientific and commercial information can serve as guides in setting biological goals and objectives. Species experts, State wildlife agencies, recovery teams, and/or scientific advisory committees may also help develop the biological goals and objectives."

The Services' HCP Handbook states that: i) "habitat based" HCPs should use indicator species to establish forest management parameters, and ii) all endemic, sensitive, listed, proposed listed, candidate, and species of special concern should be addressed "adequately." [USFWS et al (1996), pp. 3-12, -37]

Sierra Club et al v. Bruce Babbitt et al found that current data on species' conditions and recovery needs must be used; goals included in recovery plans are not sufficient if conditions have changed since those plans were written. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Response to Comment G3-120

Title 50 Code of Federal Regulations Section 222.307(b)(5) directs that a conservation plan, based on the best scientific and commercial data available, must specify the “anticipated impact (i.e., amount, extent, and type of anticipated taking) of the proposed activity on the species or stocks” and the “anticipated impact of the proposed activity on the habitat of the species or stocks and the likelihood of restoration of the affected habitat.” See AHCP/CCAA Sections 5 (*Assessment of Potential Impacts to covered species and their Habitats that May Result in Take*) and 7 (*Assessment of the Conservation Strategy’s Effectiveness in Fulfilling the Plan’s Purposes*), as well as Master Response 2, regarding assessment of the incremental impacts of any authorized take on the covered species, when combined with impacts from other projects and taking account of the Plan’s measures to minimize and mitigate such impacts, and concluding that, over the life of the Plan and Permits, habitat conditions within the Plan Area will improve overall. Regarding use of the best scientific and commercial data available, see Master Response 1.3. Regarding any suggestion that the Plan should quantify levels of take, see Master Response 9.

Response to Comment G3-121

The discussion of quantification of take in Master Response 9 addresses the Sierra Club v. Babbitt decision.

Response to Comment G3-122

Impact Assessment

G3-120

The NMFS regulations state that HCPs must describe the proposed activity, including the anticipated dates, duration, and specific locations. [50 CFR 222.22(b)(4).]

G3-121

The NMFS regulations state that HCPs must describe the ITP/HCP’s anticipated impacts, including the amount, extent, and type of “take,” as well as the anticipated impact on habitats and the likelihood of habitat restoration. [50 CFR 222.22(b)(5)(i) & (ii).]

Sierra Club et al v. Bruce Babbitt et al recently found that HCPs need to determine how many individuals of affected species will be “taken,” how many individuals will remain, what the distribution of the species is throughout its remaining habitat, and how this relates to the species’ minimum viable population. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

G3-122

Likewise, the HCP and DEIS must identify accurate baseline trends (i.e., the “No Action” alternative) which consider the likelihood that the various covered yet-unlisted would be listed in the near future, with various habitat protection measures being required *in lieu* of the HCP. Without accurate baseline trends it is impossible to determine whether the plan provides a net benefit -- or even adequate mitigation -- to the covered species over time. While the exact parameters of these improved measures may not yet be known, it would be quite simple for the HCP and DEIS to identify the likely range of enhanced policy standards that will be adopted by the USFWS, NMFS, and other relevant agencies.

G3-123

Equally important, for all of the covered species, the HCP and DEIS must identify, describe, and/or quantify the “residual” impacts that the covered species will experience -- including in relation to their survival and recovery needs -- *after* the HCP’s impact minimization and mitigation measures have been accounted for.

G3-124

Effects on proposed listed species, federally listed plants, and critical habitat are to be considered during the ESA s. 7 consultation process. [USFWS et al (1996), p. 6-15, and 16 USC 1536(a)(2).]

ESA s 7 requires consideration of cumulative and indirect effects. [50 CFR 402.] NEPA also requires a cumulative effects analysis.

G3-125

According to the HCP Handbook, the Services may not be able to approve an ITP under ESA s. 7(a)(2) unless the HCP addresses *all listed species* in the plan area. [USFWS et al (1996), p. 3-7] Presumably this includes federally listed plants, which must be considered during the ESA s. 7 consultation process.

Baseline conditions are discussed in Master Response 1 and are described in the Plan in AHCP/CCAA Section 4 (*Assessment of Habitat Conditions and Status of covered species by HPA*) as well as in AHCP/CCAA Appendix C (*Studies, Surveys, Assessments of covered species and their Habitats Conducted in the Current Plan Area*). In the EIS, see Section 3.0 (*Affected Environment*) and Section 2.1 (*No Action Alternative*).

Response to Comment G3-123

The Service's believe that the Plan and EIS meet the requirements of the ESA and NEPA on this issue. See AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*), discussing the expected effectiveness of the Operating Conservation Program (AHCP/CCAA Section 6.2) strategy in fulfilling the Plan's purposes of coordinating and facilitating Green Diamond's compliance with the Federal ESA and providing the Services with the bases for authorizing Green Diamond to take covered species pursuant to an ITP and an ESP. The analysis in AHCP/CCAA Section 7 extends the assessments in AHCP/CCAA Sections 4 (*Description and Assessment of the Current Status of Aquatic Habitat and Covered Species in the Area Where the Plan Will Be Implemented*) and 5 (*Assessment of Potential Impacts to Covered Species and their Habitats that May Result in Take*) and examines the effects of covered activities (see AHCP/CCAA Sections 1.3.4 and 2) on habitat conditions and covered species with the Plan in place, the potential for those effects to result in actual take of covered species, the effectiveness of the conservation strategy in minimizing and mitigating the effects of take on the listed covered species, and the effectiveness of the conservation strategy in providing early conservation benefits for the unlisted covered species. The analysis also addresses how the conservation strategy meets the ITP and ESP requirements identified in Section 1.2.1. EIS Section 4 discloses the effects of the No Action and action alternatives, including cumulative impacts. See also Master Response 3 regarding cumulative impacts. See also 40 C.F.R. §1508.7.

Response to Comment G3-124

Regarding ESA Section 7 consultation, see EIS Section 1.5.1 (*Federal Regulatory Provisions Relating to Approval of ITPs*).

Regarding cumulative effects under the ESA as well as NEPA, see Master Response 3. The Services considered potential impacts to vegetation and plant species of special concern in EIS Section 4.5. The Plan and EIS address ESA Section 10(a) requirements. The ESA Section 7 consultation process is separate, and the Services will address it separately.

Response to Comment G3-125

Regarding the HCP Handbook, as noted above, ITP and ESP applicants are obligated to meet all applicable legal standards, which are discussed in EIS Section 1.3 and in Master Response 8. Although these standards, and not the HCP Handbook or other policy guidance, control, the Services also believe that the Plan, EIS and IA are consistent with relevant policy guidance documents, including the HCP Handbook discussion of the Permit issuance criteria cited in the scoping letter. The Services considered potential impacts to vegetation and plant species of special concern in the EIS (see EIS Section 4.5) , and believe that the criteria to approve the Plan and issue the Permits have been met. See Master Response 8 (*Permit Approval Criteria*).

Response to Comment G3-126

The NMFS biological opinion will address this requirement.

Response to Comment G3-127

Regarding mitigation measures to address potential impacts to key aquatic variables, see AHCP/CCAA Section 6.2 (the Operating Conservation Program) as described further in AHCP/CCAA Section 6.3. See also AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*) and the response to Comment G3-123. Regarding the use of herbicides, see Master Response 4.

Response to Comment G3-128

Comment noted. NMFS is aware of the information provided in the final critical habitat designations cited in the comment. NMFS will consider all of the essential habitat features of critical habitat when conducting its ESA section 7(a)(2) consultation.

Impacts Must be Fully Mitigated

G3-126 [ESA s. 7(a)(2) prohibits federal agencies from approving actions which would destroy or "adversely modify" species' critical habitat areas.

G3-127 [The HCP and DEIS must provide adequate mitigation for impacts to key aquatic habitat variables including temperature, invertebrates and other food sources, and the timing and intensity of water flows. The HCP and DEIS must provide adequate and specific mitigation measures for pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, and the impacts of upslope logging and other practices.

G3-128 [The final critical habitat designation for chinook salmon (Puget Sound, Lower-Columbia, Upper Willamette, Upper Columbia Spring run, CA Central Valley Spring run, CA Coastal ESUs) and steelhead trout (S. CA, S-Central CA coast, Central CA coast, CA Central Valley, Upper Columbia, Snake River Basin, Lower Columbia, Upper Willamette, Mid-Columbia ESUs) includes: "all river reaches accessible to listed salmon or steelhead within the range of the ESUs listed, except for reaches on Indian lands. Critical habitat consists of the water, substrate, and adjacent riparian zone of estuarine and river reaches...." The Federal Register notice indicates that non-federal forestry activities are among those which may affect critical habitat. The notice further indicates that essential habitat for the listed species includes: "(1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; (5) water velocity; (6) cover/shelter; (7) food; (8) riparian vegetation; (9) space; and (10) safe passage conditions." The notice further indicates that summaries of the environmental parameters and freshwater conditions that harm the listed species are included in Brown & Moyle (1991), Nehlsen et al (1991), Higgins et al (1992), Botkin et al (1995), and Spence et al (1996). The notice further indicates that the adjacent riparian area for the salmon and steelhead species is the "area adjacent to a stream that provides the following functions: shade, sediment transport, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter" The notice further indicates that "habitat quality in this range is intrinsically related to the quality of riparian and upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for salmon and steelhead in downstream reaches." The notice further indicates that "streams and stream functioning are inextricably linked to adjacent riparian and upland (or upslope) areas..." and that the riparian zone "stores sediment, recycles nutrients and chemicals, mediates stream hydraulics, and controls microclimate....," and that "healthy riparian zones help ensure water quality essential to salmonids as well as the forage species they depend on." The notice further indicates that "human activities in the adjacent riparian zone, or in upslope areas, can harm stream function and can harm salmonids....," and that "timber harvest, road building, grazing, cultivation, and other activities can increase sediment, destabilize banks, reduce organic litter and woody debris, increase water temperatures, simplify stream channels, and increase peak flows leading to scouring." The notice further reaffirmed that available regulatory mechanisms are inadequate and that regulated activities

Response to Comment G3-129

The Services note that Green Diamond is obligated to meet all applicable legal standards. The Services note that Green Diamond is obligated to meet all applicable legal standards. Applicable legal standards are set forth in EIS Section 1.3 and are discussed further in Master Response 8. Although these standards, and not the HCP Handbook or other policy guidance, control, the Services also believe that the Plan, EIS and IA are consistent with the HCP Handbook and other relevant policies.

The Plan's measures (AHCP/CCAA Section 6.2) are designed to minimize and mitigate the impacts of incidental take, maintain and improve habitat conditions for the covered species, monitor the implementation and effectiveness of the Plan, institute adaptive management, and respond to changed circumstances. The rationale for these measures is discussed in AHCP/CCAA Section 6.3 and in Master Response 3 (in particular, see the "limiting factors" discussion in Master Response 3) and is predicated on the potential impacts of take to covered species and their habitats associated with the covered activities, based on the needs and habitat conditions of the covered species in the Plan Area. See AHCP/CCAA Sections 5 (*Assessment of Potential Impacts to Covered Species and Their Habitats that May Result in Take*), 4 (*Description and Assessment of the Current Status of Aquatic Habitat and Covered Species in the Area Where the Plan Will Be Implemented*), 3 (*Description of the Covered Species and their Habitats*) and 2 (*Description of Green Diamond's Operations and Forest Management Activities*).

G3-128

G3-129

G3-130

G3-131

G3-132

G3-133

continue to pose a potential threat to the species' existence. [65 Federal Register 32, February 16, 2000]

Proposed critical habitat for chinook salmon (Central Valley Spring run, Central Valley Fall/late Fall run, S. OR and CA coastal, Puget Sound, Lower Columbia, Upper Willamette, Upper Columbia Spring run, and Snake River Fall ESUs) includes "...the water, substrate, and adjacent riparian zone of all accessible estuarine and riverine reaches...." Adjacent riparian zones are defined as "...areas within a slope distance of 300 ft. (91.4m) from the normal line of high water of a stream channel or adjacent off-channel habitats...." The Federal Register notice further indicates that essential features of chinook critical habitat include "...adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions...." The notice further indicates that habitat quality is "...intrinsically related to the quality of upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for chum salmon in downstream reaches." The notice further indicates that logging, roading, pesticide applications, application of other chemicals, and non-point source pollution are all likely to affect critical habitat for chinook. [63 Federal Register 45, March 9, 1999]

The HCP Handbook states that mitigation should not only be based on sound biological rationale, but also be "commensurate with the impacts." [USFWS et al (1996), p. 3-19.]

Sierra Club et al v. Bruce Babbitt et al recently held that replacement habitat must be provided for habitat destroyed pursuant to ITPs. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Listed plants must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"Often, there is a direct relationship between the level of biological uncertainty for a covered species and the degree of risk that an incidental take permit could pose for that species. Therefore, the operating conservation program may need to be relatively cautious initially and adjusted later based on new information."

When evaluating the HCP, the Services also need to employ a more cautious approach than has often been used. The ESA expressly states that the Services may not approve HCPs and ITPs if they would "appreciably reduce the likelihood of the survival *and recovery* of the species in the wild." [ESA s. 10(a)(2)(B)(iv), emphasis added.] However, the Services

Response to Comment G3-130

Comment noted. However, because no habitat will be destroyed as a result of issuance of the ITP, and, as discussed in Master Response 3, conditions in the Plan Area are expected to improve over the term of the Plan and Permits, no replacement habitat is required.

Response to Comment G3-131

As discussed in EIS Section 1.5.1, regarding Federal regulatory provisions relating to approval of ITPs, ESA Section 7(a)(2) requires the Services to ensure that the actions they authorize are “not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification” of critical habitat of such species. ESA Section 7 does not require that any particular species or suite of species, including plant species, be included in an ESA Section 10 Permit.

A Permit applicant, not the Services, decides which species it will include in an application for Permit authorization. Approval of an HCP and issuance of an ITP, or, in this case, of the Plan and Permits, has no effect on the permittee’s obligation to comply with all other applicable legal requirements. For any species, including a listed plant species, for which Green Diamond does not have ITP authorization, it remains subject to all applicable laws, including the ESA Section 9 prohibition of take of listed species. Although the group of covered species in the Plan (see AHCP/CCAA Section 1.3.3 and AHCP/CCAA Appendix A) does not include a plant species, potential impacts on vegetation and plant species of concern were assessed in EIS Section 4.5 as well as in the ESA Section 7 consultation process.

Response to Comment G3-132

The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including

the guidance relating to adaptive management. Regarding adjustment of the Operating Conservation Program based on new information, see AHCP/CCAA Section 6.2.6, as discussed further in AHCP/CCAA Section 6.3.6 and IA Paragraph 10.

Response to Comment G3-133

Permit approval criteria are discussed in EIS Section 1.3 (*ITP and ESP Requirements*) and Master Response 8. The Services have applied these criteria in approving the Plan and issuing the Permits.

Response to Comment G3-134

As noted above, Green Diamond is obligated to meet all applicable legal standards. Applicable legal standards are set forth in EIS Section 1.3 and 1.5. Permit approval criteria also are discussed in Master Response 8. Regarding the ITP obligation to minimize and mitigate the impacts of taking to the maximum extent practicable, see Master Response 8.2. Plan minimization and mitigation measures are set forth in AHCP/CCAA Section 6.2 (*Green Diamond's Operating Conservation Program*) and are further discussed in AHCP/CCAA Section 6.3 (*Rationale and Analysis Underlying Green Diamond's Operating Conservation Program*). The analysis contained in AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purpose*) demonstrates that implementation of the Plan will improve the covered species. In addition, the Plan is designed to meet the ESP/CCAA approval criteria for the unlisted Covered Species by providing a conservation benefit in the form of conservation measures that, if applied in combination with appropriate measures on other necessary properties, would preclude the need to list such species in the future.

The purpose of the ESA Section 10 permitting process is not to compare conservation programs measure for measure, but rather to ensure that the criteria for issuing such permits are met, based upon site-specific, species-specific and activity-specific conditions. The Services believe the Plan meets Section 10 issuance criteria.

G3-133

appear to have often interpreted this standard as stating, more or less, that HCPs and ITPs may not be approved only if they would "jeopardize species' continued existence." This is a much lower standard than that specified in the ESA, and as used by the Services, allows approval of HCPs which utilize far less effective mitigation measures, and which are less risk averse.

Impacts Must be Minimized and Mitigated to the Maximum Extent Practicable

G3-134

ESA s. 10(a)(2)(B)(ii) requires impacts be minimized and mitigated to the "maximum extent practicable." The Services must analyze and document whether the HCP has indeed minimized and mitigated "take" to the maximum extent practicable. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Longer timber rotations and other alternate silvicultural methods, for example, can minimize watershed disturbances and habitat impacts, while generating competitive economic returns. (See Hall (1999); this document has been provided to the Services on several recent occasions.) Moreover, the production of mushrooms and clean water, the sequestration and storage of atmospheric carbon dioxide, and the provision of other nontimber forest products and ecosystem services from older, healthier forests can generate significant supplemental revenues.

The Services need to independently evaluate Simpson's timber resources, site productivity, and other silvicultural factors, and determine what silvicultural and non-timber land management practices would in fact minimize and mitigate impacts to the plan species to the maximum extent practicable.

Several existing HCPs explicitly require longer timber rotations or other improved silvicultural methods, demonstrating their practicability. The Elliott State Forest HCP uses 80 to 240 year timber rotations and maintains significant late successional reserves above and beyond the narrow stream buffers.

The literature referenced in Section IV of our comments highlights a number of impact minimization and mitigation measures which are important for the conservation of imperiled fish, wildlife, and plants, and which would be economically "practicable" for forest landowners.

In the context of the Clean Air Act, "practicable" means economically or technologically possible. [*Union Electric Co. v. EPA* (427 US 246 (1976)), as cited in Arum (1998).] Likewise, the cost of an alternative should only determine its practicability in relation to other alternatives with the same level of environmental performance. [*Friends of the Earth v. Hall* (693 F Supp 904, 947 (W.D. Wash 1998), as cited in Arum (1998)] The NMFS rules for permits also state that the Administrator will consider whether the best available technology was used for impact minimization and mitigation. [50 CFR 222.22(c)(iv).]

Response to Comment G3-135

Regarding Permit approval criteria, see EIS Section 1.3 (*ITP and ESP Requirements*) and Master Response 8. The statutory approval criteria serve the purpose and policies of the ESA [16 U.S.C.A. § 1531(b),(c)].

G3-134

The Services' HCP Handbook states that if the landowner cites economic considerations as the reason for failing to utilize an alternate land management approach, then the landowner must provide supporting economic information, unless it is proprietary. [USFWS et al (1996), p. 3 - 36.] The Handbook also requires the Services to consider the cost of additional mitigation, the benefits of additional mitigation, the amount of mitigation provided by other landowners, and the landowner's own abilities. [USFWS et al (1996), pp. 3-36 and 7-3.]

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B)(v) also authorize the Services to require mitigation measures *beyond* those "practicable" mitigation measures required by ESA s. 10(a)(2)(B)(ii). Likewise, the HCP Handbook also states that all HCPs should address other measures required by the Services. [USFWS et al (1996), pp. 1-7 & 3-10.]

The HCP Must Meet the Species' Recovery Needs, Including by Restoring Habitats and Enhancing Species' Populations if Necessary

Response to Comment G3-136

See Master Response 9 regarding quantification of take. Populations of the covered species and habitat conditions on an HPA-by-HPA basis in the Plan Area are discussed in AHCP/CCAA Sections 3 and 4. An assessment of the conservation strategy's effectiveness in fulfilling the purposes of the Plan is provided in AHCP/CCAA Section 7. For additional information about habitat conditions, see AHCP/CCAA Appendix C (*Studies, Surveys, Assessments of covered species and their Habitats Conducted in the Current Plan Area*).

G3-135

As indicated in ESA ss. 2(b), 2(c), and 3(3), the ESA's ultimate goal is, in effect, to recover threatened and endangered species, including to the point where they can be removed from the endangered species list. This has been affirmed by the US Supreme Court in *TVA v. Hill* and *Babbitt v. Sweet Home Chapter of Communities*. [See Gaffney et al (1997).] Several district court cases have also held that recovery must be assessed above and beyond mere survival. [See *House v. USFS* and *Idaho DFG v. NMFS*.]

G3-136

The HCP and DEIS need to identify, for each of the covered species, population levels, specific habitat conditions, and other factors that would correspond to genuine recovery across each of the species' ranges. Likewise, the HCP and DEIS need to provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery indicators and standards.

Response to Comment G3-137

See EIS Section 1.5.1 regarding the Services' compliance with ESA Section 7, including the requirement not to destroy or adversely modify critical habitat.

G3-137

The ESA's s. 7 requirement to avoid adversely modifying species' critical habitats also requires the Services to ensure that HCPs and ITPs do not harm habitats needed for species' recovery, *including currently unoccupied habitat areas*.

Response to Comment G3-138

As noted above, Permit approval criteria are discussed in EIS Section 1.3 (*ITP and ESP Requirements*) and Master Response 8.

G3-138

ESA s. 10(a)(2)(B)(iv) explicitly and clearly precludes the Services from approving an HCP which will "appreciably reduce the likelihood of the survival and recovery of the species in the wild." The HCP Handbook also states that the Services should "discourage" HCPs that preclude recovery options or which are inconsistent with recovery plans. Consistency with recovery plans is also included in the Handbook as a "helpful hint." [USFWS et al (1996), p. 3-20 and 1-15.]

The Services need to thoroughly analyze how Simpson's ITP, HCP, and all logging and other land use practices permitted by the ITP, HCP, and IA will affect each covered species' chances of recovery, based on the best current information on the species, the full range of land management practices allowed by the ITP, and other relevant factors. The HCP must

Because the Plan meets these criteria, issuance of the Permits is proper. The Services believe that implementation of the Plan will not preclude recovery options and that the Operating Conservation Program is not inconsistent with any existing recovery plans.

Response to Comment G3-139

Regarding recovery, see response to Comment G3-138.

See Master Response 1 regarding baseline conditions generally, and Master Response 1.2 in particular (*Relationship Between Baseline Conditions and Conditions under the “No Action” Alternative under NEPA*). The No Action Alternative also is discussed in Master Response 2 and in EIS Section 2.1.

The Plan contains and relies on an exhaustive compilation of the best available scientific data known about current conditions in the Plan Area. See Master Response 1.3 regarding use of best available scientific information to accurately describe current baseline conditions within the Plan Area. Details of studies and monitoring efforts are provided in AHCP/CCAA Section 4.3 and Appendix C. Baseline conditions are set forth on an HPA-by-HPA basis in AHCP/CCAA Section 4 (*Description and Assessment of the Current Status of Aquatic Habitat and the Covered Species*).

AHCP/CCAA Section 4.2 describes and assesses geologic and geomorphic factors and the current status of the covered species. AHCP/CCAA Section 4 also discusses characteristic habitat types in each of these areas as well as existing factors that appear to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystems. The Services believe that the data presented represent an adequate sample for the purpose of characterizing the existing baseline conditions across the landscape. There are no known data relevant to the baseline conditions within the Plan Area that have been ignored.

Response to Comment G3-140

See response to Comment G3-131.

Response to Comment G3-141

Because no habitat is being “created” or proposed as off-site mitigation, the HCP Handbook policy guidance does not apply to the Plan.

G3-139

not significantly (or “appreciably”) impact any of the species’ chances of recovery, as stated by the ESA. Additional mitigation measures must be provided to ensure that all land management practices potentially undertaken by Simpson will leave the covered species with a high probability of recovery.

Moreover, the HCP and DEIS need to identify species population levels and habitat conditions that would correspond to genuine recovery across the species’ ranges, and provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery standards.

Evaluations of the ITP and HCP’s impacts on species’ chances of recovery need to be based on more accurate baseline scenarios (i.e., “No Action” alternatives).

The legislative record for ESA s. 10(a) indicates that Congress intended for HCPs to *enhance* species’ chances of survival. [HR Conference Report 835 (1982).] The HCP Handbook also cites this legislative intent and states that the Services should “encourage” landowners to provide a net benefit to species. [USFWS et al (1996), pp . 7-2 to 7-5 and 3-20.] The Department of Interior’s testimony in response to the lawsuit against the “No Surprises” rule also recognizes that “[U]nder some circumstances, such as for ‘severely depleted species and species for which the HCP covers all or a significant portion of the range’ of a species,... measures to improve the species habitat may be required by the legislative history of [ESA] Section 10.” [Federal Defendants’ Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs’ Motion for Summary Judgment, at 35 (D.D.C. Filed April 23, 1999), Spirit of the Sage Council et al v. Babbitt, No. 1:98CV1873 (EGS).]

G3-140

Listed plants’ chances of recovery must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

Additional Mitigation Standards

G3-141

The Service’s HCP Handbook states that if new habitat is being created as mitigation, then the habitat must be created through techniques that are proven and reliable or, if relatively new, then those techniques must be augmented by contingency measures and adaptive management. [USFWS et al (1996), p. 3-22.]

The Handbook also states that mitigation habitat should be close to the impact area, similar to the impacted habitat types, and support the same species. [USFWS et al (1996), p. 3-22.] The same mitigation methods should be used for the same species by different HCPs, unless there are “biological or other differences” which are “clearly explained.” [USFWS et al (1996), p. 3-24.]

Response to Comment G3-142

The Operating Conservation Program set forth in AHCP/CCAA Section 6.2, and discussed further in AHCP/CCAA Section 6.3, provides well-defined measures that exceed mere promises or research funding.

Response to Comment G3-143

The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to biological goals and objectives. See Master Response 12 regarding biological goals and objectives.

Response to Comment G3-144

Adaptive Management

The Plan is intended to be adaptive and responsive to input from the Services. More specifically, Green Diamond will initiate reviews and implement adaptive management measures in response to the triggers and within the range of changes identified within AHCP/CCAA Section 6.2.6, as discussed further in AHCP/CCAA Section 6.3.6 and IA Paragraph 10. Green Diamond also will establish an AMRA to allow for some level of adjustments over the term of the Plan and Permits. See AHCP/CCAA Sections 6.2.6.3, 6.3.6.2, Master Response 11.3, regarding monitoring and adaptive management, and Master Response 15, regarding the adaptive management reserve account. These provisions provide clarity regarding future revisions to the

Mitigation and protection measures must be clearly defined for agencies to make decisions that hinge on such measures. Likewise, the mere promise of future actions is not sufficient to meet the ESA's protection standards. [See *LaFlamme v. FERC* (852 F.2d 389, 400 (9th Cir 1988), and *ONRC v. Daley* (1998 WL 296838) (D.Or 1998), as cited in Arum (1998), as well as *Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

G3-142

The Service's HCP Handbook states that mitigation habitat should be provided *prior* to the "take" of a species habitat. [USFWS et al (1996), p. 3-21.]

The HCP Handbook states that mitigation habitat should be permanently protected. [USFWS et al (1996), p. 3-22.]

ITPs/HCPs may not rely upon speculative sources of mitigation, such as promises of additional funds for habitat acquisition from unnamed sources. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Providing funds for research is not sufficient as mitigation. [USFWS et al (1996), p. 3-23]

G3-143

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"The operating conservation program will include those measurable actions that, when implemented, are anticipated to meet the biological objectives."

Adaptive Management and Regulatory Assurances

G3-144

Landowner assurances should take the form of explicit, up-front agreements about the plan's biological goals, monitoring, adaptive management, and enforcement, and fair allocation of responsibility between the landowner and public for funding future plan changes. In other words, the plan should provide up-front clarity and assurances about the process that will be used to identify and make improvements to the plan -- instead of simply precluding meaningful plan improvements through "No Surprises" type assurances.

We cannot emphasize strongly enough that landowner assurances should *not* take the form of "No Surprises" type guarantees or other guarantees that largely preclude additional mitigation by setting extremely high burdens of proof for the Services, requiring additional mitigation to first occur on public lands, by requiring any additional mitigation to be fully subsidized by the public, and/or requiring any additional mitigation to be voluntary. "No Surprises" supposedly encourages landowners to proactively conserve species which are not listed as threatened or endangered by indemnifying the landowners from providing additional mitigation should the species be listed at a later date. However, the up-front analyses, protections, and mitigation measures for unlisted species are rarely sufficient, as evidenced

Plan.

Regulatory Assurances

Assuming Green Diamond is in full compliance with the measures of the Plan, the Services will not require Green Diamond to provide additional mitigation measures beyond those provided in the Plan (AHCP/CCAA Section 6.2). See Master Response 19 regarding the No Surprises rule.

Response to Comment G3-145

No Surprises assurances apply only to species, whether listed or unlisted, that are “adequately covered” in the HCP. 63 Fed. Reg. 8859, 8867 (Feb. 23, 1998). What it means to be “adequately covered” is different for listed and unlisted species. For listed species, “adequately covered” under an HCP refers to any species addressed in an HCP that has satisfied the Permit issuance criteria under section 10(a)(2)(B) of the ESA. These criteria are discussed in AHCP/CCAA Section 1.4.1 (ITP and ESP Requirements), EIS Section 1.5.1 (*Federal Regulatory Provisions Relating to Approval of ITPs*) and Master Response 8 (*Permit Approval Criteria*). Listed species are identified in AHCP/CCAA Section 1.3.3.1 and discussed in AHCP/CCAA Section 3 and Appendix A.

For unlisted species, “adequately covered” refers to any species that is addressed in an HCP as if it were listed pursuant to section 4 of the ESA and addressed by HCP conditions that would satisfy Permit issuance criteria under ESA Section 10(a)(2)(B) if the species actually were listed. 63 Fed. Reg. at 8867. The Plan satisfies these requirements.

The four unlisted covered species are identified in AHCP/CCAA Section 1.3.3.2, and are discussed in AHCP/CCAA Section 3 and Appendix A. As stated in the EIS (see ES-2 and EIS Section 1.2), the Services’ purpose and need for the proposed project:

“is to respond to Green Diamond’s ITP and ESP application for incidental take authorization pursuant to an HCP/CCAA that provides protection and conservation to listed, proposed, and unlisted species and their habitats consistent with the requirements of Section 10(a)(1)(A)

G3-144

by virtually all existing forest HCPs in the region. Even in cases where the up-front provisions are more adequate, changes and additions to these measures may well become necessary over time, including as a result of changes in the landowners’ management practices.

While many of the following standards will be relevant regardless of the type of regulatory assurances provided to Simpson, adherence to each of the following standards will be especially important if Simpson is provided with “No Surprises” type assurances, as envisioned by the draft HCP and IA.

Unlisted Species Must Be Addressed As if They Are Listed

In order for the Services to provide regulatory assurances with regard to the unlisted covered species, Simpson’s HCP must address each species as if it were already listed.

G3-145

The final “No Surprises” rule, the legislative history for ESA s. 10(a), and the Services’ HCP Handbook all state that any unlisted species covered in an HCP must be addressed as if it were listed. Congress stated that “the Committee intends that... In the event that an *unlisted species* addressed in the approved conservation plan is subsequently listed ... no further mitigation requirements should be imposed *if the conservation plan addressed the conservation of the species and its habitat as if the species were listed pursuant to the Act.*” [Conf. Report at 30 and 50 FR 39681-39691, Sept. 30, 1985. (emphasis added).] The “No Surprises” rule states that “*adequately covered means... with respect to unlisted species, that a proposed conservation plan has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan were actually listed.*” [Federal Register, 63;35, February 23, 1998. (emphasis added).] The HCP Handbook also states that, in order to “adequately cover” an unlisted species, HCPs must satisfy the ESA s. 10(a)(2)(B) HCP issuance criteria for those species, as if the species had been listed. [USFWS et al (1996), pp. 3-30, 4-1.]

The draft “No Surprises” rule also stated that unlisted species need to be addressed by removing threats to their survival and recovery, such that the species would not need to be listed if the measures were undertaken across their range.

Adaptive Management Measures Must Be Provided for Any Data Gaps, to Respond to Changing Conditions, Etc.

G3-146

The Department of Interior’s testimony in response to the lawsuit against the “No Surprises” rule states, in effect, that large scale HCPs must have extensive, meaningful adaptive management provisions to be lawful. “The Services recognize that HCP permits often must be structured in such a way as to allow for the adaptation and refinement of mitigation measures over time as new scientific information becomes available.... Rather, the purpose of the No Surprises rule is to force the negotiating parties to clearly define up front a mutually-agreed upon framework for such adaptive management, if necessary due to scientific

and Section 10(a)(1)(B) of the ESA.”

Measures contained in the Operating Conservation Program (AHCP/CCAA Section 6.2) in nearly all cases will be applied programmatically across the Plan Area, although as discussed in AHCP/CCAA Section 7, may have neutral or less impact on headwaters unlisted covered species for which mobility is limited and downstream benefits are not realized. Benefits of the conservation measures for the unlisted covered species are discussed in AHCP/CCAA Section 7.5, and conclusions regarding the mitigation of impacts, provision of conservation benefits and avoidance of jeopardy are discussed in AHCP/CCAA Section 7.6. Further, the Plan is designed to meet the ESP/CCAA approval criteria for the unlisted covered species (see, e.g., AHCP/CCAA Section 1.4.1.2) by providing a conservation benefit in the form of measures that, if combined with appropriate measures applied on other necessary properties, would preclude the need to list such species in the future. Based on this “treatment” in the Plan and the underlying scientific studies (see, generally the Appendices in AHCP/CCAA Volume II), unlisted covered species are “adequately covered” in the Plan. Also, see Master Response 19.

Response to Comment G3-146

Regarding adaptive management in the Plan, see response to Comment G3-144. Thresholds or “triggers” for adaptive management are set forth in AHCP/CCAA 6.2.6.1, and are discussed in AHCP/CCAA Section 6.3.6.1. Regarding the creation of habitat as mitigation, see response to Comment G3-141. The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to adaptive management.

uncertainty, and to establish a division of later responsibilities in the event of highly unlikely unforeseen events.... In the event there are significant gaps in the biological data underlying a particular HCP, those gaps should be addressed through the inclusion of adaptive management provisions." [Federal Defendants' Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs' Motion for Summary Judgment, at 2 (D.D.C. Filed April 23, 1999), *Spirit of the Sage Council et al v. Babbitt*, No. 1:98CV1873 (EGS).] The HCP Handbook also states that if information on unlisted species' conservation needs is lacking, then the landowner should either: i) use adaptive management to incorporate new information as it becomes available, ii) conduct additional research on the species' needs, or iii) agree to reduced "No Surprises" guarantees for those species. [USFWS, et al (1996), p. 3-30.]

As recognized by the Services' HCP Handbook, adaptive management is especially important for species whose conservation needs are not yet well known, as is usually the case with unlisted species. [USFWS et al (1994) and USFWS et al (1996).]

The HCP Handbook states that contingency measures should exist when landowners create/restore habitat as mitigation, in case the new habitat isn't viable. [USFWS et al (1996), p. 3-22]

ESA s. 10(a)(2)(B) also requires HCPs to include assurances the plans will be implemented, continue to minimize and mitigate the impacts of take, and continue to avoid jeopardizing the species' chances of survival and recovery. ESA s. 10(a)(2)(A)(iv) also requires the Services to require other measures as necessary to ensure the plan's success.

The HCP Handbook states that "thresholds" (i.e., triggers) for adaptive management review should be linked to key elements of the HCP and its monitoring protocol. Further, the thresholds must be based on measurable criteria. [USFWS et al. (1996). p. 3-25.]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.]

"...an adaptive management strategy is essential for permits that cover species that have significant biological data or information gaps that incur a significant risk to that species at the time the permit is issued."

"Possible significant data gaps that could lead to the development of an adaptive management strategy include, but are not limited to, significant biological uncertainty about specific information about the ecology of the species or its habitat (e.g., food preferences, relative importance of predators, territory size), habitat or species management techniques, or the degree of potential effects of the activity on the species covered in the incidental take permit."

Response to Comment G3-147

Regarding foreseeable changed circumstances (called “changed circumstances” in the Plan and IA) and unforeseeable changed circumstances (called “unforeseen circumstances” in the Plan and IA), see response to Comment G3-109. Regarding a new listing of a species that is not a covered species, see AHCP/CCAA Section 6.3.9.7 and IA Paragraph 9.3.

The purpose of the ESA Section 10 permitting process is not to compare conservation programs measure for measure, but rather to ensure that the criteria for issuing such permits are met, based upon site-specific, species-specific and activity-specific conditions. The Services believe each of the conservation plans cited in this comment meet Section 10 permit approval criteria, which are discussed in EIS Section 1.3 and Master Response 8, even though they may utilize different measures relating to adaptive management. The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to adaptive management.

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“...there may be some circumstances with such a high degree of uncertainty that a species should not receive coverage in an incidental take permit at all until additional research is conducted.” The HCP and DEIS must gauge the level of uncertainty that exists with regard to each of the covered species.

“A practical adaptive management strategy within the operating conservation program of a long-term incidental take permit will include milestones that are reviewed at scheduled intervals during the lifetime of the incidental take permit and permitted action.”

“For an adaptive management strategy to be effective, it must be integrated into a monitoring program that is designed to ensure proper data collection and analysis that can guide appropriate adjustments in the operating conservation program.”

Simpson is Responsible for Providing Additional Mitigation Measures Which May be Needed to Fully Protect and Recover Each of the Covered Species

G3-147

In drafting ESA s. 10, Congress explicitly recognized that “...circumstances and information may change over time, and that the original plan might need to be revised. To address this situation, the Committee expects that any plan approved for a long-term permit will contain a procedure by which the parties will deal with unforeseen circumstances...” [Conf Rept at 30 and 50 FR 39681-39691, Sept. 30, 1985.] The Federal Register notice for the final “No Surprises” Rule states that “...many changes in circumstances during the course of an HCP can reasonably be anticipated and planned for in the conservation plan (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events), and the plans should describe the modifications in the project or activity that will be implemented if these circumstances arise...” [Federal Register, 63;35, February 23, 1998.] The final rule itself then states that “changed circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events).” [Federal Register, 63;35, February 23, 1998.] Likewise, the HCP Handbook states that “unforeseen circumstances” *don’t* include changed conditions that could reasonably be anticipated by the landowner or the Services, including the listing of new species or modifications in the landowner’s activities. [USFWS et al (1996), p. 3-28] Under the final “No Surprises” rule, landowners are responsible for providing improved and/or additional mitigation measures needed in response to “changed circumstances,” *provided the mitigation measures are identified in the HCP.*

“Changing circumstances” which should be identified in the HCP include stand replacing fires, floods, and landslides, as well as the listing of additional species as Threatened or Endangered under the ESA. Other significant and reasonably foreseeable “changing circumstances,” include changes in Simpson’s land management practices; declines in the condition of the covered species due to inadequate conservation measures in the HCP; designation of critical habitat for the covered species; development of recovery plans and

recovery plan provisions for the covered species; and increased susceptibility of the forest to invasive exotic pests, pathogens, and plant and animal species due to the landowner's forest management practices. Possible management changes include use of shorter timber rotations, increased use of clearcutting and other even aged silviculture, use of "whole tree" and biomass harvesting, use of different tree species, use of genetically modified trees, increased use of fertilizers, herbicides, and other chemicals, and other types of intensified forest management.

Other foreseeable changing circumstances include the effects of human-induced climate change, which is likely to cause ecological gradients, vegetation zones, and species' habitat needs to shift significantly. This situation is similar to wildfires -- while we cannot predict exactly when and where wildfires will strike, we do know they are likely, and HCPs should account for their effects during planning, impact assessment, mitigation design, and adaptive management.

In addition to identifying these and other changing circumstances, the HCP must identify the specific adaptive management and additional mitigation measures that will be adopted to ensure the HCP's continued performance.

Several existing HCPs begin to demonstrate the practicability of adaptive management arrangements in which the landowner retains responsibility for providing additional mitigation as needed. The Washington DNR HCP's adaptive management plan identifies several potential management changes that the DNR will undertake should they become necessary, even if they involve additional costs to the DNR. These potential changes include providing buffers for intermittent streams, increasing spotted owl protections, and reducing sedimentation from roads. Plum Creek's existing HCP for the I-90 Corridor area in Washington also requires Plum Creek to modify and improve its forest management to meet target outcomes for northern spotted owl. Likewise, the company agreed to provide additional mitigation over time if required by watershed analysis and water quality monitoring.

Plum Creek's existing HCP also stated that the listing of new species as threatened or endangered shall not be considered "unforeseen" circumstances. Likewise, under this existing HCP, changes in Plum Creek's operational or management prescriptions resulting from the watershed analyses and aquatic monitoring components of the HCP's adaptive management provisions will not be considered "unforeseen" or "extraordinary" circumstances, and Plum Creek will provide additional or enhanced stream buffers or other protection measures if required by these analyses.

ESA s. 10 only allows for "take" permits (ITPs) to be issued for listed species. *Unlisted* species should *not* be included in the ITP or an HCP's Implementation Agreement (IA). The ESA's basic structure and precedents set by previous HCPs require the Services to re-examine the HCP in light of the ESA's HCP standards and issuance criteria with regard to newly listed species when deciding whether to add those species to an ITP. The ESA states

Response to Comment G3-148

ESA Section 10 permit approval criteria for an ITP include the requirement that an HCP specify “what steps the applicant will take to minimize and mitigate such impacts.” 16 U.S.C.A § 1539(a)(2)(A)(iii). The monitoring process includes (1) implementation monitoring (AHCP/CCAA Section 6.2.7) to evaluate and document Green Diamond’s implementation of and compliance with the provisions of the Plan, and (2) effectiveness monitoring (AHCP/CCAA Section 6.2.5), which focuses on tracking the success of the measures in the Operating Conservation Program. The Adaptive Management Program provides a mechanism to adjust the Operating Conservation Program as appropriate. See also AHCP/CCAA Appendix D, regarding specific protocols for effectiveness monitoring; AHCP/CCAA Sections 6.3.5 and 6.3.7 for additional discussion about Operating Conservation Program monitoring measures; AHCP/CCAA Section 6.3.6 for additional discussion about adaptive management; and Master Response 11.3 regarding these processes.

Response to Comment G3-149

See response to Comment G3-148. The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to monitoring.

that “take” permits may be issued for species *listed* pursuant to the Act. In other words, unlisted species should *not* be expressly included in the ITP. Nor should species be automatically added to ITPs.

The question of whether or not unlisted species are adequately addressed by an HCP must be re-examined at the time those species are listed. The IA should expressly require the Services to re-examine, after a previously unlisted species is listed and if Simpson requests that the species be added to the ITP, whether the HCP still adequately addresses the species’ conservation and mitigation needs under the ESA and its rules. This approach has been used in other existing HCPs and is quite reasonable. See Plum Creek’s existing HCP for the I-90 corridor area in the central Washington Cascades, for example.

Similarly, the Services should not presume that the ESA s. 7 biological opinions drafted in conjunction with the HCP’s initial approval will still be valid many years into the future when conditions have changed enough to warrant listing new species as Threatened or Endangered. Reinitiation of consultation is likely to be required when new species are listed. This should be recognized in the IA.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services’ “Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process.” [Federal Register, 64:45, March 9, 1999.]

“When an HCP, permit, and IA incorporate an adaptive management strategy, it should clearly state the agreed upon and warranted range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty.”

Monitoring Standards for the HCP

Monitoring provisions are mandatory for all HCPs. ESA s.10(a)(2)(B) states that the terms and conditions necessary to assure the plan will be implemented include reporting requirements. Reporting cannot occur without monitoring. Monitoring is also required under the Service’s regulations at 50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222(b)(5)(iii). According to the HCP Handbook, all HCPs must monitor their impacts over time. [USFWS *et al* (1996), pp. 1-7 & 3-10]

The HCP Handbook states that an HCP’s monitoring provisions should be as specific as possible and be commensurate with the project’s scope and the severity of its effects. [USFWS *et al* (1996), p. 3-26] The Handbook also states that monitoring must be sufficient to detect trends in species’ populations. [USFWS *et al.* (1996), p. 3-27.]

The HCP Handbook states that monitoring protocol must specify the frequency, timing, and duration of data collection; must specify how the data will be analyzed; and must specify who will do the analysis. [USFWS *et al* (1996), p. 3-27.]

G3-147

G3-148

G3-149

The USFWS regulations state that by being granted an ITP, the landowner has agreed to grant access to Service staff to property, records, and other areas. [50 CFR 13.21(e)(2) and 13.47.]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999]

"The biological outcome of the operating conservation program for the covered species is the best measure of success of an HCP."

"Monitoring is a mandatory element of all HCPs."

"The Services and the applicant must ensure that the monitoring program provides information to: (1) evaluate compliance; (2) determine if biological goals and objectives are being met; and (3) provide feedback to an adaptive management strategy, if used."

"...the scope of the monitoring measures should be commensurate with the scope and duration of the operating conservation program and project impacts."

"The following components are essential...: (1) the implementation and effectiveness of the HCP terms and conditions...; (2) the level of incidental take of the covered species; (3) the biological conditions resulting from the operating conservation program...; and (4) any informational needs of an adaptive management strategy, if utilized."

"The monitoring program will be based on sound science and standard survey or other monitoring protocols previously established..."

"The monitoring program should also clearly designate who is responsible for the various aspects of monitoring."

"Compliance is necessary... Therefore, the Services verify adherence to the terms and conditions of the incidental take permit, HCP, IA, and any other related agreements...."

"...it is important for the Services to make field visits to verify whether the report data are correct and the HCP is being implemented as negotiated."

"For large-scale and/or regional HCPs, oversight committees, made up of representatives from significantly affected entities (e.g., State Fish and Wildlife agencies), are often used to ensure proper and periodic review of the monitoring program..." At 431,000 acres and 50 years in duration, Simpson's proposed HCP would clearly be "large scale."

Response to Comment G3-150

ESA Section 10(a)(2)(A)(iv) requires, as a condition of ITP approval, that a conservation plan specify “such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.” ESA Section 10(a)(2)(B) directs the Services to issue an ITP if it finds that the measures specified under Section 10(a)(2)(A)(iv), if any, will be met and “has received other assurances as he may require that the plan will be implemented.” Here, the purposes of the Plan are served by the proposed suite of measures in the Operating Conservation Program and other aspects of Plan implementation, such as the IA.

The obligations set forth in the IA - including the funding provisions (IA Paragraph 7) and remedies, enforcement, penalties and dispute resolution provisions (IA Paragraph 13) - provide additional assurances that the Plan will be implemented. See also Master Response 14 regarding Plan enforceability. Regarding the Services’ authority to enter the Plan Area for inspections and monitoring, see IA Paragraph 8.5.

“Oversight committees should periodically evaluate the permittee’s compliance with the HCP, its incidental take permit, and IA, and the success of the operating conservation program in reaching its identified biological goals and objectives. Such committees usually include species experts and representatives of the permittee, the Service, and other affected agencies and entities.”

“Oversight committees should meet at least annually and review implementation of the monitoring program and filing of reports as defined in the HCP, permit, and/or IA.”

“The Services should strive to collect information that will help detect cumulative trends in covered species populations or changes in the quality and/or quantity of the habitat....”

“Effects and effectiveness monitoring will generally include, but are not limited to, the following: 1. Periodic accounting of authorized incidental take; 2. Surveys to determine species status, appropriately measured for the particular operating conservation program (e.g., presence, density, or reproductive rates); 3. Assessments of habitat condition; 4. Progress reports on fulfillment of the operating conservation program (e.g., habitat acres acquired and/or restored); and 5. Evaluations of the operating conservation program and its progress toward its intended biological goals.”

“The following represents the minimum information frequently needed in a monitoring program and its reports: 1. Objectives for the monitoring program; 2. Effects on the covered species and/or habitat; 3. Location of sampling sites; 4. Methods for data collection and variables measured; 5. Frequency, timing, and duration of sampling for the variables; 6. Description of the data analysis and who conducted the analyses; and 7. Evaluation of progress toward achieving measurable biological goals and objectives and other terms and conditions as required by the incidental take permit and/or IA.”

G3-149

Enforcement and Long-Term Implementation of the HCP

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B) state that the Services shall require “...other measures...necessary or appropriate for purposes of the plan” and “...other assurances...that the plan will be implemented.” The HCP Handbook’s template implementation agreement (IA) also states that the purpose of an IA is to ensure that each item of the HCP is implemented. [USFWS et al (1996), Appendix 4, pp. 3 & 6]

G3-150

Further, the HCP Handbook also states that enforceable mitigation should be included in HCPs. [USFWS et al (1996), p. 1-16]

The HCP and ITP must be accompanied by a legally sufficient Implementation Agreement (IA).

Simpson must be required to restore damaged habitats, for example, if the company exceeds the allowable level of “take,” fails to comply with the HCP’s conservation measures, or

otherwise violates the HCP and IA. Simpson should not be indemnified from liability for monetary damages or restorative actions, for failure to implement the HCP's conservation measures and mitigate impacts to the covered species.

The IA must clearly maintain citizens' right to sue for enforcement of the ESA's protection measures for listed species. These measures should be understood to include the HCP's conservation measures, which are being substituted for the ESA's normal protection measures. It is well known that citizen suits have been essential to securing implementation of various aspects of the ESA. The San Bruno plan, the model for the ESA section 10 ITP/HCP process, maintained citizens' enforcement rights.

The Services' HCP Handbook's template IA also states that the purpose of an IA includes providing rights to remedies and relief. The Handbook's template IA includes some limited provisions for injunctive and temporary relief. [USFWS et al (1996), Appendix 4, pp. 3 & 6.] Such provisions are not without precedent. The IA for the Regli Estate HCP grants the Services the right to require restoration of any habitat values that are impacted in violation of the HCP. The Services may also seek damages for some types of violations.

The USFWS' new permit rules state that "a permittee... remains responsible for any outstanding minimization and mitigation measures required under the terms of the permit for take that occurs prior to surrender of the permit and such... even after surrendering the permit...." [50 CFR 17.22(b)(7) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116.]

The HCP Handbook states that large scale HCPs may also need perpetual funding to cover long term monitoring and mitigation. [USFWS et al (1996), p. 3-24.]

The Service's Handbook states that the landowner should provide up-front legal or financial assurances, such as a letter of credit, if mitigation measures will be implemented after "take" occurs. [USFWS et al (1996), p. 3-22.]

The HCP Handbook anticipates that conservation easements can be used to ensure the HCP "runs with the land." [USFWS et al (1996), p. 6-30]

The USFWS' new permit revocation rule states, in effect, that an ITP will be revoked if the permit would "appreciably reduce the likelihood of the survival and recovery of the species in the wild." [50 CFR 17.22(b)(8) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116, referring to ESA s. 10(a)(2)(B)(iv).]

ESA s. 10(a)(2)(C) states that the Services "...shall revoke a permit...if [they] find that the permit is not complying with the terms and conditions of the permit."

Duration of the ITP

Response to Comment G3-151

The term of the Plan and Permits will be 50 years. Provisions for extending or terminating this term are presented in IA Paragraph 6. The Services believe that the Plan, EIS and IA are consistent with the final Five Points Policy (June 1, 2000, 65 Fed. Reg. 35242), including the guidance relating to permit duration.

Response to Comment G3-152

The HCP approval criteria provide that an ITP is issued to authorize take that is incidental to otherwise lawful activity. The Services are not required to evaluate Green Diamond's compliance with laws as a prerequisite to issuance of this Permit, and no specific information has been provided to the Service that demonstrates that any of the Plan measures are in violation of applicable State and Federal laws. Regarding the regulatory context in which the Plan will be implemented and the Permits will be in effect, see AHCP/CCAA Section 1.4 and EIS Section 1.5.

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The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"...when determining incidental take permit duration... factors include duration of the applicant's proposed activities and the expected positive and negative effects on covered species... including the extent to which the operating conservation program will increase the survivability of the listed species and/or enhance its habitat."

"...the Services will also consider the extent of scientific and commercial data underlying the proposed operating conservation program for the HCP, the length of time necessary to implement and achieve the benefits of the operating conservation program, and the extent to which the program incorporates adaptive management strategies."

The Landowner's Eligibility for an ITP

ESA ITPs are premised upon the idea that the "take" of species and their habitats will be "incidental to otherwise lawful activities." [See ESA Ss. 10(a)(1)(B) and 10(a)(2)(B)(i) and USFWS et al (1996), p. 1-5.] Thus an ITP/HCP should not be granted for any forest management operation or other land use activity that violates federal, state, or local laws. The Services must assess Simpson's compliance with these requirements.

Furthermore, as per 50 CFR 13.21(b) and (c), 50 CFR 220.21(b), and USFWS et al (1996), p. 7-1, the Services must determine whether Simpson has:

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- i) been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the permit application is filed, if this penalty or conviction evidences a "lack of responsibility;"
- ii) failed to disclose material information or made false statements of material fact in connection with the permit application;
- iii) failed to demonstrate a valid justification for the permit and a "showing of responsibility;"
- iv) violated the Migratory Bird Act, the Lacey Act, or the Bald & Golden Eagle Protection Act; or
- v) failed to submit valid, accurate, and timely reports required by their permit.

If the answer to any of these questions is "yes," then the landowner is not eligible to receive or keep a permit under the ESA, Migratory Bird Act, or Bald & Golden Eagle Protection Act.

Response to Comment G3-153

The criteria and standards with which the Plan and EIS must comply are set forth in AHCP/CCAA Section 1.4.1 and EIS Section 1.5, and are discussed in Master Response 8. Use of herbicides and other chemicals are not a covered activity - see Master Response 4 regarding consideration of herbicides in the Plan and EIS. Therefore, the potential impact associated with such use is beyond the scope of the Plan and EIS. In the EIS, see generally Sections 3.4 - Aquatic Resources (*Affected Environment*) and 4.4 - Aquatic Resources (*Environmental Consequences*). In the Plan, see AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*). In addition, as described in the Plan and EIS, the USFWS believes that the benefits to the covered amphibian species from Plan implementation would, if combined with conservation measures applied on other necessary properties, contribute to their status sufficiently to avoid the need to list them under the ESA. The analyses in the Plan and EIS support NMFS' conclusion that, overall, the Plan's extent of mitigation meets the requirements to minimize and mitigate the impacts of taking to the maximum extent practicable.

The Services have concluded that the Plan's conservation measures meet the approval criteria for an ESP/CCAA and an ITP/HCP. The Services believe that the Plan's conservation measures minimize and mitigate individual impacts of take by category and type of impact, and that the activities and management practices under the Operating Conservation Program (AHCP/CCAA Section 6.2) will result in improvements in habitat conditions for the covered species. See Master Response 9 regarding quantifying take. For the reasons set forth in Master

Impact Minimization and Mitigation Measures for Salmon and Other Aquatic and Riparian Species

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The HCP and DEIS must document whether the HCP's aquatic and riparian conservation measures will fully offset all impacts to the covered aquatic and riparian species, and whether these measures will produce habitat conditions which correspond to the survival and recovery of the covered species. The DEIS and HCP must identify the extent to which "take" of the various covered species will occur. The HCP and DEIS must address water flows and timing, and how they are affected by upslope forest management practices, temperature, the role of invertebrates as food sources and water quality indicators, and the impact of chemical applications, including around upslope intermittent streams. Wetlands, seeps, and springs must be addressed.

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The HCP's riparian protection measures must, at a minimum, match the compromise standards recommended by NMFS for protecting salmonids in the "westside" forests of the West Coast states. These compromise standards include the NMFS proposal for "short term" HCPs in California (see NMFS (1999)). (See Table 1 below.)

Table 1. Summary of Compromise Aquatic Protection Standards for "Westside" West Coast Forests

NMFS "Short Term HCP" (NMFS (1999))	<i>Perennial Fish Bearing Streams:</i> 180 ft. buffer w/ no logging. No chemical applications. Additional buffer on steep slopes. <i>Perennial NonFish:</i> Same as perennial fish bearing. <i>Intermittent Streams:</i> 30 ft. buffer w/ no logging. Additional buffer to 100 ft. w/ significant retention during logging.
Pacific Lumber HCP	<i>Perennial Fish Bearing Streams:</i> 100 ft. buffer w/ no logging. Additional buffer to 170 ft. w/ significant retention during logging. <i>Perennial NonFish:</i> 30 ft. buffer w/ no logging. Additional buffer to 130 ft. w/ significant retention during logging. Additional buffer to 170 ft. w/ equipment exclusion. <i>Intermittent Streams:</i> 30 ft. buffer w/ no logging. Some exceptions. Additional buffer to 50 to 100 ft. w/ equipment exclusion.

Notes: For comparison purposes only. Does not include all aspects of the different standards.

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A more credible HCP would employ standards considered to provide reasonable assurances of recovery. These include the standards employed by the Northwest Forest Plan for federal forests in the range of the Northern spotted owl, the standards proposed by Pollock et al (1998), and the "take" avoidance standards identified in the Draft Environmental Impact Statement (DEIS) for the Pacific Lumber Headwaters HCP (USFWS et al (1998)). (See Table 2 below.) It should also be noted that even the Northwest Forest Plan was only considered to have roughly an 80% probability of providing well distributed populations of salmonids across the federal lands in question. (USDA FS et al (1993))

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USDA FS et al (1993), Huntington (1998), Pollock et al (1998), and the Draft EIS for the Pacific Lumber Headwaters HCP (USFWS et al (1998)) all indicate that buffer widths approaching two site potential trees are necessary to *begin* providing microclimate effects

Response 9, the Services believe that the Plan is consistent with the requirements of the ESA regarding evaluation of take and its impacts. There is no independent requirement under NEPA that the EIS quantify take.

Regarding consideration in the Plan of potential impacts on water resources, see AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*) generally, and more specifically, AHCP/CCAA Sections 7.2.1 (*Potential for Altered Hydrology*), 7.2.2 (*Potential for Increased Sediment Inputs*) and 7.2.5 (*Potential for Altered Water Temperature*), among others. Regarding consideration in the EIS of potential impacts on water resources, see EIS Section 4.0 (*Environmental Consequences*) generally, and more specifically, EIS Sections 4.3 (*Hydrology and Water Quality*) and 4.4 (*Aquatic Resources*). The primary water quality parameters of concern in the Plan Area are suspended sediment, turbidity, and water temperature.

Response to Comment G3-154

The purpose of the ESA Section 10 permitting process is not to compare conservation programs measure for measure, but rather to ensure that the criteria for issuing such permits are met, based upon site-specific, species-specific and activity-specific conditions. The criteria and standards with which the Plan and EIS must comply are set forth in EIS Sections 1.3 and 1.5, and are discussed in Master Response 8. Accordingly, the Permit applicant may propose any suite of measures, and need not “match” the measures proposed in other contexts, so long as the standards are met and criteria are satisfied.

Furthermore, the compromise standards cited in the scoping letter were prepared in the context of short term HCPs. The initial term of this Plan and these Permits is 50 years (AHCP/CCAA 1.3.1) and may be extended in accordance with IA Paragraph 6 (*Term*).

See also Master Response 18 (*Riparian Widths*).

Response to Comment G3-155

As provided in EIS Section 2.6, the Services considered, but did not carry forward for detailed analysis, other alternatives, including application of Federal forest management measures. As discussed in Master Response 8, the Services have concluded that the Plan's conservation measures (AHCP/CCAA Section 6.2) meet the approval criteria for an ESP/CCAA and an ITP/HCP. The criteria are set forth in AHCP/CCAA Section 1.4.1 and EIS Section 1.5. The Services believe that the Plan's conservation measures not only minimize and mitigate individual impacts of take by category and type of impact, but that the activities and management practices under the Operating Conservation Program (AHCP/CCAA Section 6.2 as discussed in AHCP/CCAA Section 6.3) will result in improvements in habitat conditions for the species relative to existing conditions and conditions that are expected to occur over time under the No Action Alternative, and help preclude the need for future listing of the unlisted covered species.

Response to Comment G3-156

See Master Response 18 (*Riparian Widths*) and Master Response 6 (*Relationship between the Green Diamond Plan and the Pacific Lumber Company HCP*). See Alternative B (*Simplified Prescriptions*) described in EIS Section 2.4 and EIS Table 2.7-1 (*Description of Alternatives*), which compares measures under each of the alternatives..

Response to Comment G3-157

Implementation of the Operating Conservation Program (AHCP/CCAA Section 6.2, as discussed in AHCP/CCAA Section 6.3) will protect intermittent streams. In the Plan, see AHCP/CCAA Sections 6.2.1 (*Riparian Management Measures*), 6.2.2 (*Slope Stability Measures*), 6.2.3 (*Road Management Measures*), 6.2.4 (*Harvest-related Ground Disturbance Measures*) and 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*). In the EIS, see Section 4.3 (*Hydrology and Water Quality*) and Section 4.4 (*Aquatic Resources*).

Response to Comment G3-158

See the response to Comment G3-157 regarding protection of riparian and other areas through implementation of the Operating Conservation Program. The Services believe that adequate measures for seeps, springs, and other non-stream riparian areas are included in the scope of prescriptions provided in Green Diamond's Operating Conservation Program. As further noted in EIS Section 2.2.3.1 (*Riparian Habitat* under the Proposed Action), ponds, swamps, bogs, springs, and seeps that support aquatic species, including the amphibian covered species, would be afforded the same protection as other Class II watercourses.

Table 2. Summary of Aquatic Protection Standards that Provide a High Probability of Salmonid Recovery in Forested "Westside" West Coast Watersheds

NW Forest Plan	<i>Perennial Fish Bearing Streams</i> : 300 ft. buffer w/ no logging. <i>Perennial NonFish</i> : 150 ft. buffer w/ no logging. <i>Intermittent Streams</i> : 170 ft. buffer w/ no logging.
Pollock et al (1998)	<i>Perennial Fish Bearing Streams</i> : 250 ft. buffer w/ no logging. Some exceptions. <i>Perennial NonFish</i> : 250 ft. buffer w/ no logging. Some exceptions. <i>Intermittent Streams</i> : 105 to 250 ft. buffer w/ no logging. Some exceptions.
NMFS "No Take" (USFWS et al (1998))	<i>Perennial Fish Bearing Streams</i> : 340 ft. buffer w/ no logging. <i>Perennial NonFish</i> : 170 ft. buffer w/ no logging. <i>Intermittent Streams</i> : 100 ft. buffer w/ no logging.

Notes: For comparison purposes only. Does not include all aspects of the different standards

and habitat for riparian species. Amphibians and reptiles comprise a large portion of the ecosystem in all water systems and are an integral part of the food web. Adverse effects to amphibian and reptilian populations can lead to adverse impacts on aquatic species such as salmon and trout. Changes in microclimate conditions can alter the ecosystem of the riparian environment for amphibians, reptiles, and other plant and animal species. Buffer widths that allow increased direct and indirect solar radiation into the riparian zone will increase air temperature and decrease relative humidity in that area. If these measurements move beyond the tolerance levels of terrestrial riparian flora and fauna, these species may perish or be forced to find other suitable habitat to complete their life cycle. Rudolph et al (1990), for example, reported amphibian and reptile populations were significantly lower in aquatic habitats with narrow buffer widths (i.e., those less than 98 ft.) than those with wider buffer strips due to greater shading (i.e., less solar radiation and lower air temperatures) and open understory vegetation.

Intermittent streams normally provide important nutrients and food sources for fish and aquatic systems. Conversely, when impacted by logging and roading, these streams can significantly affect stream temperatures, sedimentation, hydrology, and other conditions downstream. The importance of intermittent, upslope streams to downstream fish habitat conditions is noted in USFWS (1999), NMFS (1998), and Reid et al (1999), for example, as well as in NMFS' critical habitat notices for Oregon Coast coho and Upper Columbia steelhead. Streamside trees and other vegetation are needed throughout all stream reaches to prevent erosion and wasting, and large woody debris is needed to help trap sediment, prevent scouring, and maintain other functions.

The HCP also needs to include adequate measures for seeps, springs, and other non-stream riparian areas. At a minimum, they should meet the standards recommended by NMFS (1998). More credible standards would include those employed by the Northwest Forest Plan and even the Pacific Lumber HCP. USDA FS et al (1993) and USDA FS et al (1994) recommend no-harvest buffers of 1 to 2 site potential trees (i.e., roughly 170 ft. to 340 ft.) around different types of non-stream riparian areas.

Response to Comment G3-159

Regardless of the adequacy of the proposed conservation strategy proposed by NMFS (1998), the USFWS has determined that the measures set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2, as discussed in AHCP/CCAA Section 6.3) for the amphibian covered species meet the issuance criteria for an ESP/CCAA. See EIS Section 1.3 and Master Response 8. The amphibian covered species in the Plan are the southern torrent salamander and tailed frog. See AHCP/CCAA Sections 1.3.3.2 (*ESP Species*), 3.2.2 (*Amphibian Species Characteristics*), 3.3.2 (*Amphibian Habitat Characteristics*) and Appendices A.1.5 (*Tailed Frog*) and A.1.6 (*Southern Torrent Salamander*). Measures addressing these species are set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2) and conclusions regarding the effectiveness of conservation measures are reached in AHCP/CCAA Section 7 - in particular, see AHCP/CCAA Section 7.5 (*Benefits of the Conservation Measures for the ESP Species*). In the EIS, see Section 3.4.5 (*Ecological Implications of Land Management Activities on Aquatic and Riparian Habitat, Fish, and Amphibians*) and Section 4.4.3.7 (*Summary of Effects*).

Response to Comment G3-160

See response to Comment G3-159 and Master Response 8. So long as the Permit issuance criteria discussed in EIS Section 1.3 are satisfied, the ESA does not require that any particular measure, or suite of measures, be included in an operating conservation program. The composition of the suite of measures included in an operating conservation program, including whether to provide

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Inadequate measures on smaller streams, intermittent streams, seeps, and springs will lead to adverse impacts on the amphibian populations that are crucial to this habitat. The resulting lack of forest cover means that evapotranspiration rates are likely to increase with increasing air temperature and may contribute to a lowering of the groundwater table and soil moisture content. This may prematurely dry up intermittent streams, depriving flora and fauna of an important water source during the dry season. Intermittent streams also provide important primary habitat for a number of amphibians and other species, including species that do not tend to utilize larger streams as frequently. [American Lands (1998), Benda et al (1998), and USFWS (1998).] Equally important, roading, logging, and other operations within and adjacent to intermittent streams is likely to lead to significant amounts of erosion and sediment loading in downstream channels, including areas needed for salmon spawning and other functions.

USFWS (1998) also found that the aquatic conservation strategy proposed in NMFS (1998) is necessary, and indeed in some respects insufficient, for the conservation of riparian associated amphibians.

As recommended by Olson in Benda et al (1998), the HCP also needs to provide long term refugia (or "anchor" habitats) which contain the specific habitat elements needed by different riparian and aquatic habitat associated amphibians. Sites used by the different species need to be inventoried and protected.

The HCP must also protect and restore habitats on non-fish-bearing streams which historically supported salmonids and other aquatic and riparian species, or which are otherwise needed for the species' recovery. There is evidence that fish can utilize relatively steep stream reaches when large woody debris provides pools and "stair step" stream structure. [See Trotter (1995) and Montgomery (in preparation).]

The HCP and DEIS must mitigate for road densities and resulting impacts. Road densities are also a good indicator of likely impacts to salmonids and other aquatic species as well. Along with clearcutting, high road densities have been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. Peak flow increases of 20% to 50% have been reported in large watersheds as a result of road densities as low as 10% of the watershed area. [Grant (1994) and Grant et al (1996).]

The HCP should focus on road obliteration (i.e., restoration of approximate original contour) rather than mere road abandonment. Abandonment may not be sufficient to avoid significant risk of triggering large and cumulative small landslides.

The HCP must remediate existing stream crossings which are impassable to fish and/or which are likely to blow out under storm conditions, and protection measures needed for seeps and springs.

long-term refugia or “anchor habitats” for amphibians, lies within the discretion of the Permit applicant.

Response to Comment G3-161

The Plan must meet the requirements of the ESA Section 10 Permit issuance criteria to qualify for approval. See EIS Section 1.3 and Master Response 8. For the reasons discussed in Master Response 8 and based on analyses set forth in the Plan and EIS and discussed throughout these responses to comments, the Services believe that the Plan, including its measures relating to habitat conditions in the Plan Area, meet applicable requirements.

Response to Comment G3-162

See Master Response 17, regarding road density, and AHCP/CCAA Section 6.2.3, as discussed in AHCP/CCAA 6.3.3 regarding the Plan’s road management measures. The Services believe that the Plan’s approach to addressing significant sources of sediment in the Plan Area - including measures to address riparian management, slope stability and harvest-related ground disturbance as well as road management - satisfies the ESA Section 10 Permit approval criteria. See EIS Section 1.3 and Master Response 8 regarding Permit approval criteria.

Response to Comment G3-163

See response to Comment G3-162.

Response to Comment G3-164

The road management measures discussed in AHCP/CCAA Section 6.2.3 include stream crossings (see, e.g., AHCP/CCAA Sections 6.2.3.3.2 and 6.2.3.4.7. Regarding protection for seeps and springs, see the response to Comment G3-158.

Response to Comment G3-165

The Plan's biological goals and objectives are set forth in AHCP/CCAA Section 6.1. Monitoring provisions are set forth in AHCP/CCAA Sections 6.2.5 and 6.2.7, and are discussed further in AHCP/CCAA Sections 6.3.5 and 6.3.7. Adaptive management measures are set forth in AHCP/CCAA Section 6.2.6, and are discussed in AHCP/CCAA Section 6.3.6 and IA Paragraph 10.0.

Regarding water temperature in particular, see AHCP/CCAA Section 6.1.2.1 (*Biological Goals*), Section 6.1.2.2.1 (*Summer Water Temperature Objective*); AHCP/CCAA Section 6.2.5.1.1 and Appendix D.1.2 regarding annual summer water temperature monitoring in Class I and Class II watercourses pursuant to effectiveness monitoring efforts, and AHCP/CCAA Section 6.2.5.1.2 and Appendix D.1.3 regarding BACI water temperature monitoring in selected reaches of Class II watercourses.

Response to Comment G3-166

Herbicide and other chemical use are not covered activities. Regarding chemical application, see Master Response 4 (*Herbicides*). Regarding the scope of analysis in the Plan and EIS (the Proposed Action), the term "covered activities" for the purposes of the Plan and Permits is defined in IA Paragraph 3.3. The covered activities themselves are set forth in AHCP/CCAA Section 1.3.4 and Section 2 and analyzed as part of the "Proposed Action" in the EIS (see, e.g., EIS Section 2.2.1).

Based on the riparian management measures (set forth in AHCP/CCAA Section 6.2.1 and discussed in AHCP/CCAA Section 6.3.1) and other measures included in the Operating

- G3-165 [The HCP must address temperature and other water quality standards, including by identifying quantified objectives, monitoring indicators, and adaptive management provisions.
- G3-166 [The HCP must address logging, chemical applications, intensive broadcast burning, and other activities permitted by the ITP across upslope areas, i.e., the majority of the land area in the HCP's covered watersheds. The HCP must provide retention requirements for understory vegetation, green trees, snags, and large woody debris.
- G3-167 [The HCP and DEIS must include mitigation measures for the hydrological impacts of Simpson's proposed and potential silvicultural practices, as they may be allowed by the ITP. Along with high road densities, frequent, widespread clearcutting has been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. [Grant (1994) and Grant et al (1996).] Recent materials from the US EPA also confirm the importance of addressing "...hydrological maturity/successional issues ...(vegetation patterns/composition/structure) with respect to both peak flows and base flows" for the conservation of native fish, salmonids, amphibians, and other riparian habitat associates. [Moore (1998)]
- G3-168 [The HCP must include measures to protect groundwater flows from roading and logging operations. Logging can affect groundwater flows by changing water retention timing and rates. Roading can affect groundwater flows by altering geology and soil hydrology.
- G3-169 [The HCP and DEIS must address the extent and intensity of erosion and sedimentation likely to result from Simpson's upslope logging practices and other sources of soil disturbance across the plan area.
- G3-170 [The HCP also fails to consistently and thoroughly require reductions in logging, roading, and other impacts on unstable slopes, including slopes at high risk of failure. Substantial amounts of logging are allowed in many slide prone areas. This will often be exactly the opposite of what is needed: retention of the larger trees, to maintain site stability, and to ensure that when failures do occur, large woody debris is delivered to stream channels.
- G3-171 [The HCP must monitor aquatic invertebrates. The importance and utility of using invertebrates and other biological indicators during water quality assessments and monitoring is discussed in Karr et al (1999), Karr (1998), and Karr (1991). The Oregon plan for conserving coastal coho salmon also establishes basic protocol for using macro-invertebrates as water quality indicators.
- G3-172 [It should not be assumed that existing watershed analysis processes are sufficient, including where they are being utilized as part of the existing regulatory framework that is incorporated as part of the HCP's mitigation measures.

Conservation Program, as well as the underlying analysis supporting such measures, the Services have determined that the Plan meets the ESA Section 10 Permit issuance criteria discussed in EIS Section 1.3 and Master Response 8. These measures are analyzed in the EIS as part of the Proposed Action. See, e.g., EIS Section 4.3.3.2, discussing large woody debris and EIS Section 4.3.3.3 discussing bank stability.

Response to Comment G3-167

Regarding assessment of potential impacts on hydrology in the Plan, see, e.g., AHCP/CCAA Section 6.2.1 (*Riparian Management Measures*) and Section 6.2.4 (*Harvest-Related Ground Disturbance Measures*). See also AHCP/CCAA Section 7 generally (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*) and, more specifically, AHCP/CCAA Section 7.2.1 (*Potential for Altered Hydrology*). In the EIS, see Section 4.3 (*Hydrology and Water Quality*) concluding, in part, that implementation of the comprehensive prescriptive measures contained in the Proposed Action would result in equal or slightly improved water quality conditions relative to current conditions and conditions that are expected to occur over time under the No Action Alternative. Based on the analysis in and supporting the Plan and EIS, the Services have determined that the suite of measures in the Operating Conservation Program, including those which address hydrological impacts, satisfy the Permit issuance criteria.

Response to Comment G3-168

The Plan includes harvest-related ground disturbance measures in AHCP/CCAA Section 6.2.6.2.4, as discussed in AHCP/CCAA Section 6.3.4. These measures are assessed in the EIS as part of the Proposed Action (see, e.g., EIS Section 4.2.3.1). Although harvest related ground disturbance could reduce the infiltration capacity and alter the process of subsurface water movement through soil compaction, the harvest-related ground disturbance measures described in the Plan would reduce associated impacts and, thereby, protect groundwater flows.

Response to Comment G3-169

The Plan and EIS address potential environmental effects and impacts of take from erosion and sedimentation associated with the covered activities. Regarding the covered activities, see response to Comment G3-166. See AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*) generally and, more specifically, AHCP/CCAA Section 7.2.2 (*Potential for Increased Sediment Inputs*) and Section 7.5 (*Benefits of the Conservation Measures for the ESP Species*). In the EIS, see Section 3.4.5.4 (*Land Management Activities and Ecological Implications*) and, analyzing the Proposed Action, EIS Section 4.4.3.4 (*Aquatic Habitat*).

Response to Comment G3-170

Regarding harvest rate limitations, see Master Responses 3 (*Cumulative Effects*) and 11 (*Disturbance Index/Rate of Harvest*). Regarding limitations on road density, see Master Response 17. The Plan includes measures to address slope stability. See AHCP/CCAA Section 6.2.2 (*Slope Stability Measures*) as discussed in AHCP/CCAA Section 6.3.2 (*Slope Stability Measures*). See also AHCP/CCAA Appendix B, regarding landslide terminology, and AHCP/CCAA Appendix F, regarding sediment delivery studies and modeling efforts. Potential impacts on unstable slope were analyzed in the EIS as part of the Proposed Action. See EIS Section 4.2.3.2 (*Hillslope Mass Wasting*), where the slope stability conservation measures included under the Proposed Action are described.

Response to Comment G3-171

Monitoring and adaptive management procedures for the Plan's covered species are identified in AHCP/CCAA Section 6.2.5 (*Effectiveness Monitoring Measures*), Section 6.2.6 (*Adaptive Management Measures*), and Section 6.2.7 (*Implementation Monitoring Measures*). These measures are analyzed in the EIS as part of the Proposed Action.

Response to Comment G3-172

Based on the Operating Conservation Program (set forth AHCP/CCAA Section 6.2 and discussed in AHCP/CCAA Section 6.3) and the underlying analysis, the Services have determined that the Plan meets the ESA Section 10 Permit issuance criteria discussed in AHCP/CCAA Section 1.4.1, EIS Section 1.3 and Master Response 8. Further, the “gaps and problems” relating to the Washington watershed analysis process that are identified in the scoping comment are not relevant here, where:

- (1) The Plan uses the best scientific and commercial data available. See Master Response 1.3 and AHCP/CCAA Appendix C, regarding studies, surveys and assessments in the Plan Area of covered species and their habitats. See also AHCP/CCAA Section 4.4 regarding assessment of habitat conditions and status of covered species on an HPA-by-HPA basis.
- (2) The Operating Conservation Program addresses not only shade and LWD, but also microclimate and sediment inputs. Regarding overstory canopy, see, for example, AHCP/CCAA Sections 6.2.1.2.1 and 6.2.1.4.1; regarding LWD retention, see, for example, AHCP/CCAA Sections 6.2.1.6.2 and 6.2.1.7.5. Regarding microclimate, one of the most important functions of riparian management zones, see AHCP/CCAA Section 6.2.1. Regarding the reduction of sediment input into Plan Area watercourses, see AHCP/CCAA Section 6.2.6.2.2 and Section 6.2.3.
- (3) Implementation of the Plan and issuance of the Permits is subject to otherwise applicable requirements, including compliance with anti-degradation standards. See AHCP/CCAA Section 1.4 (*Context*) and EIS Section 1.5.3.3 (applicable State requirements include compliance with the Porter-Cologne Water Quality Control Act and the North Coast Regional Water Quality Control Board’s Water Pollution Control Plan, the “Basin Plan.” In accordance with Chapter 5 of the Basin Plan (*Plans and Policies*), regional water quality control boards are directed to implement the provisions of several statewide plans and policies, including the Policy with

Respect to Maintaining High Quality Waters in California (Resolution No. 68-16).

- (4) Regarding hydrologic function, see the response to Comment G3-167.
- (5) Influences on water temperature, including air temperature, relative humidity, wind speed and turbidity, will be monitored as part of the in selected sites as part of the Experimental Watersheds Program (AHCP/CCAA Section 6.2.5.4, as discussed in AHCP/CCAA Section 6.3.5.5).

Response to Comment G3-173

Under the Plan, RMZs in the Plan Area will lead to increased age class and size as well as increased total acreage with dense canopy closure. The accelerated development of mid and late-seral stand types as a result of implementation of conservation measures in the Operating Conservation Program is anticipated to be most pronounced within riparian areas. These trends would be expected to result in some long-term benefits to wildlife species that use these habitats. See, for example, EIS Section 4.5.3.1 regarding the general effects of the Proposed Action on vegetation and plant species of concern; EIS Section 4.5.3.2, regarding riparian management effects of the Proposed Action on vegetation and plant species of concern; and Section 4.6, regarding terrestrial habitat/wildlife species of concern and noting that bald eagles, Northern spotted owls and Del Norte salamanders are expected to benefit from the enhanced riparian and late seral forest conditions under the Proposed Action compared to the No Action Alternative.

Regarding the covered species, as discussed in AHCP/CCAA Section 7.2.4.2.1, as assessed in AHCP/CCAA Section 4.3.11 and Appendix C11, presence/absence surveys indicate that southern torrent salamanders and tailed frogs have been identified in 80.3 and 75.0%, respectively, of sampled Plan Area streams in stands that ranged from recent clearcuts to mature second growth (Diller and Wallace 1996 and 1999). This is consistent with studies done in more interior areas to the east of the Plan Area, which identified both torrent salamanders and tailed frogs in 70% and 81%, respectively, of streams in old growth forests. Further, coastal cutthroat trout identified in open stream reaches that had been recently clearcut had similar growth rates to those identified in pristine old growth streams (AHCP/CCAA Section 7.5.1).

G3-172

G3-173

The Washington watershed analysis process, which is often upheld as a model, nevertheless suffers from significant gaps and problems. Gaps and problems related to salmonids and bull trout include: 1) lack of assessment of the biotic integrity of waterbodies (e.g., macroinvertebrates); 2) limitation of riparian assessment to shade and large woody debris recruitment from stands adjacent to fish-bearing streams, ignoring other riparian functions such as microclimate, and food chain support and wood recruitment to non-fish channel segments for water quality (i.e. sediment routing) and as source for downstream stream reaches; 3) lack of an antidegradation policy and use-based water quality criteria (i.e., temperature standards) during water quality assessment; 4) during hydrology assessments, lack of consideration of surface/groundwater interactions, groundwater system recharge/discharge areas, subsurface flow and thermal regimes, and hydrologic functions of forest canopy in rain dominated landscapes (i.e. the process assumes the most significant effects of timber harvest on hydrologic processes is through the influence on snow accumulation and melt during rain-on-snow events); and 5) during temperature assessment, inadequate consideration of heat transfer from air to surface water, from soil to shallow groundwater, and from shallow groundwater to streams (i.e. ground/surface water interactions can result in adverse change to surface water temperature, causing potential loss of reach-scale thermal refugia and degrading summer rearing habitat for aquatic biota).

Impact Minimization and Mitigation Measures for Species Dependent on Old Growth and Older Forest Habitats:

Salmonids and other fish associated with forested watersheds co-evolved with habitat conditions and ecosystem processes that reflected the presence of old growth forests and other mature forest stands across substantial portions of the landscape. The relationship between salmon and forests appears to be truly symbiotic. In addition to being themselves dependent on habitat and watershed conditions associated with older forests, spawning salmonids and their predators and decomposers contributed heavily to the maintenance of soil nutrients and flora and fauna in riparian zones, which in turn supported future salmon populations. [Lichatowich (1999)]

Restoring mature forest conditions across significant portions of forested watersheds is an essential component of protecting and recovering imperiled salmonids and other native fish species. A combination of forest protection, restoration, and improved management approaches can be used to meet this goal. The adoption of longer timber rotations is an economically-beneficial and "practicable" measure which can be used to supplement other protection and restoration measures by reducing cumulative watershed impacts, helping restore relatively mature forest conditions, and maintaining and even increasing landowners' timber production and revenues.

Failure to protect and restore older forest habitats is likely to impact the survival and recovery of a host of listed and unlisted species, including those not currently found in the plan area, but which will need viable habitats in the area for their recovery. It cannot be assumed that federal lands provide a sufficient basis for species' recovery. Most of the

Presumably resident rainbow trout would have a similar response to timber harvesting activities as coastal cutthroat trout populations; but there have been no specific studies that have examined these effects on the resident form of the rainbow trout (AHCP/CCAA Section 7.5.1).

Information about the covered species is provided in AHCP/CCAA Section 3 and is supplemented with additional detail in AHCP/CCAA Appendix A. See also EIS Section 3.4 (*Aquatic Resources*). An HPA-by-HPA assessment of habitat conditions and the status of covered species, as well as other specific information about the Plan Area, is provided in AHCP/CCAA Section 4 and elements of the “affected environment” are set forth in EIS Section 3.

Regarding the allocation of habitat for listed species on Federal and non-Federal lands, comment noted. Problems associated with implementation of the NWFP are beyond the scope of the Plan and EIS.

habitat for most threatened and endangered species is found on non-federal lands. [GAO (1994)] Moreover, the Northwest Forest Plan for federal forestlands within the range of the Northern spotted owl was only expected to provide an 50% chance of supporting 41% of late successional forest species. (See Table 4 below.)

The Northwest Forest Plan also suffers from implementation problems and an inherent insufficiency for lower elevation forests and many late successional species. Well over half of the amphibian, bird, and mammal species associated with old growth forests in the Pacific Northwest have over half of their habitat on non-federal lands. Specifically, 67% of selected amphibians, 77% of selected birds, and 73% of selected mammals associated with old growth forests have 50% or more of their range on non-federal lands. (See Table 3 below.)

Table 3. Selected Late Successional Forest Species Within the Range of the Northern Spotted Owl That Depend Significantly (>25%) on Non-Federal Forests

Amphibians	Birds	Mammals
<p>>25% Non-Federal Lands: tailed frog Oregon slender salamander Shasta salamander Del Norte salamander Larch Mountain salamander</p> <p>>50% Non-Federal Lands: northwestern salamander clouded salamander black salamander Cope's giant salamander Pacific giant salamander Dunn's salamander Van Dyke's salamander Cascade torrent salamander Olympic torrent salamander southern torrent salamander rough skinned newt</p> <p>>75% Non-Federal Lands: Columbia torrent salamander</p>	<p>>25% Non-Federal Lands: northern goshawk Barrow's goldeneye (smr hab) Hammond's flycatcher flamulated owl white headed woodpecker black backed woodpecker Williamson's sapsucker</p> <p>>50% Non-Federal Lands: wood duck bufflehead hermit thrush brown creeper Vaux's swift northern flicker hermit warbler pileated woodpecker western flycatcher northern pygmy owl bald eagle varied thrush hooded merganser red crossbill common merganser chestnut backed chickadee hairy woodpecker golden crowned kinglet red breasted nuthatch white breasted nuthatch pygmy nuthatch red breasted sapsucker barred owl winter wren warbling vireo Wilson's warbler</p> <p>>75% Non-Federal Lands: Barrow's goldeneye (wtr hab)</p>	<p>>25% Non-Federal Lands: American marten Fisher Forest deer mouse Pacific shrew</p> <p>>50% Non-Federal Lands: elk western red-backed vole southern red-backed vole Townsend's chipmunk northern flying squirrel dusky-footed woodrat shrew-mole deer mouse red tree vole fog shrew</p> <p>>75% Non-Federal Lands: red tree vole (California)</p>

Source: WAFC (1997d) and USDA FS et al (1993). Notes: The FEMAT Report was developed primarily for management decisions on Federal lands and does not provide thorough analyses for non-Federal lands.

Response to Comment G3-174

The suggestions made based on Kareiva et al. (1999) and others are noted. However, the Services believe the relationship of the Plan's Operating Conservation Program and Green Diamond's commitments to the Plan's biological goals and objectives, as discussed in Master Response 12, are consistent with ESA law and policy for ITPs. The Services' Five Points Policy provides the basis for establishing biological goals and objectives in HCPs.

Response to Comment G3-175

The Operating Conservation Program (AHCP/CCAA Section 6.2) relies on the best scientific and commercial data available (see Master Response 1.3), including the studies and analyses discussed in AHCP/CCAA Section 3 (*Description of the Covered Species and their Habitats*) and Appendix A (*Profile of the Covered Species*); AHCP/CCAA Section 4 (*Description and Assessment of the Current Status of Aquatic Habitat and Covered Species in the Area Where the Plan Will Be Implemented*) and Appendix C (*Studies, Surveys, Assessments of Covered Species and their Habitats Conducted in the Current Plan Area*); and AHCP/CCAA Section 5 (*Assessment of Potential Impacts to Covered Species and their Habitats*) and Appendix E (*Potential Effects of Timber Management on Covered Species and their Habitats*).

Response to Comment G3-176

See the response to Comment G3-100.

Table 4. Likelihood of Late Successional Forest Species Being Well-Distributed Across Federal Lands Under Option 9 of the Northwest Forest Plan

Species Group	# Species w/ 80% Chance or Less	# Species w/ 50% Chance or Less	# Species w/ 25% Chance or Less	Total # Species Studied
Fungi	519	182	99	527
Lichens	145	110	84	157
Bryophytes	1 group	0	0	13 groups
Vascular plants	40	19	12	131
Mollusks	102	99	14	102
Arthropods	10 groups	1 group	0	15 groups
Amphibians	13	5	3	19
Birds	2	0	0	37
Bats	7	2	0	11
Other mammals	4	0	0	12
Fish	6 groups	0	0	7 groups

Source: USDA FS et al (1993) and WAFC (d).

G3-173

Additional Goals and Standards For Forest HCPs

G3-174

The preceding goals and standards are based in part on those identified in Aengst et al (1998), Bean et al (1991), Bean (1998), Benda et al (1998), Cheever et al (1998), Hood et al (1998), Kareiva et al (1999), Murphy et al (1996), and Noss et al (1997). Additional goals and standards are provided in these sources. Key goals and standards identified by Kareiva et al (1999) include the following points:

G3-175

Explicit scientific standards need to be developed for HCPs, particularly for larger ones.

G3-176

Independent (and presumably, academic) scientific peer review panels should be consulted during HCP development, particularly for more significant plans.

G3-177

Information on listed species, as well as monitoring data from HCPs should be made accessible in a centralized location, to facilitate better planning and plan evaluation.

G3-178

When basic data on species, their conservation needs, resulting levels and impacts of "take," and other considerations are unavailable, data gaps should be filled prior to developing HCPs. Ideally, "take" permits should not be given to landowners when significant information needed to develop scientifically credible HCPs is lacking. Fewer data gaps should be allowed with plans covering larger areas, longer time frames, irreversible impacts, or multiple species.

G3-179

If HCPs proceed in the absence of needed data, then approaches which provide greater levels of certainty for the species should be used.

Response to Comment G3-177

See the response to Comment G3-111.

Response to Comment G3-178

The Plan relies on the best scientific and commercial data available (see Master Response 1.3) and, consistent with the Five Points Policy, the Plan contains monitoring (AHCP/CCAA Sections 6.2.5 and 6.2.7) and adaptive management measures (AHCP/CCAA Section 6.2.6) that will be implemented in response to certain triggers. Green Diamond also will establish an AMRA to allow some adjustments to Plan measures over the term of the Plan and Permits (see AHCP/CCAA Section 6.2.6.3). The provisions in AHCP/CCAA Section 6.2 are discussed in corresponding sections of AHCP/CCAA Section 6.3.

Response to Comment G3-179

The Services note that overall, conservation benefits associated with implementation of the Operating Conservation Program, in particular those associated with acceleration of the road implementation plan (see AHCP/CCAA Section 6.2.3.2.1), will accrue at approximately the same time as, or in advance of, impacts associated with take.

Response to Comment G3-180

See response to Comment G3-178. Further, as explained in AHCP/CCAA Section 7.3 (*Benefits of Monitoring and Adaptive Management*), the monitoring and adaptive management component of the Plan is intended to “monitor all of the key factors (response variables) that have the greatest probability to impact (be limiting for) the covered species and their habitat. The response variables selected were also chosen because they could be quantified with minimum subjectivity, statistically analyzed and used to *modify management in an adaptive manner.*” [emphasis added]. See also Master Response 15 (*The Adaptive Management Reserve Account*).

Response to Comment G3-181

See AHCP/CCAA Section 3 (*Description of Covered Species and Their Habitats*), which describes the life history characteristics and habitats of the two amphibian species (southern torrent salamander and tailed frog) and five fish species (Chinook salmon, coho salmon, rainbow trout, steelhead, and coastal cutthroat trout) covered under the Plan. AHCP/CCAA Appendix A (*Profile of the Covered Species*) and Section 4 (*Description and Assessment of the Current Status of Aquatic Habitat and Covered Species in the Area Where the Plan Will Be Implemented*) describe results of habitat and population assessments for covered species in the Plan Area and discuss monitoring of habitat conditions (such as water temperature, channel and habitat type, LWD assessment) and biological surveys (such as fish presence/absence surveys, summer

G3-179

If proposed mitigation measures cannot initially be demonstrated to be effective, then mitigation, monitoring, and evaluation should occur *prior* to “take.”

G3-180

Plans must be flexible, to allow for timely improvements based on monitoring results. If monitoring is used to help correct for data gaps, then mitigation measures must be adjusted as needed over time.

G3-181

HCPs -- particularly those covering large areas or large amounts of a species’ range -- should inventory, summarize, and document available data on each species and their distribution, abundance, population trends, ecological requirements, life history, and causes of endangerment.

G3-182

Quantitative estimates of the impacts of “take” on species’ viability should be provided, especially for larger or more significant plans. At a minimum, best and worst-case scenarios should be identified.

G3-183

Impacts of “take” should also be evaluated, particularly for larger or more significant plans, including by determining whether the habitats being “taken” correspond to population “sources” or “sinks,” whether genetically unique subpopulations are being “taken,” and whether unique habitat/species combinations are being impacted.

G3-184

The details of HCP mitigation measures must be explicitly described and accompanied by data on their effectiveness. The likely success of each measure must be evaluated, as must the overall effectiveness of mitigation measures at minimizing and offsetting “take.”

G3-185

Monitoring provisions should be used to evaluate mitigation measures’ performance over time, and to assess impacts to species. Monitoring must be designed to facilitate timely improvements to mitigation measures.

G3-186

HCPs need to quantify the plans’ biological goals.

G3-187

HCPs should evaluate the cumulative impacts of multiple plans and their interactions.

G3-188

An HCP’s adequacy is questionable if the plan fails to adequately address one or more of the following: species’ status reviews, analyzing the proposed “take,” assessing the impacts of “take,” planning and assessing mitigation measures, and planning and assessing monitoring provisions.

G3-189

HCPs should provide mitigation measures in a timely fashion, preferably before species are affected by “take.”

G3-190

HCPs should include contingency measures (i.e., adaptive management supported by monitoring) to address potential failures with mitigation measures.

juvenile salmonid population estimates, salmonid spawning surveys, and headwaters amphibian studies and monitoring).

Response to Comment G3-182

See Master Response 9.

Response to Comment G3-183

The Plan provides analysis of the expected impacts on the covered species of any taking that would be authorized [AHCP/CCAA Section 5 (*Assessment of Potential Impacts to Covered Species and Their Habitats that May Result in Take*)], as well as an analysis of the expected effectiveness of the conservation measures in addressing those effects [AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*)]. Overall, as described in AHCP/CCAA Section 7.4 (*Summary of Mitigation and Minimization of the Impacts of Taking, including Cumulative Impacts*), the proposed activities and management practices under the Operating Conservation Program are expected to improve habitat conditions for the covered species. Based on these sections and the Plan as a whole, the Services believe that the Plan satisfies applicable requirements for HCPs.

Response to Comment G3-184

See the effectiveness monitoring provisions set forth in AHCP/CCAA Section 6.2.5 and discussed in AHCP/CCAA Section 6.3.5. See also AHCP/CCAA Appendix D (*Effectiveness Monitoring Protocols*).

Response to Comment G3-185

Effectiveness monitoring provisions are set forth in AHCP/CCAA Section 6.2.5 and discussed in AHCP/CCAA Section 6.3.5. See also AHCP/CCAA Appendix D, as well as the implementation monitoring measures set forth in AHCP/CCAA Section 6.2.7 and discussed in AHCP/CCAA Section 6.3.7. Effectiveness monitoring results will be used over time to inform the adaptive management process. As

discussed in AHCP/CCAA Section 6.3.5 and in IA Paragraph 10, the Rapid Response and Response Monitoring projects form the backbone of the adaptive management process. Each monitoring project has measurable thresholds which, when exceeded, initiate a series of steps for identifying appropriate management responses. To provide the ability to respond rapidly to early signs of potential problems while providing assurances that negative monitoring results will be adequately addressed, a two-stage “yellow light, red light” process will be employed. See AHCP/CCAA Section 7 (*Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purposes*) generally and, more specifically, AHCP/CCAA Section 7.3 regarding the benefits of monitoring and adaptive management. See also Master Response 15 (*The Adaptive Management Reserve Account*).

Response to Comment G3-186

See Master Response 12.

Response to Comment G3-187

Cumulative impacts are discussed in Master Response 3 as well as in AHCP/CCAA Section 5.7 (*Summary of Potential Impacts of Take, Including Cumulative Impacts*), Section 7.4 (*Summary of Mitigation and Minimization of the Impacts of Taking, Including Cumulative Impacts*) and Section 7.6 (*Conclusions Regarding Mitigation of Impacts, Provision of Conservation Benefits, and Avoidance of Jeopardy*). In the EIS, cumulative impacts, including with other plans, are discussed in EIS Section 4.1.2.2 (*Approach to Cumulative Effects in this EIS*) and Section 4.1.2.3 (*Other Actions Assessed in the Cumulative Impacts Analysis*).

Response to Comment G3-188

The status of the Covered Species is described in AHCP/CCAA Section 4. See also AHCP/CCAA Appendix A (Profile of the Covered Species) and Appendix C (Studies, Surveys, Assessments of Covered Species and their Habitats Conducted in the Current Plan Area), and Master

Response 9 (Quantifying Take). Assessment of the impacts of take is provided in AHCP/CCAA Section 7 and Appendix E, and EIS Section 4. Mitigation and monitoring provisions are provided in AHCP/CCAA Section 6.2 and are discussed in AHCP/CCAA Section 6.3. Effectiveness of the monitoring protocols is discussed in AHCP/CCAA Appendix D. Based on the analysis in and supporting the Plan, the Services believe that the Plan satisfies the requirements of the Permit issuance criteria discussed in EIS Section 1.3 and Master Response 8.

Response to Comment G3-189

See the response to Comment G3-179.

Response to Comment G3-190

See the response to Comments G3-178, G3-180, and G3-185.

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Response to Comment G3-191

See Master Response 9.

Response to Comment G3-192

The Operating Conservation Program and IA include measures to address changed circumstances, unforeseen circumstances and monitoring results over time. See AHCP/CCAA Sections 6.2.9 and 6.3.9 (*Measures for Changed Circumstances*), AHCP/CCAA Section 6.2.10 and IA Paragraph 4.3 (*Measures for Unforeseen Circumstances* and *Interim Obligations upon a Finding of Unforeseen Circumstances*, respectively) and response to Comment G3-109. The Services believe that these measures, together with other aspects of the Plan, satisfy the requirements for Permit issuance.

Response to Comment G3-193

Many quantitative assessments support information provided in the Plan. See, e.g. AHCP/CCAA Appendix C.

- G3-191 [The percentage of local *and* global populations that will be “taken” should be assessed.
- G3-192 [Managers should adopt risk-averse strategies in the face of uncertainty.
- G3-193 [Where possible, assertions made in HCPs should be supported by quantitative information.

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Cumulative Impacts of HCPs and Related Actions:

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Safe Harbors Agreements and Candidate Conservation Agreements...Final Rule and Notices. [June 17, 1999 Federal Register, 64;116]

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Sierra Club et al. v. Bruce Babbitt et al. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

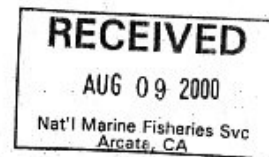
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56984

August 7, 2000



TO: James Bond
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Amedee Brickey
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FR: Daniel Hall, Director
Forest Biodiversity Program
American Lands

RE: NEPA Scoping Comments on Simpson Timber Company
Incidental Take Permit and Enhancement of Survival Permit for
Del Norte and Humboldt Counties

Enclosed, please find our comments on the scope and contents of the Environmental Impact Statement (EIS) to be prepared in relation to the Simpson Timber Co.'s proposed application for an Incidental Take Permit (ITP) and Enhancement of Survival Permit (ESP), as per the notice in the July 11, 2000, Federal Register (65;133).

American Lands is governed by and represents citizens from across the United States who seek to protect and restore our forests, watersheds, and biotic resources for the benefit of future generations. American Lands' Forest Biodiversity Program is dedicated to promoting improved biodiversity conservation and resource management on non-Federal forestlands in the west, including through incentives and more effective policy implementation.

Where the following comments refer to Habitat Conservation Plans (HCPs) and/or Incidental Take Permits (ITPs), they should generally be understood to also refer to Candidate Conservation Agreements (CCAs) and/or Enhancement of Survival Permits (ESPs).

Thank you for providing this opportunity to comment. Our apologies for any redundancies in the following comments and suggestions; we only recently learned of the opportunity for public comment, and have had little time to prepare these comments.



**American Lands
ALLIANCE**

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I. Overarching Issues

Depending on how the policy standards for CCAs/ESPs are interpreted, those standards might provide the covered species with a lesser chance of recovery than when the standards for HCPs/ITPs are properly implemented. It is not clear, for example, whether CCAs must minimize and mitigate the impacts of "take" to the maximum extent practicable, as is required for HCPs, nor is it clear whether CCAs are required to provide measures sufficient to amount to species' recovery, as is also required by the ESA for HCPs/ITPs.

To guard against the possibility that Simpson is proposing to use a CCA/ESP to avoid meeting important (though often insufficient) HCP standards, Simpson's proposed CCA/ESP should be explicitly required to meet all policy standards required for HCPs/ITPs, including those listed in Section III of our comments. Failure to do so might allow Simpson to circumvent the requirements for covering unlisted species in an HCP, including the overarching, Congressionally-mandated requirement that those species be addressed as if they were already listed. (It should also be noted that while it may be beneficial to address unlisted species in an HCP, the species should not be included in the ITP *per se* until such time as the species are listed and other requisites are met, as discussed in Section III of our comments.)

Moreover, the EIS should fully assess the impacts of any differences in the policy standards for HCPs/ITPs and CCAs/ESPs, any subsequent gaps between Simpson's proposed CCA conservation measures and those measures that would be required of an HCP, and any subsequent impacts to the unlisted species' chances of recovery.

The proposed actions' impacts on the covered species' existing and likely-to-be-designated critical habitats must also be carefully examined, since the proposed HCP/ITP (or CCA/ESP) may not be legally issued if it adversely modifies the species' critical habitats, as per ESA s. 7(a)(2). The logging, site preparation, roading, chemical applications, other operations likely to be permitted by the HCP/ITP and CCA/ESP are likely to adversely modify and seriously impact critical habitat for several of the covered listed species, as discussed in Section III of our comments below.

II. Basic Goals and Standards for the EIS

The EIS should meet each of the following goals and standards.

Alternatives Analysis

Under NEPA, an EIS must "rigorously explore and objectively examine all reasonable alternatives." [40 CFR 1502.14(a).]

Under NEPA, where economic preferences are used to select the preferred alternative, the decision must not be based on misleading, biased, or incomplete economic information. [*Seattle Audubon v. Lyons* (871 F. Supp. 1291, 1324 (W.D. Wash. 1994), aff'd 80 F.3d 1401 (9th Cir. 1996), as cited in Arum (1998)]

The existence of a "viable but unexamined alternative renders an environmental impact statement inadequate." [*Alaska Wilderness Recreation & Tourism v. Morrison* (67 F.3d 723, 729 (9th Cir. 1995), as cited in Arum (1998)] Likewise, an agency may not "consider only those alternatives with [the same] end result." [*Resources Ltd. v. Robertson* (35 F.3d 1300, 1307 (9th Cir. 1994), as cited in Arum (1998)]

The EIS must analyze in detail, and evaluate the comparative merits of, a range of several different alternatives for protecting old growth, late seral and riparian ecosystems and species dependent on such ecosystems. All alternatives selected for detailed analysis must *avoid or substantially reduce* the significant environmental impacts of the proposed project. (40 C.F.R. § 1502.14; 14 Cal. Code Regs. § 15126(d).) Thus, a "straw man" alternative which authorizes more timber harvesting than the HCP will not satisfy the agencies' obligations under NEPA and CEQA. The alternatives analysis also should not be constrained by what the applicant deems economically "practicable" or "feasible." (See HCP Handbook, p. 3-35.)

The "no action" alternative must accurately describe baseline conditions and assume full compliance with and enforcement of existing federal and state laws. A no action alternative that assumes minimal or compliance with or enforcement of the ESA, and therefore seriously overestimates the purported "benefits" of the HCP's mitigation program, is not acceptable. The no action alternative must account for the likelihood that currently imperiled species will be listed in the future and subject to ESA restrictions.

At a minimum, the following alternatives should be identified and fully studied:

- 1) A credible "no action" alternative that assumes full "take" avoidance, including in compliance with ESA rules that are consonant with the covered species' recovery needs, such as is required of ESA s. 4(d) rules. Such an alternative would recognize Simpson's responsibility to protect what little habitat remains for endangered species within the context of its much larger ownership, and the fact that Simpson has already profited substantially by harming imperiled species and their habitats.
- 2) A recovery-oriented HCP that fully meets all goals and standards for HCPs/ITPs, as discussed in Section III of our comments. Among other things, such an alternative would use longer timber rotations, habitat reserves, and site protections to provide both habitat for sensitive species and reasonable income for the landowner. Forests managed for older, more diverse timber stands can provide competitive revenues from higher-quality, higher-priced timber, edible mushrooms, harvest of medicinal plants, clean water, sequestration of atmospheric carbon, and other non-timber forest products and ecosystem services. Timber companies with publicly-owned stocks that are concerned about leveraged takeovers that

may result from restoring their timber inventories may dedicate conservation easements to restrict timber harvests to sustainable levels.

3) Simpson's proposed HCP/ITP and CCA/ESP.

4) In conjunction with each of the preceding alternatives, funding for habitat restoration measures to be secured from other major California timberland owners who have benefitted financially from industrial forestry and the degradation of salmonid habitat. Such funding would be in addition to funding from Simpson and any other sources.

Impacts Analysis – Independent Analysis

The Services must take a "hard look" at the environmental consequences of approving an action, i.e., an ITP/HCP. [*Kleppe v. Sierra*, 427 U.S. 390, 410 n.21 (1976).]

The EIS must independently evaluate the effectiveness of all HCP components and outcomes. To date, most NEPA documents for forest HCPs simply reiterate the rationale for the plan found in the HCP (which is usually drafted by the landowner's consultant), and do not provide any additional, objective information. Some HCPs even use the same document as both the HCP and the NEPA analysis. An EIS that simply paraphrases or otherwise reiterates the discussion in the HCP, or is artificially constrained by the assumptions and conclusions in the HCP, will be insufficient to meet the agencies' obligations under NEPA.

Contractors for NEPA documents need to be selected by the Services. Moreover, the contractors should not have a financial or other interest in the outcome of the project. [See section 1506.5(c) of the NEPA regulations.] The HCP Handbook also states that the Services are responsible for drafting the NEPA document. [USFWS *et al* (1996), p. 2-4.] The EA or EIS should be developed by an objective third party, i.e., either a NMFS or USFWS office separate from the office which is negotiating the ITP with the landowner, or a consultant other than the consultant hired by the landowner to develop the HCP or other major projects for the landowner.

Independent (and presumably, academic) scientific peer review panels should be consulted during HCP development, particularly for more significant plans. [Kareiva *et al* (1999)]

Impacts Analysis – Basic Scope

Under NEPA, environmental impacts which must be considered include impacts to ecological, aesthetic, historical, cultural, economic, social, and health values, including direct, indirect, and cumulative impacts. [Mueller *et al* (1997).] The HCP Handbook also states that impacts to air quality, water quality, and land use patterns should be addressed. [USFWS *et al* (1996), p. 1-6]

Impacts to all other environmental values should be assessed.

Off-reservation American Indian treaty rights must be considered, including through consultation with the relevant tribes, according to the HCP Handbook. [USFWS et al (1996), p. 3-9]

Impacts Analysis – Activities Examined

The EIS must fully assess the impacts of each forest management activity (i.e., specific types of logging operations, site preparation operations, road construction plans, specific herbicide applications, specific silvicultural regimes and resulting forest growth, etc.) permitted by the ITP and ESP on all environmental resources, including water quality, air quality, watershed and geologic impacts, land use, etc.

In order to adequately evaluate the impacts of the HCP on water quality, the EIS must include adequate baseline data which specifically describes the habitat structure and quality of all Class I, II and III streams in the HCP area. This includes stream temperature, sedimentation and turbidity, percentage of shade canopy, and the location, quality and quantity of large woody debris, spawning gravel, riffles, pools, fish spawning and rearing sites, and key forest plant and animal species. All Class I, II and III watercourse, roads, road crossings, landings and skid trails must be described and mapped. In addition, the EIS must identify the steepness, stability and erosion hazard rating of slopes, and the location of any previous slope and road failures, erosion and mass wasting incidents. The EIS also must assess and map upslope activities that would potentially deliver sediment to streams and are potential sources of slides, erosion and mass wasting.

The EIS must analyze impact of the HCP on each of these baseline parameters, including stream sedimentation, temperature and turbidity; canopy retention; recruitment of large woody debris; late seral forest characteristics of stream corridors; and wildlife and vegetative structure and diversity, both during harvest and over the long term. The EIS must examine the impact of construction and maintenance of roads, road crossings, landings and skid trails, wet weather operations, operations on steep slopes and near watercourses, and the ability of culverts to accommodate projected and unanticipated storm events.

The EIS also must evaluate the impact of timber harvesting and other activities authorized by the HCP on the ability of Class I, II and III streams in the HCP area to meet applicable basin plan limitations, water quality objectives, total maximum daily loads, and antidegradation requirements over the life of the HCP. Finally, the EIS must evaluate the adequacy of the HCP's mitigation measures, such as leave tree standards, stream buffers, canopy retention and recruitment of large woody debris to offset the adverse impacts of the HCP.

The details of HCP mitigation measures must be explicitly described and accompanied by data on their effectiveness. The likely success of each measure must be evaluated, as must the overall effectiveness of mitigation measures at minimizing and offsetting "take." [Kareiva et al (1999)]

Impacts Analysis – Species Impacts Analysis

The EIS must include a detailed biological analysis of the impacts of timber harvesting, resource extraction and other activities authorized by the HCP and ITP on *each* wildlife and plant species (whether listed or unlisted) to be "covered by" the HCP (i.e. each species for which "no surprises" regulatory assurances will be given) and all designated critical habitat areas. (HCP Handbook, pp. 3-12, 3-38, 4-4.)

Impacts to all threatened, endangered, candidate, proposed-listed, sensitive, rare, endemic, or otherwise at-risk or ecologically, socially, or economically important plant and animal species should be assessed, *regardless* of whether those species are officially "covered" by the HCP.

Impacts should be assessed explicitly for each listed and unlisted species covered by the HCP, as should the relationship between the landowner's forest management practices and each species' conservation needs, including the species' recovery needs.

In addition, the EIS must analyze the impact of activities on all species "occurring or potentially occurring" on all Simpson lands subject to the HCP, regardless of whether they will be "covered" by the HCP. If any wildlife or plant species occurring or potentially occurring on lands subject to the HCP will *not* be "covered" by the plan, the EIS must analyze the impacts of the HCP on these species, why they are not "covered," and include mitigation measures for any significant impacts identified.

The HCP Handbook notes that the Services must consider impacts on Federally-listed plants, during ESA s. 7 consultation, regardless of whether those plants are "covered" by the HCP. Plants protected by state laws are among those which must be addressed, pursuant to ESA s. 9. [USFWS et al (1996), pp. 1-6, 3-8, & 3-17]

Determinations of which species are likely to be using the property should be based primarily on field surveys. It is not safe to assume that past land management eliminated all sensitive species and their habitats, or on state species databases, which are notoriously inadequate for private lands. Determinations about species which will need habitats to be restored on the property for their recovery should consider the site's potential natural habitats, based on soils, potential vegetation, elevation, local climate, etc.

For each species, the analysis must: (1) specifically indicate how the HCP and ITP will affect species' survival *and* recovery prospects; (2) describe activities that may result in take of covered species; and (3) *quantify* the anticipated level of take resulting from all activities authorized under the HCP. (HCP Handbook, pp. 3-12 - 3-14, 3-20.) The EIS must indicate whether the impacts of the HCP and ITP on each of these species will be significant, and if so, include *species specific* mitigation measures and management actions for *each* significant

impact identified. (40 C.F.R. § 1502.16(h).) Generalized habitat based mitigation measures which do not account for individual species needs are unacceptable.

The EIS must provide: 1) detailed, thorough, and quantitative descriptions of the habitat and population conditions that will correspond to each covered species' recovery, 2) detailed, quantitative habitat and population projections for each species covered by the HCP, for each alternative, and 3) compare the alternatives' outcomes identified in step (2) with the indicators of recovery identified in step (1).

HCPs -- particularly those covering large areas or large amounts of a species' range -- should inventory, summarize, and document available data on each species and their distribution, abundance, population trends, ecological requirements, life history, and causes of endangerment. [Kareiva et al (1999)]

Quantitative estimates of the impacts of "take" on species' viability should be provided, especially for larger or more significant plans. At a minimum, best and worst-case scenarios should be identified. [Kareiva et al (1999)]

Impacts of "take" should also be evaluated, particularly for larger or more significant plans, including by determining whether the habitats being "taken" correspond to population "sources" or "sinks," whether genetically unique subpopulations are being "taken," and whether unique habitat/species combinations are being impacted. [Kareiva et al (1999)]

HCPs need to quantify the plans' biological goals. [Kareiva et al (1999)]

An HCP's adequacy is questionable if the plan fails to adequately address one or more of the following: species' status reviews, analyzing the proposed "take," assessing the impacts of "take," planning and assessing mitigation measures, and planning and assessing monitoring provisions. [Kareiva et al (1999)]

Where possible, assertions made in HCPs should be supported by quantitative information. [Kareiva et al (1999)]

The EIS likewise must objectively analyze the likely short-term *and* long-term effectiveness of each of the HCP's proposed measures to minimize and mitigate incidental take of covered species and provide a scientifically justifiable reason why and how these measures will mitigate any significant adverse impacts to species to a level of insignificance. (HCP Handbook, p. 3-19.)

The analysis in the EIS must be supported by accurate and adequate baseline data (including field surveys), scientific studies, population viability analyses, and other information which provides a scientifically justifiable basis for the environmental document's conclusions. Specifically, the EIS must include comprehensive biological assessments for each covered species (and particularly listed species), and their associated habitats. Such assessments should

address such issues as species abundance and distribution, habitat requirements (e.g. important food sources and foraging habitat, and nesting, roosting and dispersal habitat), biologically important symbiotic relationships with other species, life history and population trends, both range-wide and within the plan area.

Impacts Analysis – Cumulative Impacts

Cumulative effects analyses are also required as part of the ESA s. 7 consultation process for HCPs, as per 50 CFR 402. HCPs should evaluate the cumulative impacts of multiple plans and their interactions. The percentage of local *and* global populations that will be “taken” should be assessed. [Kareiva et al (1999)]

A thorough cumulative effects analysis should be conducted to address all Federal and non-Federal actions affecting each species covered by the ITP/HCP. The analysis should also address all past, present, and reasonably foreseeable actions across the species' ranges.

The cumulative impacts of the HCP also must be evaluated in conjunction with the anticipated impacts on all species affected by the HCP of ESA section 4(d) rules for the covered species, the effects of public lands management activities under the Northwest Forest Plan, and the impacts of timber harvesting under the “salvage logging rider” (Pub. L. No. 104-19, section 2001 (1995)) and other relevant laws and policies. Further, the cumulative impacts analysis must also evaluate the HCP's and ITP's impact on the effectiveness of existing federal and non-federal conservation strategies over the short term and the long term.

The EIS must evaluate the cumulative impacts of timber harvesting and other land-disturbing activities on each species affected by the HCP. This cumulative effects analysis must account for the amount of incidental take of species authorized by each incidental take permit and incidental take statement that has been approved or is currently being prepared for federal and non-federal lands throughout the Pacific Northwest (e.g. California, Oregon and Washington). The analysis should also account for the possibility that landowners who have not yet applied for an incidental take permit to take existing habitat and species on private lands will do so in the future, and estimate the amount of incidental take that will be authorized by those permits in light of existing precedents.

Impacts Analysis – Institutional Issues

The EIS must objectively and independently evaluate any assertions by the HCP applicant that certain mitigation measures are “impracticable” or “infeasible.” Such assertions must be supported by reliable and specific documentation of impracticability or infeasibility. (HCP Handbook, p. 7-3.)

Activities on other lands not subject to the HCP's Implementation Agreement should be considered as speculative, and not counted as mitigation for “take” authorized by the ITP.

The EIS must analyze the adequacy of the commitments for funding the mitigation and monitoring measures in the HCP to support long term species conservation. The analysis must include financial and other data, which accounts for inflation, depreciation of assets, increased real estate values, and other contingencies, to support the conclusions reached. If the EIS concludes that the funding mechanisms are inadequate, it must propose alternate funding mechanisms which would achieve long term conservation of species for the life of the permit.

The EIS must analyze the reasonably foreseeable biological impacts of including a "no surprises" provision in the HCP and implementing agreement. The effects of the "no surprises" policy over both the short and the long term are extremely likely to be significant. Thus, if 1) the HCP fails to achieve its stated goals, 2) the HCP conditions prove inadequate to protect species, 3) new scientific information is discovered which affects the assumptions in or conclusions of the HCP, and/or 4) unanticipated circumstances significantly change the environmental baseline, then federal and state agencies may be restricted in their enforcement and ability to respond in order to conserve the species.

The EIS should evaluate the availability of federal and state funds to meet any future mitigation requirements. If the availability of federal and/or state funds is a likely possibility, then the EIS must also analyze the biological effects resulting from the permittee's and/or the government's future unwillingness or inability to provide adequate mitigation or HCP implementation funding on Fish and Wildlife Service determinations pursuant to Section 7.

The EIS should fully analyze the impacts of both foreseeable and unforeseeable changed circumstances on the assumptions, conclusions and mitigation measures contained in the HCP, and how these changed circumstances will affect species survival and recovery, population trends, habitat quality and quantity, water quality, and other environmental factors. Foreseeable circumstances include fire, flood, lightning, disease and other stochastic events. The HCP must contain mitigation measures to address such foreseeable circumstances, and specific, detailed procedures to address any unforeseen circumstances, as required by the ESA and its implementing regulations. These critical provisions cannot simply be passed off as a federal government obligation under the "no surprises" policy.

The DEIS must also consider the significant economic benefits that Simpson will likely accrue by acquiring a valid ITP for various listed and unlisted species. Particularly when coupled with "No Surprises" guarantees, the ITP provides a level of regulatory certainty which is unprecedented in the business world, largely insulates Simpson from any future liability to adopt additional conservation measures to protect and recover listed and unlisted species, and may even increase Simpson's land values, assuming that the ITP and HCP could be potentially transferred or otherwise adopted by subsequent landowners.

Information on listed species, as well as monitoring data from HCPs should be made accessible in a centralized location, to facilitate better planning and plan evaluation. [Kareiva et al (1999)]

Mitigation Measures

Mitigation measures should be provided for *each* significant impact under NEPA. [40 CFR 1502.16(h).]

III. Additional Suggestions for the Recovery-Oriented HCP Alternative; Additional Information for the EIS' Impact Analyses

The EIS should also include, in addition to the preferred alternative, which is likely to inadequately address key goals and standards for HCPs, an alternative which fully meets the following goals and standards for HCPs. As discussed above, CCAs should also meet all of the following goals and standards expected for HCPs.

Many of the following goals and standards are also directly relevant to the EIS' impact analyses.

Use of Best Available Science

ESA section 7(a)(2) and the Act's administrative rules require agencies to use the best available science. [16 USC 1536(a)(2).]

The HCP must address the covered species' including population levels, specific habitat conditions, specific ecosystem interactions, and other factors needed for the species' recovery.

The HCP and DEIS must assess and mitigate the impacts of all forest management activities, which may include site preparation; herbicide applications; fertilizer applications; pesticide applications; intrusion of invasive exotic plants and other species as a result of intensive logging practices; intensive short-rotation clearcut forestry practices; frequent and widespread vehicle use and human disturbance; high road densities; and other sources of impacts.

The HCP must address all influences on salmonid habitat related to the covered activities, including invertebrates and other food sources, pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, the impact of upslope logging and other practices on the timing and intensity of water flows, and various other factors.

The HCP must include specific measurable and verifiable performance standards and indicators, including with regard to water temperature, sediment, chemical pollution, invertebrates and other food sources, high and low summer and winter water flows, road densities, and other factors affecting the survival and recovery of the covered species.

The NMFS regulations state that HCPs must describe the status, distribution, seasonal distribution, habitat needs, feeding habitat, and other biological requirements of affected species or stocks. [50 CFR 222.22(b)(3).]

Identification of Biological Goals for the Species

The HCP must also meet, with regard to each of the listed and unlisted species proposed to be covered by the ITP and HCP, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.] As discussed below under Sections II-B, C, D, and E of our comments, the following biological goals must correspond to full mitigation of impacts to the species, minimization and mitigation of impacts to the maximum extent practicable, and species' recovery needs, and other basic impact minimization and mitigation standards.

"In the future, every HCP will include specific biological goals and objectives...." "The biological outcome of the operating conservation program for the covered species is the best measure of the success of an HCP." "Specific biological objectives are subsets of the biological goals and represent specific measurable targets for achieving the goals of the operating conservation program." The HCP must include specific measurable outcomes and targets, in terms of populations, reproduction, specific habitat components, specific impact levels which will be considered tolerable, etc., for most covered species.

"Although the goals and objectives may be stated in habitat terms, each covered species that falls under that goal or objective must be clearly specified."

"The biological goals and objectives should be commensurate with the specific impacts and duration of the HCP applicant's proposed action."

"Available literature, State conservation strategies, candidate conservation plans, draft or final recovery plans or outlines, and other sources of relevant scientific and commercial information can serve as guides in setting biological goals and objectives. Species experts, State wildlife agencies, recovery teams, and/or scientific advisory committees may also help develop the biological goals and objectives."

The Services' HCP Handbook states that: i) "habitat based" HCPs should use indicator species to establish forest management parameters, and ii) all endemic, sensitive, listed, proposed listed, candidate, and species of special concern should be addressed "adequately." [USFWS et al (1996), pp. 3-12, -37]

Sierra Club et al v. Bruce Babbitt et al found that current data on species' conditions and recovery needs must be used; goals included in recovery plans are not sufficient if conditions have changed since those plans were written. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Impact Assessment

The NMFS regulations state that HCPs must describe the proposed activity, including the anticipated dates, duration, and specific locations. [50 CFR 222.22(b)(4).]

The NMFS regulations state that HCPs must describe the ITP/HCP's anticipated impacts, including the amount, extent, and type of "take," as well as the anticipated impact on habitats and the likelihood of habitat restoration. [50 CFR 222.22(b)(5)(i) & (ii).]

Sierra Club et al v. Bruce Babbitt et al recently found that HCPs need to determine how many individuals of affected species will be "taken," how many individuals will remain, what the distribution of the species is throughout its remaining habitat, and how this relates to the species' minimum viable population. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Likewise, the HCP and DEIS must identify accurate baseline trends (i.e., the "No Action" alternative) which consider the likelihood that the various covered yet-unlisted would be listed in the near future, with various habitat protection measures being required *in lieu* of the HCP. Without accurate baseline trends it is impossible to determine whether the plan provides a net benefit -- or even adequate mitigation -- to the covered species over time. While the exact parameters of these improved measures may not yet be known, it would be quite simple for the HCP and DEIS to identify the likely range of enhanced policy standards that will be adopted by the USFWS, NMFS, and other relevant agencies.

Equally important, for all of the covered species, the HCP and DEIS must identify, describe, and/or quantify the "residual" impacts that the covered species will experience -- including in relation to their survival and recovery needs -- *after* the HCP's impact minimization and mitigation measures have been accounted for.

Effects on proposed listed species, federally listed plants, and critical habitat are to be considered during the ESA s. 7 consultation process. [USFWS et al (1996), p. 6-15, and 16 USC 1536(a)(2).]

ESA s 7 requires consideration of cumulative and indirect effects. [50 CFR 402.] NEPA also requires a cumulative effects analysis.

According to the HCP Handbook, the Services may not be able to approve an ITP under ESA s. 7(a)(2) unless the HCP addresses *all listed species* in the plan area. [USFWS et al (1996), p. 3-7] Presumably this includes federally listed plants, which must be considered during the ESA s. 7 consultation process.

Impacts Must be Fully Mitigated

ESA s. 7(a)(2) prohibits federal agencies from approving actions which would destroy or "adversely modify" species' critical habitat areas.

The HCP and DEIS must provide adequate mitigation for impacts to key aquatic habitat variables including temperature, invertebrates and other food sources, and the timing and intensity of water flows. The HCP and DEIS must provide adequate and specific mitigation measures for pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, and the impacts of upslope logging and other practices.

The final critical habitat designation for chinook salmon (Puget Sound, Lower-Columbia, Upper Willamette, Upper Columbia Spring run, CA Central Valley Spring run, CA Coastal ESUs) and steelhead trout (S. CA, S-Central CA coast, Central CA coast, CA Central Valley, Upper Columbia, Snake River Basin, Lower Columbia, Upper Willamette, Mid-Columbia ESUs) includes: "all river reaches accessible to listed salmon or steelhead within the range of the ESUs listed, except for reaches on Indian lands. Critical habitat consists of the water, substrate, and adjacent riparian zone of estuarine and river reaches..." The Federal Register notice indicates that non-federal forestry activities are among those which may affect critical habitat. The notice further indicates that essential habitat for the listed species includes: "(1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; (5) water velocity; (6) cover/shelter; (7) food; (8) riparian vegetation; (9) space; and (10) safe passage conditions." The notice further indicates that summaries of the environmental parameters and freshwater conditions that harm the listed species are included in Brown & Moyle (1991), Nehlsen et al (1991), Higgins et al (1992), Botkin et al (1995), and Spence et al (1996). The notice further indicates that the adjacent riparian area for the salmon and steelhead species is the "area adjacent to a stream that provides the following functions: shade, sediment transport, nutrient and chemical regulation, streambank stability, and input of large woody debris or organic matter" The notice further indicates that "habitat quality in this range is intrinsically related to the quality of riparian and upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for salmon and steelhead in downstream reaches." The notice further indicates that "streams and stream functioning are inextricably linked to adjacent riparian and upland (or upslope) areas..." and that the riparian zone "stores sediment, recycles nutrients and chemicals, mediates stream hydraulics, and controls microclimate..." and that "healthy riparian zones help ensure water quality essential to salmonids as well as the forage species they depend on." The notice further indicates that "human activities in the adjacent riparian zone, or in upslope areas, can harm stream function and can harm salmonids..." and that "timber harvest, road building, grazing, cultivation, and other activities can increase sediment, destabilize banks, reduce organic litter and woody debris, increase water temperatures, simplify stream channels, and increase peak flows leading to scouring." The notice further reaffirmed that available regulatory mechanisms are inadequate and that regulated activities

continue to pose a potential threat to the species' existence. [65 Federal Register 32, February 16, 2000]

Proposed critical habitat for chinook salmon (Central Valley Spring run, Central Valley Fall/late Fall run, S. OR and CA coastal, Puget Sound, Lower Columbia, Upper Willamette, Upper Columbia Spring run, and Snake River Fall ESUs) includes "...the water, substrate, and adjacent riparian zone of all accessible estuarine and riverine reaches..." Adjacent riparian zones are defined as "...areas within a slope distance of 300 ft. (91.4m) from the normal line of high water of a stream channel or adjacent off-channel habitats..." The Federal Register notice further indicates that essential features of chinook critical habitat include "...adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions..." The notice further indicates that habitat quality is "...intrinsically related to the quality of upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for chum salmon in downstream reaches." The notice further indicates that logging, roading, pesticide applications, application of other chemicals, and non-point source pollution are all likely to affect critical habitat for chinook. [63 Federal Register 45, March 9, 1999]

The HCP Handbook states that mitigation should not only be based on sound biological rationale, but also be "commensurate with the impacts." [USFWS et al (1996), p. 3-19.]

Sierra Club et al v. Bruce Babbitt et al recently held that replacement habitat must be provided for habitat destroyed pursuant to ITPs. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Listed plants must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"Often, there is a direct relationship between the level of biological uncertainty for a covered species and the degree of risk that an incidental take permit could pose for that species. Therefore, the operating conservation program may need to be relatively cautious initially and adjusted later based on new information."

When evaluating the HCP, the Services also need to employ a more cautious approach than has often been used. The ESA expressly states that the Services may not approve HCPs and ITPs if they would "appreciably reduce the likelihood of the survival *and recovery* of the species in the wild." [ESA s. 10(a)(2)(B)(iv), emphasis added.] However, the Services

appear to have often interpreted this standard as stating, more or less, that HCPs and ITPs may not be approved only if they would "jeopardize species' continued existence." This is a much lower standard than that specified in the ESA, and as used by the Services, allows approval of HCPs which utilize far less effective mitigation measures, and which are less risk averse.

Impacts Must be Minimized and Mitigated to the Maximum Extent Practicable

ESA s. 10(a)(2)(B)(ii) requires impacts be minimized and mitigated to the "maximum extent practicable." The Services must analyze and document whether the HCP has indeed minimized and mitigated "take" to the maximum extent practicable. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Longer timber rotations and other alternate silvicultural methods, for example, can minimize watershed disturbances and habitat impacts, while generating competitive economic returns. (See Hall (1999); this document has been provided to the Services on several recent occasions.) Moreover, the production of mushrooms and clean water, the sequestration and storage of atmospheric carbon dioxide, and the provision of other nontimber forest products and ecosystem services from older, healthier forests can generate significant supplemental revenues.

The Services need to independently evaluate Simpson's timber resources, site productivity, and other silvicultural factors, and determine what silvicultural and non-timber land management practices would in fact minimize and mitigate impacts to the plan species to the maximum extent practicable.

Several existing HCPs explicitly require longer timber rotations or other improved silvicultural methods, demonstrating their practicability. The Elliott State Forest HCP uses 80 to 240 year timber rotations and maintains significant late successional reserves above and beyond the narrow stream buffers.

The literature referenced in Section IV of our comments highlights a number of impact minimization and mitigation measures which are important for the conservation of imperiled fish, wildlife, and plants, and which would be economically "practicable" for forest landowners.

In the context of the Clean Air Act, "practicable" means economically or technologically possible. [*Union Electric Co. v. EPA* (427 US 246 (1976)), as cited in Arum (1998).] Likewise, the cost of an alternative should only determine its practicability in relation to other alternatives with the same level of environmental performance. [*Friends of the Earth v. Hall* (693 F Supp 904, 947 (W.D. Wash 1998), as cited in Arum (1998)] The NMFS rules for permits also state that the Administrator will consider whether the best available technology was used for impact minimization and mitigation. [50 CFR 222.22(c)(iv).]

The Services' HCP Handbook states that if the landowner cites economic considerations as the reason for failing to utilize an alternate land management approach, then the landowner must provide supporting economic information, unless it is proprietary. [USFWS et al (1996), p. 3 - 36.] The Handbook also requires the Services to consider the cost of additional mitigation, the benefits of additional mitigation, the amount of mitigation provided by other landowners, and the landowner's own abilities. [USFWS et al (1996), pp. 3-36 and 7-3.]

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B)(v) also authorize the Services to require mitigation measures *beyond* those "practicable" mitigation measures required by ESA s. 10(a)(2)(B)(ii). Likewise, the HCP Handbook also states that all HCPs should address other measures required by the Services. [USFWS et al (1996), pp. 1-7 & 3-10.]

The HCP Must Meet the Species' Recovery Needs, Including by Restoring Habitats and Enhancing Species' Populations if Necessary

As indicated in ESA ss. 2(b), 2(c), and 3(3), the ESA's ultimate goal is, in effect, to recover threatened and endangered species, including to the point where they can be removed from the endangered species list. This has been affirmed by the US Supreme Court in *TVA v. Hill* and *Babbitt v. Sweet Home Chapter of Communities*. [See Gaffney et al (1997).] Several district court cases have also held that recovery must be assessed above and beyond mere survival. [See *House v. USFS* and *Idaho DFG v. NMFS*.]

The HCP and DEIS need to identify, for each of the covered species, population levels, specific habitat conditions, and other factors that would correspond to genuine recovery across each of the species' ranges. Likewise, the HCP and DEIS need to provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery indicators and standards.

The ESA's s. 7 requirement to avoid adversely modifying species' critical habitats also requires the Services to ensure that HCPs and ITPs do not harm habitats needed for species' recovery, *including currently unoccupied habitat areas*.

ESA s. 10(a)(2)(B)(iv) explicitly and clearly precludes the Services from approving an HCP which will "appreciably reduce the likelihood of the survival and recovery of the species in the wild." The HCP Handbook also states that the Services should "discourage" HCPs that preclude recovery options or which are inconsistent with recovery plans. Consistency with recovery plans is also included in the Handbook as a "helpful hint." [USFWS et al (1996), p. 3-20 and 1-15.]

The Services need to thoroughly analyze how Simpson's ITP, HCP, and all logging and other land use practices permitted by the ITP, HCP, and IA will affect each covered species' chances of recovery, based on the best current information on the species, the full range of land management practices allowed by the ITP, and other relevant factors. The HCP must

not significantly (or "appreciably") impact any of the species' chances of recovery, as stated by the ESA. Additional mitigation measures must be provided to ensure that all land management practices potentially undertaken by Simpson will leave the covered species with a high probability of recovery.

Moreover, the HCP and DEIS need to identify species population levels and habitat conditions that would correspond to genuine recovery across the species' ranges, and provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery standards.

Evaluations of the ITP and HCP's impacts on species' chances of recovery need to be based on more accurate baseline scenarios (i.e., "No Action" alternatives).

The legislative record for ESA s. 10(a) indicates that Congress intended for HCPs to *enhance* species' chances of survival. [HR Conference Report 835 (1982).] The HCP Handbook also cites this legislative intent and states that the Services should "encourage" landowners to provide a net benefit to species. [USFWS et al (1996), pp . 7-2 to 7-5 and 3-20.] The Department of Interior's testimony in response to the lawsuit against the "No Surprises" rule also recognizes that "[U]nder some circumstances, such as for 'severely depleted species and species for which the HCP covers all or a significant portion of the range' of a species,... measures to improve the species habitat may be required by the legislative history of [ESA] Section 10." [Federal Defendants' Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs' Motion for Summary Judgment, at 35 (D.D.C. Filed April 23, 1999), *Spirit of the Sage Council et al v. Babbitt*, No. 1:98CV1873 (EGS).]

Listed plants' chances of recovery must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

Additional Mitigation Standards

The Service's HCP Handbook states that if new habitat is being created as mitigation, then the habitat must be created through techniques that are proven and reliable or, if relatively new, then those techniques must be augmented by contingency measures and adaptive management. [USFWS et al (1996), p. 3-22.]

The Handbook also states that mitigation habitat should be close to the impact area, similar to the impacted habitat types, and support the same species. [USFWS et al (1996), p. 3-22.] The same mitigation methods should be used for the same species by different HCPs, unless there are "biological or other differences" which are "clearly explained." [USFWS et al (1996), p. 3-24.]

Mitigation and protection measures must be clearly defined for agencies to make decisions that hinge on such measures. Likewise, the mere promise of future actions is not sufficient to meet the ESA's protection standards. [See *LaFlamme v. FERC* (852 F.2d 389, 400 (9th Cir 1988)), and *ONRC v. Daley* (1998 WL 296838) (D.Or 1998), as cited in Arum (1998), as well as *Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

The Service's HCP Handbook states that mitigation habitat should be provided *prior* to the "take" of a species habitat. [USFWS et al (1996), p. 3-21.]

The HCP Handbook states that mitigation habitat should be permanently protected. [USFWS et al (1996), p. 3-22.]

ITPs/HCPs may not rely upon speculative sources of mitigation, such as promises of additional funds for habitat acquisition from unnamed sources. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Providing funds for research is not sufficient as mitigation. [USFWS et al (1996), p. 3-23]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.]

"The operating conservation program will include those measurable actions that, when implemented, are anticipated to meet the biological objectives."

Adaptive Management and Regulatory Assurances

Landowner assurances should take the form of explicit, up-front agreements about the plan's biological goals, monitoring, adaptive management, and enforcement, and fair allocation of responsibility between the landowner and public for funding future plan changes. In other words, the plan should provide up-front clarity and assurances about the process that will be used to identify and make improvements to the plan -- instead of simply precluding meaningful plan improvements through "No Surprises" type assurances.

We cannot emphasize strongly enough that landowner assurances should *not* take the form of "No Surprises" type guarantees or other guarantees that largely preclude additional mitigation by setting extremely high burdens of proof for the Services, requiring additional mitigation to first occur on public lands, by requiring any additional mitigation to be fully subsidized by the public, and/or requiring any additional mitigation to be voluntary. "No Surprises" supposedly encourages landowners to proactively conserve species which are not listed as threatened or endangered by indemnifying the landowners from providing additional mitigation should the species be listed at a later date. However, the up-front analyses, protections, and mitigation measures for unlisted species are rarely sufficient, as evidenced

by virtually all existing forest HCPs in the region. Even in cases where the up-front provisions are more adequate, changes and additions to these measures may well become necessary over time, including as a result of changes in the landowners' management practices.

While many of the following standards will be relevant regardless of the type of regulatory assurances provided to Simpson, adherence to each of the following standards will be especially important if Simpson is provided with "No Surprises" type assurances, as envisioned by the draft HCP and IA.

Unlisted Species Must Be Addressed As if They Are Listed

In order for the Services to provide regulatory assurances with regard to the unlisted covered species, Simpson's HCP must address each species as if it were already listed.

The final "No Surprises" rule, the legislative history for ESA s. 10(a), and the Services' HCP Handbook all state that any unlisted species covered in an HCP must be addressed as if it were listed. Congress stated that "the Committee intends that... In the event that an *unlisted species* addressed in the approved conservation plan is subsequently listed ... no further mitigation requirements should be imposed *if the conservation plan addressed the conservation of the species and its habitat as if the species were listed* pursuant to the Act." [Conf. Report at 30 and 50 FR 39681-39691, Sept. 30, 1985. (emphasis added).] The "No Surprises" rule states that "*adequately covered means... with respect to unlisted species, that a proposed conservation plan has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan were actually listed.*" [Federal Register, 63:35, February 23, 1998. (emphasis added).] The HCP Handbook also states that, in order to "adequately cover" an unlisted species, HCPs must satisfy the ESA s. 10(a)(2)(B) HCP issuance criteria for those species, as if the species had been listed. [USFWS et al (1996), pp. 3-30, 4-1.]

The draft "No Surprises" rule also stated that unlisted species need to be addressed by removing threats to their survival and recovery, such that the species would not need to be listed if the measures were undertaken across their range.

Adaptive Management Measures Must Be Provided for Any Data Gaps, to Respond to Changing Conditions, Etc.

The Department of Interior's testimony in response to the lawsuit against the "No Surprises" rule states, in effect, that large scale HCPs must have extensive, meaningful adaptive management provisions to be lawful. "The Services recognize that HCP permits often must be structured in such a way as to allow for the adaptation and refinement of mitigation measures over time as new scientific information becomes available.... Rather, the purpose of the No Surprises rule is to force the negotiating parties to clearly define up front a mutually-agreed upon framework for such adaptive management, if necessary due to scientific

uncertainty, and to establish a division of later responsibilities in the event of highly unlikely unforeseen events.... In the event there are significant gaps in the biological data underlying a particular HCP, those gaps should be addressed through the inclusion of adaptive management provisions." [Federal Defendants' Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs' Motion for Summary Judgment, at 2 (D.D.C. Filed April 23, 1999), *Spirit of the Sage Council et al v. Babbitt*, No. 1:98CV1873 (EGS).] The HCP Handbook also states that if information on unlisted species' conservation needs is lacking, then the landowner should either: i) use adaptive management to incorporate new information as it becomes available, ii) conduct additional research on the species' needs, or iii) agree to reduced "No Surprises" guarantees for those species. [USFWS, et al (1996), p. 3-30.]

As recognized by the Services' HCP Handbook, adaptive management is especially important for species whose conservation needs are not yet well known, as is usually the case with unlisted species. [USFWS et al (1994) and USFWS et al (1996).]

The HCP Handbook states that contingency measures should exist when landowners create/restore habitat as mitigation, in case the new habitat isn't viable. [USFWS et al (1996), p. 3-22]

ESA s. 10(a)(2)(B) also requires HCPs to include assurances the plans will be implemented, continue to minimize and mitigate the impacts of take, and continue to avoid jeopardizing the species' chances of survival and recovery. ESA s. 10(a)(2)(A)(iv) also requires the Services to require other measures as necessary to ensure the plan's success.

The HCP Handbook states that "thresholds" (i.e., triggers) for adaptive management review should be linked to key elements of the HCP and its monitoring protocol. Further, the thresholds must be based on measurable criteria. [USFWS et al. (1996). p. 3-25.]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.]

"...an adaptive management strategy is essential for permits that cover species that have significant biological data or information gaps that incur a significant risk to that species at the time the permit is issued."

"Possible significant data gaps that could lead to the development of an adaptive management strategy include, but are not limited to, significant biological uncertainty about specific information about the ecology of the species or its habitat (e.g., food preferences, relative importance of predators, territory size), habitat or species management techniques, or the degree of potential effects of the activity on the species covered in the incidental take permit."

"...there may be some circumstances with such a high degree of uncertainty that a species should not receive coverage in an incidental take permit at all until additional research is conducted." The HCP and DEIS must gauge the level of uncertainty that exists with regard to each of the covered species.

"A practical adaptive management strategy within the operating conservation program of a long-term incidental take permit will include milestones that are reviewed at scheduled intervals during the lifetime of the incidental take permit and permitted action."

"For an adaptive management strategy to be effective, it must be integrated into a monitoring program that is designed to ensure proper data collection and analysis that can guide appropriate adjustments in the operating conservation program."

Simpson is Responsible for Providing Additional Mitigation Measures Which May be Needed to Fully Protect and Recover Each of the Covered Species

In drafting ESA s. 10, Congress explicitly recognized that "...circumstances and information may change over time, and that the original plan might need to be revised. To address this situation, the Committee expects that any plan approved for a long-term permit will contain a procedure by which the parties will deal with unforeseen circumstances...." [Conf Rept at 30 and 50 FR 39681-39691, Sept. 30, 1985.] The Federal Register notice for the final "No Surprises" Rule states that "...many changes in circumstances during the course of an HCP can reasonably be anticipated and planned for in the conservation plan (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events), and the plans should describe the modifications in the project or activity that will be implemented if these circumstances arise...." [Federal Register, 63;35, February 23, 1998.] The final rule itself then states that "changed circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)." [Federal Register, 63;35, February 23, 1998.] Likewise, the HCP Handbook states that "unforeseen circumstances" *don't* include changed conditions that could reasonably be anticipated by the landowner or the Services, including the listing of new species or modifications in the landowner's activities. [USFWS et al (1996), p. 3-28] Under the final "No Surprises" rule, landowners are responsible for providing improved and/or additional mitigation measures needed in response to "changed circumstances," *provided the mitigation measures are identified in the HCP.*

"Changing circumstances" which should be identified in the HCP include stand replacing fires, floods, and landslides, as well as the listing of additional species as Threatened or Endangered under the ESA. Other significant and reasonably foreseeable "changing circumstances," include changes in Simpson's land management practices; declines in the condition of the covered species due to inadequate conservation measures in the HCP; designation of critical habitat for the covered species; development of recovery plans and

recovery plan provisions for the covered species; and increased susceptibility of the forest to invasive exotic pests, pathogens, and plant and animal species due to the landowner's forest management practices. Possible management changes include use of shorter timber rotations, increased use of clearcutting and other even aged silviculture, use of "whole tree" and biomass harvesting, use of different tree species, use of genetically modified trees, increased use of fertilizers, herbicides, and other chemicals, and other types of intensified forest management.

Other foreseeable changing circumstances include the effects of human-induced climate change, which is likely to cause ecological gradients, vegetation zones, and species' habitat needs to shift significantly. This situation is similar to wildfires -- while we cannot predict exactly when and where wildfires will strike, we do know they are likely, and HCPs should account for their effects during planning, impact assessment, mitigation design, and adaptive management.

In addition to identifying these and other changing circumstances, the HCP must identify the specific adaptive management and additional mitigation measures that will be adopted to ensure the HCP's continued performance.

Several existing HCPs begin to demonstrate the practicability of adaptive management arrangements in which the landowner retains responsibility for providing additional mitigation as needed. The Washington DNR HCP's adaptive management plan identifies several potential management changes that the DNR will undertake should they become necessary, even if they involve additional costs to the DNR. These potential changes include providing buffers for intermittent streams, increasing spotted owl protections, and reducing sedimentation from roads. Plum Creek's existing HCP for the I-90 Corridor area in Washington also requires Plum Creek to modify and improve its forest management to meet target outcomes for northern spotted owl. Likewise, the company agreed to provide additional mitigation over time if required by watershed analysis and water quality monitoring.

Plum Creek's existing HCP also stated that the listing of new species as threatened or endangered shall not be considered "unforeseen" circumstances. Likewise, under this existing HCP, changes in Plum Creek's operational or management prescriptions resulting from the watershed analyses and aquatic monitoring components of the HCP's adaptive management provisions will not be considered "unforeseen" or "extraordinary" circumstances, and Plum Creek will provide additional or enhanced stream buffers or other protection measures if required by these analyses.

ESA s. 10 only allows for "take" permits (ITPs) to be issued for listed species. *Unlisted* species should *not* be included in the ITP or an HCP's Implementation Agreement (IA). The ESA's basic structure and precedents set by previous HCPs require the Services to re-examine the HCP in light of the ESA's HCP standards and issuance criteria with regard to newly listed species when deciding whether to add those species to an ITP. The ESA states

that "take" permits may be issued for species *listed* pursuant to the Act. In other words, unlisted species should *not* be expressly included in the ITP. Nor should species be automatically added to ITPs.

The question of whether or not unlisted species are adequately addressed by an HCP must be re-examined at the time those species are listed. The IA should expressly require the Services to re-examine, after a previously unlisted species is listed and if Simpson requests that the species be added to the ITP, whether the HCP still adequately addresses the species' conservation and mitigation needs under the ESA and its rules. This approach has been used in other existing HCPs and is quite reasonable. See Plum Creek's existing HCP for the I-90 corridor area in the central Washington Cascades, for example.

Similarly, the Services should not presume that the ESA s. 7 biological opinions drafted in conjunction with the HCP's initial approval will still be valid many years into the future when conditions have changed enough to warrant listing new species as Threatened or Endangered. Reinitiation of consultation is likely to be required when new species are listed. This should be recognized in the IA.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64:45, March 9, 1999.]

"When an HCP, permit, and IA incorporate an adaptive management strategy, it should clearly state the agreed upon and warranted range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty."

Monitoring Standards for the HCP

Monitoring provisions are mandatory for all HCPs. ESA s.10(a)(2)(B) states that the terms and conditions necessary to assure the plan will be implemented include reporting requirements. Reporting cannot occur without monitoring. Monitoring is also required under the Service's regulations at 50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222(b)(5)(iii). According to the HCP Handbook, all HCPs must monitor their impacts over time. [USFWS *et al* (1996), pp. 1-7 & 3-10]

The HCP Handbook states that an HCP's monitoring provisions should be as specific as possible and be commensurate with the project's scope and the severity of its effects. [USFWS *et al* (1996), p. 3-26] The Handbook also states that monitoring must be sufficient to detect trends in species' populations. [USFWS *et al.* (1996), p. 3-27.]

The HCP Handbook states that monitoring protocol must specify the frequency, timing, and duration of data collection; must specify how the data will be analyzed; and must specify who will do the analysis. [USFWS *et al* (1996), p. 3-27.]

The USFWS regulations state that by being granted an ITP, the landowner has agreed to grant access to Service staff to property, records, and other areas. [50 CFR 13.21(e)(2) and 13.47.]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999]

"The biological outcome of the operating conservation program for the covered species is the best measure of success of an HCP."

"Monitoring is a mandatory element of all HCPs."

"The Services and the applicant must ensure that the monitoring program provides information to: (1) evaluate compliance; (2) determine if biological goals and objectives are being met; and (3) provide feedback to an adaptive management strategy, if used."

"...the scope of the monitoring measures should be commensurate with the scope and duration of the operating conservation program and project impacts."

"The following components are essential...: (1) the implementation and effectiveness of the HCP terms and conditions...; (2) the level of incidental take of the covered species; (3) the biological conditions resulting from the operating conservation program...; and (4) any informational needs of an adaptive management strategy, if utilized."

"The monitoring program will be based on sound science and standard survey or other monitoring protocols previously established..."

"The monitoring program should also clearly designate who is responsible for the various aspects of monitoring."

"Compliance is necessary... Therefore, the Services verify adherence to the terms and conditions of the incidental take permit, HCP, IA, and any other related agreements..."

"...it is important for the Services to make field visits to verify whether the report data are correct and the HCP is being implemented as negotiated."

"For large-scale and/or regional HCPs, oversight committees, made up of representatives from significantly affected entities (e.g., State Fish and Wildlife agencies), are often used to ensure proper and periodic review of the monitoring program..." At 431,000 acres and 50 years in duration, Simpson's proposed HCP would clearly be "large scale."

"Oversight committees should periodically evaluate the permittee's compliance with the HCP, its incidental take permit, and IA, and the success of the operating conservation program in reaching its identified biological goals and objectives. Such committees usually include species experts and representatives of the permittee, the Service, and other affected agencies and entities."

"Oversight committees should meet at least annually and review implementation of the monitoring program and filing of reports as defined in the HCP, permit, and/or IA."

"The Services should strive to collect information that will help detect cumulative trends in covered species populations or changes in the quality and/or quantity of the habitat..."

"Effects and effectiveness monitoring will generally include, but are not limited to, the following: 1. Periodic accounting of authorized incidental take; 2. Surveys to determine species status, appropriately measured for the particular operating conservation program (e.g., presence, density, or reproductive rates); 3. Assessments of habitat condition; 4. Progress reports on fulfillment of the operating conservation program (e.g., habitat acres acquired and/or restored); and 5. Evaluations of the operating conservation program and its progress toward its intended biological goals."

"The following represents the minimum information frequently needed in a monitoring program and its reports: 1. Objectives for the monitoring program; 2. Effects on the covered species and/or habitat; 3. Location of sampling sites; 4. Methods for data collection and variables measured; 5. Frequency, timing, and duration of sampling for the variables; 6. Description of the data analysis and who conducted the analyses; and 7. Evaluation of progress toward achieving measurable biological goals and objectives and other terms and conditions as required by the incidental take permit and/or IA."

Enforcement and Long-Term Implementation of the HCP

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B) state that the Services shall require "...other measures...necessary or appropriate for purposes of the plan" and "...other assurances...that the plan will be implemented." The HCP Handbook's template implementation agreement (IA) also states that the purpose of an IA is to ensure that each item of the HCP is implemented. [USFWS et al (1996), Appendix 4, pp. 3 & 6]

Further, the HCP Handbook also states that enforceable mitigation should be included in HCPs. [USFWS et al (1996), p. 1-16]

The HCP and ITP must be accompanied by a legally sufficient Implementation Agreement (IA).

Simpson must be required to restore damaged habitats, for example, if the company exceeds the allowable level of "take," fails to comply with the HCP's conservation measures, or

otherwise violates the HCP and IA. Simpson should not be indemnified from liability for monetary damages or restorative actions, for failure to implement the HCP's conservation measures and mitigate impacts to the covered species.

The IA must clearly maintain citizens' right to sue for enforcement of the ESA's protection measures for listed species. These measures should be understood to include the HCP's conservation measures, which are being substituted for the ESA's normal protection measures. It is well known that citizen suits have been essential to securing implementation of various aspects of the ESA. The San Bruno plan, the model for the ESA section 10 ITP/HCP process, maintained citizens' enforcement rights.

The Services' HCP Handbook's template IA also states that the purpose of an IA includes providing rights to remedies and relief. The Handbook's template IA includes some limited provisions for injunctive and temporary relief. [USFWS et al (1996), Appendix 4, pp. 3 & 6.] Such provisions are not without precedent. The IA for the Regli Estate HCP grants the Services the right to require restoration of any habitat values that are impacted in violation of the HCP. The Services may also seek damages for some types of violations.

The USFWS' new permit rules state that "a permittee... remains responsible for any outstanding minimization and mitigation measures required under the terms of the permit for take that occurs prior to surrender of the permit and such... even after surrendering the permit..." [50 CFR 17.22(b)(7) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116.]

The HCP Handbook states that large scale HCPs may also need perpetual funding to cover long term monitoring and mitigation. [USFWS et al (1996), p. 3-24.]

The Service's Handbook states that the landowner should provide up-front legal or financial assurances, such as a letter of credit, if mitigation measures will be implemented after "take" occurs. [USFWS et al (1996), p. 3-22.]

The HCP Handbook anticipates that conservation easements can be used to ensure the HCP "runs with the land." [USFWS et al (1996), p. 6-30]

The USFWS' new permit revocation rule states, in effect, that an ITP will be revoked if the permit would "appreciably reduce the likelihood of the survival and recovery of the species in the wild." [50 CFR 17.22(b)(8) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116, referring to ESA s. 10(a)(2)(B)(iv).]

ESA s. 10(a)(2)(C) states that the Services "...shall revoke a permit...if [they] find that the permit is not complying with the terms and conditions of the permit."

Duration of the ITP

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"...when determining incidental take permit duration... factors include duration of the applicant's proposed activities and the expected positive and negative effects on covered species... including the extent to which the operating conservation program will increase the survivability of the listed species and/or enhance its habitat."

"...the Services will also consider the extent of scientific and commercial data underlying the proposed operating conservation program for the HCP, the length of time necessary to implement and achieve the benefits of the operating conservation program, and the extent to which the program incorporates adaptive management strategies."

The Landowner's Eligibility for an ITP

ESA ITPs are premised upon the idea that the "take" of species and their habitats will be "incidental to otherwise lawful activities." [See ESA Ss. 10(a)(1)(B) and 10(a)(2)(B)(i) and USFWS et al (1996), p. 1-5.] Thus an ITP/HCP should not be granted for any forest management operation or other land use activity that violates federal, state, or local laws. The Services must assess Simpson's compliance with these requirements.

Furthermore, as per 50 CFR 13.21(b) and (c), 50 CFR 220.21(b), and USFWS et al (1996), p. 7-1, the Services must determine whether Simpson has:

- i) been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the permit application is filed, if this penalty or conviction evidences a "lack of responsibility;"
- ii) failed to disclose material information or made false statements of material fact in connection with the permit application;
- iii) failed to demonstrate a valid justification for the permit and a "showing of responsibility;"
- iv) violated the Migratory Bird Act, the Lacey Act, or the Bald & Golden Eagle Protection Act; or
- v) failed to submit valid, accurate, and timely reports required by their permit.

If the answer to any of these questions is "yes," then the landowner is not eligible to receive or keep a permit under the ESA, Migratory Bird Act, or Bald & Golden Eagle Protection Act.

Impact Minimization and Mitigation Measures for Salmon and Other Aquatic and Riparian Species

The HCP and DEIS must document whether the HCP's aquatic and riparian conservation measures will fully offset all impacts to the covered aquatic and riparian species, and whether these measures will produce habitat conditions which correspond to the survival and recovery of the covered species. The DEIS and HCP must identify the extent to which "take" of the various covered species will occur. The HCP and DEIS must address water flows and timing, and how they are affected by upslope forest management practices, temperature, the role of invertebrates as food sources and water quality indicators, and the impact of chemical applications, including around upslope intermittent streams. Wetlands, seeps, and springs must be addressed.

The HCP's riparian protection measures must, at a minimum, match the compromise standards recommended by NMFS for protecting salmonids in the "westside" forests of the West Coast states. These compromise standards include the NMFS proposal for "short term" HCPs in California (see NMFS (1999)). (See Table 1 below.)

Table 1. Summary of Compromise Aquatic Protection Standards for "Westside" West Coast Forests

NMFS "Short Term HCP" (NMFS (1999))	<i>Perennial Fish Bearing Streams:</i> 180 ft. buffer w/ no logging. No chemical applications. Additional buffer on steep slopes. <i>Perennial NonFish:</i> Same as perennial fish bearing. <i>Intermittent Streams:</i> 30 ft. buffer w/ no logging. Additional buffer to 100 ft. w/ significant retention during logging.
Pacific Lumber HCP	<i>Perennial Fish Bearing Streams:</i> 100 ft. buffer w/ no logging. Additional buffer to 170 ft. w/ significant retention during logging. <i>Perennial NonFish:</i> 30 ft. buffer w/ no logging. Additional buffer to 130 ft. w/ significant retention during logging. Additional buffer to 170 ft. w/ equipment exclusion. <i>Intermittent Streams:</i> 30 ft. buffer w/ no logging. Some exceptions. Additional buffer to 50 to 100 ft. w/ equipment exclusion.

Notes: For comparison purposes only. Does not include all aspects of the different standards.

A more credible HCP would employ standards considered to provide reasonable assurances of recovery. These include the standards employed by the Northwest Forest Plan for federal forests in the range of the Northern spotted owl, the standards proposed by Pollock et al (1998), and the "take" avoidance standards identified in the Draft Environmental Impact Statement (DEIS) for the Pacific Lumber Headwaters HCP (USFWS et al (1998)). (See Table 2 below.) It should also be noted that even the Northwest Forest Plan was only considered to have roughly an 80% probability of providing well distributed populations of salmonids across the federal lands in question. (USDA FS et al (1993))

USDA FS et al (1993), Huntington (1998), Pollock et al (1998), and the Draft EIS for the Pacific Lumber Headwaters HCP (USFWS et al (1998)) all indicate that buffer widths approaching two site potential trees are necessary to *begin* providing microclimate effects

Table 2. Summary of Aquatic Protection Standards that Provide a High Probability of Salmonid Recovery in Forested "Westside" West Coast Watersheds

NW Forest Plan	<i>Perennial Fish Bearing Streams:</i> 300 ft. buffer w/ no logging. <i>Perennial NonFish:</i> 150 ft. buffer w/ no logging. <i>Intermittent Streams:</i> 170 ft. buffer w/ no logging.
Pollock et al (1998)	<i>Perennial Fish Bearing Streams:</i> 250 ft. buffer w/ no logging. Some exceptions. <i>Perennial NonFish:</i> 250 ft. buffer w/ no logging. Some exceptions. <i>Intermittent Streams:</i> 105 to 250 ft. buffer w/ no logging. Some exceptions.
NMFS "No Take" (USFWS et al (1998))	<i>Perennial Fish Bearing Streams:</i> 340 ft. buffer w/ no logging. <i>Perennial NonFish:</i> 170 ft. buffer w/ no logging. <i>Intermittent Streams:</i> 100 ft. buffer w/ no logging.

Notes: For comparison purposes only. Does not include all aspects of the different standards

and habitat for riparian species. Amphibians and reptiles comprise a large portion of the ecosystem in all water systems and are an integral part of the food web. Adverse effects to amphibian and reptilian populations can lead to adverse impacts on aquatic species such as salmon and trout. Changes in microclimate conditions can alter the ecosystem of the riparian environment for amphibians, reptiles, and other plant and animal species. Buffer widths that allow increased direct and indirect solar radiation into the riparian zone will increase air temperature and decrease relative humidity in that area. If these measurements move beyond the tolerance levels of terrestrial riparian flora and fauna, these species may perish or be forced to find other suitable habitat to complete their life cycle. Rudolph et al (1990), for example, reported amphibian and reptile populations were significantly lower in aquatic habitats with narrow buffer widths (i.e., those less than 98 ft.) than those with wider buffer strips due to greater shading (i.e., less solar radiation and lower air temperatures) and open understory vegetation.

Intermittent streams normally provide important nutrients and food sources for fish and aquatic systems. Conversely, when impacted by logging and roading, these streams can significantly affect stream temperatures, sedimentation, hydrology, and other conditions downstream. The importance of intermittent, upslope streams to downstream fish habitat conditions is noted in USFWS (1999), NMFS (1998), and Reid et al (1999), for example, as well as in NMFS' critical habitat notices for Oregon Coast coho and Upper Columbia steelhead. Streamside trees and other vegetation are needed throughout all stream reaches to prevent erosion and wasting, and large woody debris is needed to help trap sediment, prevent scouring, and maintain other functions.

The HCP also needs to include adequate measures for seeps, springs, and other non-stream riparian areas. At a minimum, they should meet the standards recommended by NMFS (1998). More credible standards would include those employed by the Northwest Forest Plan and even the Pacific Lumber HCP. USDA FS et al (1993) and USDA FS et al (1994) recommend no-harvest buffers of 1 to 2 site potential trees (i.e., roughly 170 ft. to 340 ft.) around different types of non-stream riparian areas.

Inadequate measures on smaller streams, intermittent streams, seeps, and springs will lead to adverse impacts on the amphibian populations that are crucial to this habitat. The resulting lack of forest cover means that evapotranspiration rates are likely to increase with increasing air temperature and may contribute to a lowering of the groundwater table and soil moisture content. This may prematurely dry up intermittent streams, depriving flora and fauna of an important water source during the dry season. Intermittent streams also provide important primary habitat for a number of amphibians and other species, including species that do not tend to utilize larger streams as frequently. [American Lands (1998), Benda et al (1998), and USFWS (1998).] Equally important, roading, logging, and other operations within and adjacent to intermittent streams is likely to lead to significant amounts of erosion and sediment loading in downstream channels, including areas needed for salmon spawning and other functions.

USFWS (1998) also found that the aquatic conservation strategy proposed in NMFS (1998) is necessary, and indeed in some respects insufficient, for the conservation of riparian associated amphibians.

As recommended by Olson in Benda et al (1998), the HCP also needs to provide long term refugia (or "anchor" habitats) which contain the specific habitat elements needed by different riparian and aquatic habitat associated amphibians. Sites used by the different species need to be inventoried and protected.

The HCP must also protect and restore habitats on non-fish-bearing streams which historically supported salmonids and other aquatic and riparian species, or which are otherwise needed for the species' recovery. There is evidence that fish can utilize relatively steep stream reaches when large woody debris provides pools and "stair step" stream structure. [See Trotter (1995) and Montgomery (in preparation).]

The HCP and DEIS must mitigate for road densities and resulting impacts. Road densities are also a good indicator of likely impacts to salmonids and other aquatic species as well. Along with clearcutting, high road densities have been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. Peak flow increases of 20% to 50% have been reported in large watersheds as a result of road densities as low as 10% of the watershed area. [Grant (1994) and Grant et al (1996).]

The HCP should focus on road obliteration (i.e., restoration of approximate original contour) rather than mere road abandonment. Abandonment may not be sufficient to avoid significant risk of triggering large and cumulative small landslides.

The HCP must remediate existing stream crossings which are impassable to fish and/or which are likely to blow out under storm conditions, and protection measures needed for seeps and springs.

The HCP must address temperature and other water quality standards, including by identifying quantified objectives, monitoring indicators, and adaptive management provisions.

The HCP must address logging, chemical applications, intensive broadcast burning, and other activities permitted by the ITP across upslope areas, i.e., the majority of the land area in the HCP's covered watersheds. The HCP must provide retention requirements for understory vegetation, green trees, snags, and large woody debris.

The HCP and DEIS must include mitigation measures for the hydrological impacts of Simpson's proposed and potential silvicultural practices, as they may be allowed by the ITP. Along with high road densities, frequent, widespread clearcutting has been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. [Grant (1994) and Grant et al (1996).] Recent materials from the US EPA also confirm the importance of addressing "...hydrological maturity/successional issues ...(vegetation patterns/composition/structure) with respect to both peak flows and base flows" for the conservation of native fish, salmonids, amphibians, and other riparian habitat associates. [Moore (1998)]

The HCP must include measures to protect groundwater flows from roading and logging operations. Logging can affect groundwater flows by changing water retention timing and rates. Roading can affect groundwater flows by altering geology and soil hydrology.

The HCP and DEIS must address the extent and intensity of erosion and sedimentation likely to result from Simpson's upslope logging practices and other sources of soil disturbance across the plan area.

The HCP also fails to consistently and thoroughly require reductions in logging, roading, and other impacts on unstable slopes, including slopes at high risk of failure. Substantial amounts of logging are allowed in many slide prone areas. This will often be exactly the opposite of what is needed: retention of the larger trees, to maintain site stability, and to ensure that when failures do occur, large woody debris is delivered to stream channels.

The HCP must monitor aquatic invertebrates. The importance and utility of using invertebrates and other biological indicators during water quality assessments and monitoring is discussed in Karr et al (1999), Karr (1998), and Karr (1991). The Oregon plan for conserving coastal coho salmon also establishes basic protocol for using macro-invertebrates as water quality indicators.

It should not be assumed that existing watershed analysis processes are sufficient, including where they are being utilized as part of the existing regulatory framework that is incorporated as part of the HCP's mitigation measures.

The Washington watershed analysis process, which is often upheld as a model, nevertheless suffers from significant gaps and problems. Gaps and problems related to salmonids and bull trout include: 1) lack of assessment of the biotic integrity of waterbodies (e.g., macroinvertebrates); 2) limitation of riparian assessment to shade and large woody debris recruitment from stands adjacent to fish-bearing streams, ignoring other riparian functions such as microclimate, and food chain support and wood recruitment to non-fish channel segments for water quality (i.e. sediment routing) and as source for downstream stream reaches; 3) lack of an antidegradation policy and use-based water quality criteria (i.e., temperature standards) during water quality assessment; 4) during hydrology assessments, lack of consideration of surface/groundwater interactions, groundwater system recharge/discharge areas, subsurface flow and thermal regimes, and hydrologic functions of forest canopy in rain dominated landscapes (i.e. the process assumes the most significant effects of timber harvest on hydrologic processes is through the influence on snow accumulation and melt during rain-on-snow events); and 5) during temperature assessment, inadequate consideration of heat transfer from air to surface water, from soil to shallow groundwater, and from shallow groundwater to streams (i.e. ground/surface water interactions can result in adverse change to surface water temperature, causing potential loss of reach-scale thermal refugia and degrading summer rearing habitat for aquatic biota).

Impact Minimization and Mitigation Measures for Species Dependent on Old Growth and Older Forest Habitats:

Salmonids and other fish associated with forested watersheds co-evolved with habitat conditions and ecosystem processes that reflected the presence of old growth forests and other mature forest stands across substantial portions of the landscape. The relationship between salmon and forests appears to be truly symbiotic. In addition to being themselves dependent on habitat and watershed conditions associated with older forests, spawning salmonids and their predators and decomposers contributed heavily to the maintenance of soil nutrients and flora and fauna in riparian zones, which in turn supported future salmon populations. [Lichatowich (1999)]

Restoring mature forest conditions across significant portions of forested watersheds is an essential component of protecting and recovering imperiled salmonids and other native fish species. A combination of forest protection, restoration, and improved management approaches can be used to meet this goal. The adoption of longer timber rotations is an economically-beneficial and "practicable" measure which can be used to supplement other protection and restoration measures by reducing cumulative watershed impacts, helping restore relatively mature forest conditions, and maintaining and even increasing landowners' timber production and revenues.

Failure to protect and restore older forest habitats is likely to impact the survival and recovery of a host of listed and unlisted species, including those not currently found in the plan area, but which will need viable habitats in the area for their recovery. It cannot be assumed that federal lands provide a sufficient basis for species' recovery. Most of the

habitat for most threatened and endangered species is found on non-federal lands. [GAO (1994)] Moreover, the Northwest Forest Plan for federal forestlands within the range of the Northern spotted owl was only expected to provide an 50% chance of supporting 41% of late successional forest species. (See Table 4 below.)

The Northwest Forest Plan also suffers from implementation problems and an inherent insufficiency for lower elevation forests and many late successional species. Well over half of the amphibian, bird, and mammal species associated with old growth forests in the Pacific Northwest have over half of their habitat on non-federal lands. Specifically, 67% of selected amphibians, 77% of selected birds, and 73% of selected mammals associated with old growth forests have 50% or more of their range on non-federal lands. (See Table 3 below.)

Table 3. Selected Late Successional Forest Species Within the Range of the Northern Spotted Owl That Depend Significantly (>25%) on Non-Federal Forests

Amphibians	Birds	Mammals
<p>>25% Non-Federal Lands: tailed frog Oregon slender salamander Shasta salamander Del Norte salamander Larch Mountain salamander</p> <p>>50% Non-Federal Lands: northwestern salamander clouded salamander black salamander Cope's giant salamander Pacific giant salamander Dunn's salamander Van Dyke's salamander Cascade torrent salamander Olympic torrent salamander southern torrent salamander rough skinned newt</p> <p>>75% Non-Federal Lands: Columbia torrent salamander</p>	<p>>25% Non-Federal Lands: northern goshawk Barrow's goldeneye (smr hab) Hammond's flycatcher flamulated owl white headed woodpecker black backed woodpecker Williamson's sapsucker</p> <p>>50% Non-Federal Lands: wood duck bufflehead hermit thrush brown creeper Vaux's swift northern flicker hermit warbler pileated woodpecker western flycatcher northern pygmy owl bald eagle varied thrush hooded merganser red crossbill common merganser chestnut backed chickadee hairy woodpecker golden crowned kinglet red breasted nuthatch white breasted nuthatch pygmy nuthatch red breasted sapsucker barred owl winter wren warbling vireo Wilson's warbler</p> <p>>75% Non-Federal Lands: Barrow's goldeneye (wtr hab)</p>	<p>>25% Non-Federal Lands: American marten Fisher Forest deer mouse Pacific shrew</p> <p>>50% Non-Federal Lands: elk western red-backed vole southern red-backed vole Townsend's chipmunk northern flying squirrel dusky-footed woodrat shrew-mole deer mouse red tree vole fog shrew</p> <p>>75% Non-Federal Lands: red tree vole (California)</p>

Source: WAFC (1997d) and USDA FS et al (1993). Notes: The FEMAT Report was developed primarily for management decisions on Federal lands and does not provide thorough analyses for non-Federal lands.

Table 4. Likelihood of Late Successional Forest Species Being Well-Distributed Across Federal Lands Under Option 9 of the Northwest Forest Plan

Species Group	# Species w/ 80% Chance or Less	# Species w/ 50% Chance or Less	# Species w/ 25% Chance or Less	Total # Species Studied
Fungi	519	182	99	527
Lichens	145	110	84	157
Bryophytes	1 group	0	0	13 groups
Vascular plants	40	19	12	131
Mollusks	102	99	14	102
Arthropods	10 groups	1 group	0	15 groups
Amphibians	13	5	3	19
Birds	2	0	0	37
Bats	7	2	0	11
Other mammals	4	0	0	12
Fish	6 groups	0	0	7 groups

Source: USDA FS *et al* (1993) and WAFC (*d*).

Additional Goals and Standards For Forest HCPs

The preceding goals and standards are based in part on those identified in Aengst *et al* (1998), Bean *et al* (1991), Bean (1998), Benda *et al* (1998), Cheever *et al* (1998), Hood *et al* (1998), Kareiva *et al* (1999), Murphy *et al* (1996), and Noss *et al* (1997). Additional goals and standards are provided in these sources. Key goals and standards identified by Kareiva *et al* (1999) include the following points:

Explicit scientific standards need to be developed for HCPs, particularly for larger ones.

Independent (and presumably, academic) scientific peer review panels should be consulted during HCP development, particularly for more significant plans.

Information on listed species, as well as monitoring data from HCPs should be made accessible in a centralized location, to facilitate better planning and plan evaluation.

When basic data on species, their conservation needs, resulting levels and impacts of "take," and other considerations are unavailable, data gaps should be filled *prior* to developing HCPs. Ideally, "take" permits should not be given to landowners when significant information needed to develop scientifically credible HCPs is lacking. Fewer data gaps should be allowed with plans covering larger areas, longer time frames, irreversible impacts, or multiple species.

If HCPs proceed in the absence of needed data, then approaches which provide greater levels of certainty for the species should be used.

If proposed mitigation measures cannot initially be demonstrated to be effective, then mitigation, monitoring, and evaluation should occur *prior* to "take."

Plans must be flexible, to allow for timely improvements based on monitoring results. If monitoring is used to help correct for data gaps, then mitigation measures must be adjusted as needed over time.

HCPs -- particularly those covering large areas or large amounts of a species' range -- should inventory, summarize, and document available data on each species and their distribution, abundance, population trends, ecological requirements, life history, and causes of endangerment.

Quantitative estimates of the impacts of "take" on species' viability should be provided, especially for larger or more significant plans. At a minimum, best and worst-case scenarios should be identified.

Impacts of "take" should also be evaluated, particularly for larger or more significant plans, including by determining whether the habitats being "taken" correspond to population "sources" or "sinks," whether genetically unique subpopulations are being "taken," and whether unique habitat/species combinations are being impacted.

The details of HCP mitigation measures must be explicitly described and accompanied by data on their effectiveness. The likely success of each measure must be evaluated, as must the overall effectiveness of mitigation measures at minimizing and offsetting "take."

Monitoring provisions should be used to evaluate mitigation measures' performance over time, and to assess impacts to species. Monitoring must be designed to facilitate timely improvements to mitigation measures.

HCPs need to quantify the plans' biological goals.

HCPs should evaluate the cumulative impacts of multiple plans and their interactions.

An HCP's adequacy is questionable if the plan fails to adequately address one or more of the following: species' status reviews, analyzing the proposed "take," assessing the impacts of "take," planning and assessing mitigation measures, and planning and assessing monitoring provisions.

HCPs should provide mitigation measures in a timely fashion, preferably before species are affected by "take."

HCPs should include contingency measures (i.e., adaptive management supported by monitoring) to address potential failures with mitigation measures:

The percentage of local *and* global populations that will be "taken" should be assessed.

Managers should adopt risk-averse strategies in the face of uncertainty.

Where possible, assertions made in HCPs should be supported by quantitative information.

IV. References

Cumulative Impacts of HCPs and Related Actions:

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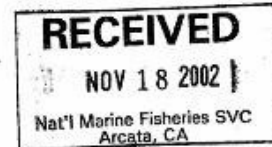
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Letter - G4. Signatory -Defenders of Wildlife.



November 14, 2002

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RE: Comments on Simpson Resource Company Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement

Defenders of Wildlife submits these comments regarding the *Draft Environmental Impact Statement for Authorization for Incidental Take and Implementation of a Multiple Species Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances, Simpson Resource Company ("Simpson"), Del Norte and Humboldt Counties, California (DEIS) and the Aquatic Habitat Conservation Plan and Candidate Conservation Agreement with Assurances (AHCP/CCAA).*

Defenders of Wildlife ("Defenders") is a 430,000 member private, non-profit, national wildlife conservation organization. Defenders works to protect all native wild animals and plants in their natural communities by advocating proactive approaches to wildlife conservation and encouraging protection of entire ecosystems and interconnected habitats. This letter is submitted on behalf of our 100,000 members in California.

Throughout this letter, we use the terminology adopted by the DEIS and AHCP/CCAA.

As set forth below, our review of the DEIS, AHCP and associated documents reveal the following:

- I. The DEIS and AHCP/CCAA are founded on an inappropriate baseline condition and thus lack consideration of a true "No Action Alternative.
- II. The AHCP/CCAA lacks a formal biological assessment of the viability of Covered Species.

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Response to Comment G4-1

See Master Response 1 regarding the baseline, and Master Response 2 regarding the No Action Alternative.

Emphasis is placed on appropriate comparisons, e.g., between the No Action Alternative and existing environmental conditions in terms of habitat, species and riparian and aquatic ecosystem health and between the action alternatives, including the Proposed Action, and the No Action Alternative. Baseline conditions are set forth on an HPA-by-HPA basis in AHCP/CCAA Section 4.4 and EIS Chapter 3. There, the Plan and EIS describe and assess geologic and geomorphic factors and the current status of the covered species and their habitats. They discuss characteristic habitat types in each of the areas as well as existing factors that appear to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystems. Comparison of impacts associated with each of the alternatives is set forth in EIS Table 2.7-1. Timber harvesting and other forest management activities are evaluated in the EIS and AHCP/CCAA only to the extent that differences in their application and different environmental conditions would exist as a result of implementation of the AHCP/CCAA or one of the other alternatives.

Response to Comment G4-2

In “NEPA’s 40 Most Frequently Asked Questions” (<http://ceq.eh.doe.gov/nepa/regs/40>), the CEQ notes that the “No Action” alternative may be thought of in terms of continuing with actions where ongoing programs and activities (such as timber harvesting pursuant to the CFPRs) would continue, even as new plans are developed. In these cases, like for this Plan and these

- III. The conservation objections and measures of the AHCP/CCAA’s Conservation Plan do not analyze biological relevance to the Covered Species.
- IV. The AHCP/CCAA generally lacks quantitative analyses throughout and instead relies on unsubstantiated claims.
- V. The overall impacts of the AHCP/CCAA on the Covered Species are not adequately assessed.
- VI. The DEIS and AHCP/CCAA conspicuously lack a cumulative effects analysis or any discussion of overall watershed/downstream effects of the proposed Plan.
- VII. Overall, the management prescriptions of the AHCP/CCAA are based primarily on current California Forest Practices regulations and are, as such, grossly insufficient in providing proactive conservation of the Covered Species.

I. INAPPROPRIATE BASELINE CONDITION AND LACK OF TRUE “NO ACTION” ALTERNATIVE

- G4-1 [As written, the baseline condition used for analysis in the DEIS and AHCP/CCAA is an extension of current logging practices into the future rather than the existing on-the-ground conditions in the environment. As such, the DEIS and AHCP/CCAA fail to analyze the significance of adverse impacts of the actual project - timber harvest and related activities under the AHCP/CCAA.
- G4-2 [Section 4 of the DEIS, “Environmental Consequences,” is founded on this false baseline. When comparing all the alternatives, the underlying assumption is that all, including the “No Action” alternative, include perpetuation of current logging practices. For example, it is stated that “Under the Proposed Action, establishing EEZs would result in a reduction in Primary Assessment Area Locations potentially exposed to soil compaction from use of heavy equipment because logging would not occur. Another example: Section 4.3.3.2 “The Proposed Action’s canopy closure requirements and tree retention standards are more protective than those that would be implemented under the No Action Alternative....the inner zone width along Class I watercourses is slightly less under the Proposed Action (50-70 feet) than under the No Action Alternative (75 feet).” In this case, not only is the No Action Alternative *clearly* not the true environmental baseline of no logging activities, but the Proposed Alternative actually decreases riparian protection from current status-quo levels. Therefore, the conclusion that “Overall, the conservation measures under the Proposed Action are anticipated to minimize the potential impacts that could otherwise result from altered hydrology in the Primary Assessment Area. They would reduce the impacts of forest management on surface runoff and peak flows, reduce soil compaction and disturbance, and maintain or enhance in-channel LWD” is made without any regard to or quantification of the actual impacts of timber harvesting and associated activities.
- G4-3 [The AHCP/CCAA glossary (Section 10) defines “Covered Activities” as “Certain activities

Permits, the No Action Alternative equates to “no change” from current management direction or level of management intensity. See Master Response 1 regarding baseline and Master Response 2 regarding the No Action Alternative.

Response to Comment G4-3

See Master Response 1, which identifies the most meaningful points of comparison for the assessment of potential impacts as “with the project” (Permit issuance and implementation of the Plan) and “without the project” (no Permits, no Plan). Under the “project”, issuance of the Permits and Plan implementation, the impacts of take identified in the Plan and the conservation measures identified in the Operating Conservation Program (AHCP/CCAA Section 6.2) would be carried out. For this reason, the Plan and EIS compare baseline conditions with the conditions that are expected to occur under the No Action Alternative, and the conditions that are expected to result from this combination of circumstances under the various action alternatives, including the Proposed Action, relative to the conditions that are expected to occur under the No Action Alternative. See AHCP/CCAA Sections 5 and 7 and EIS Chapter 4.

Response to Comment G4-4

AHCP/CCAA Section 5 discusses the potential impacts of incidental take on the covered species and their habitats that might occur as a result of timber harvesting and other forest management activities within forested landscapes if take were authorized but without the benefit of the Operating Conservation Program's prescriptions. The discussion in AHCP/CCAA Section 5 supplements the discussion in AHCP/CCAA Section 2 regarding the covered activities, AHCP/CCAA Section 3 regarding the covered species and their habitats, and AHCP/CCAA Section 4, which includes an HPA-by-HPA discussion of the current status of the covered species and their habitats. AHCP/CCAA Section 7, not Section 5, discusses the expected results for the covered species and their habitats of implementation of the Operating Conservation Program (AHCP/CCAA Section 6.2) in the Plan Area.

A summary of existing stream conditions and an assessment of their ability to support the covered species within the Primary Assessment Area is also presented in EIS Section 3.4.4 (Aquatic Habitat Conditions). The analysis of potential environmental consequences associated with implementation of the Proposed Action relative to the No Action Alternative and existing conditions is presented in EIS Chapter 4. As noted in EIS Section 4.4.3, the Services expect habitat conditions to improve under the Proposed Action and aquatic and riparian resources would realize incremental improvements compared to the No Action Alternative and current conditions. This would be largely attributable to implementation of the Road Management Plan, enhanced riparian zone protection, and other conservation measures, as a whole, which are described in EIS Chapter 2.2 as part of the Proposed

G4-3

carried out by Simpson in the Plan Area that may result in incidental take of Covered Species and all those activities necessary to carry out the commitments reflected in the Plan's Operating Conservation Program and IA." Section 5.1 of the AHCP/CCAA explicitly lists some of these Covered Activities as the logging practices: "Of the Covered Activities, Simpson's timber harvesting operations and the road construction maintenance or use, as well as construction, maintenance and use of landings, culverts and crossings associated with such harvesting have the greatest potential to cause environmental effects – both individual and cumulative – which, in turn, could result in take of Covered Species." The DEIS only assesses the environmental impacts of the Conservation Plan, while ignoring the other Covered Activities. Thus, the DEIS falsely concludes that the "overall effect of implementation [of the proposed AHCP/CCAA] would result in net environmental benefits" without ever mentioning the impacts of the above Covered Activities that would be most detrimental to the Covered Species.

G4-4

Over and over, the AHCP/CCAA admits that current practices endanger Covered Species: Section 5.5.2, regarding potential effects of increased temperature on Covered Species: "The potential impacts of such taking include potential reductions in the local or regional populations of the Covered Species and could affect a possible need to list currently unlisted Covered Species under the ESA in the future."; Section 5.5.3, on Altered Nutrient Input: "Take of Covered Species could occur as the result of temperature increases causing the impairment of essential function...[resulting in] potential reductions in the regional populations of the Covered Species." However, these detrimental practices are used inappropriately as a baseline for the AHCP/CCAA and DEIS assessments of environmental impact. While Simpson's timber management practices are covered in the Simpson Northern Spotted Owl HCP, they are not approved for the take of listed aquatic species and therefore must be addressed in the AHCP/CCAA. Especially since the current practices are admittedly detrimental to the Covered Species' populations, the misused baseline is all the more deplorable.

G4-5

By failing to invoke the appropriate baseline condition and wrongly defining the "No Action alternative, the DEIS is in violation of the National Environmental Policy Act (NEPA). NEPA regulations require an EIS to "provide a full and fair discussion of significant environmental impacts." (40 C.F.R. 1502.1). In this case, the DEIS does not provide *any* discussion of the environmental impacts of the Covered Activities most likely to be detrimental to the Covered Species.

II. FORMAL VIABILITY ASSESSMENT LACKING

G4-6

The AHCP/CCAA does not include an adequate assessment of current biological viability of the Covered Species in the Proposed Area. Section 4 details the Current Status of habitat and Covered Species with vague statements such as "Big Lagoon is believed to support a 'fair' population of coastal cutthroat trout" at best. When Simpson has conducted surveys, primarily for the amphibian species, they are based on a one time presence/ absence count which alone is not useful in indicating population trends. Without a formal assessment of the current biological viability of the Covered Species, it is impossible to assess the ability of the Conservation

Action. Overall, the minimization and mitigation measures are expected to reduce harvest and road-related sediment production and delivery to Primary Assessment Area streams and to maintain or enhance existing riparian and aquatic conditions. The anticipated improvement in riparian conditions and the reduction in sediment production and delivery to streams would occur in a shorter time than those expected under the No Action Alternative and would likely result in improved physical habitat for the seven covered fish species/ESUs and two covered amphibian species.

As noted in the response to Comment G4-1 above, under No Action Alternative for the Plan and the EIS, the Services would not issue the requested Permits and Green Diamond would not implement the Plan. As described in EIS Section 2.1, the No Action Alternative has been developed to evaluate current conditions. Under the No Action Alternative, existing activities would continue, including Green Diamond's current operations as governed by its NSO HCP and all applicable laws. See AHCP/CCAA Section 1.4. The most meaningful points of comparison, therefore, are with the project (issuance of the Permits and implementation of the Plan - the "Proposed Action") and without the project (no Permits, no Plan - the "No Action Alternative"). For the No Action Alternative, the appropriate comparison is between existing environmental conditions in terms of habitat, species and riparian and aquatic ecosystem health and the conditions that are expected to occur over time under the No Action Alternative. See Master Response 2 regarding the No Action Alternative and Master Response 1 regarding the baseline.

Please see responses to Comment G4-1 and G4-2 above.

Response to Comment G4-5

For the reasons discussed in response to Comment G4-3 and in Master Responses 1 and 2, and based on analysis provided in the EIS, the Services believe that the EIS does provide a full and fair discussion of significant environmental impacts associated with the covered activities as reflected in EIS Chapter 4 (Environmental Consequences).

Regarding the comparison between current conditions and the No Action Alternative, and among the action alternatives and the No Action Alternative, see EIS Chapter 4 (Environmental Consequences).

Response to Comment G4-6

By "biological viability" this comment seems to imply that the current species' status within the Plan Area and the current condition of the species' habitats, are not adequately described in the Plan, such that the Services or commenters can determine the impacts of taking and, thus, whether such impacts are adequately mitigated. The Services disagree and believe that the baseline conditions of the covered species and habitats are adequately described in the Plan. See, for example, AHCP/CCAA Sections 3 and 4. Master Response 8 sets forth the approval criteria for this AHCP/CCAA and Master Response 1 discusses the baseline conditions and their role in ESA analyses.

Response to Comment G4-7

See Master Response 12. Further, as stated in AHCP/CCAA Section 6.1.2, the covered activities all share some common habitat needs. Those certain biological needs that are common to the covered species, which were considered in developing the goals and objectives for the conservation program, include cool water temperatures and complex stream habitat morphology and substrates. The AHCP/CCAA Section 6.1.2 briefly describes components of each of the covered species' life history, which also were considered when developing the biological goals and objectives for the Operating Conservation Program. A discussion of the key life history traits and biological requirements for each of the covered species are discussed in detail in AHCP/CCAA Section 3.2 and each species' key habitat requirements are discussed in AHCP/CCAA Section 3.3. A more detailed discussion of these life histories and habitat characteristics are provided in Appendix A of the AHCP/CCAA.

From the discussion of the purpose of the Plan (AHCP/CCAA Section 1.2) which states that the "...purposes of the AHCP/CCAA are for...providing for the conservation of the individuals..." and the five specific biological goals bulleted and shown in AHCP/CCAA Section 6.1.2.1, it is clear that the needs of the covered species were the basis of the Operating Conservation Program measures, which were developed to minimize the impact of incidental take on the covered species. Furthermore, of the five biological objectives, three were directly based on habitat needs for the covered species (e.g. summer water temperature, LWD recruitment, and sediment delivery) and one was based on population (amphibian populations). The Operating Conservation Program measures, based on the goals and objectives, are expected

G4-6

Measures to assess the current threats posed by the Covered Activities. Consequentially, it is also impossible to adequately judge the potential success of the ACHP/CCAA to minimize and mitigate the impacts of timber harvesting activities on the Covered Species. Therefore, without an adequate assessment, any conclusions drawn by federal decision makers that are based on this AHCP/CCAA and DEIS will be arbitrary and capricious.

III. BIOLOGICAL RELEVANCE OF CONSERVATION PLAN NOT ADDRESSED

G4-7

The biological goals and objectives presented in Section 6.1 of the AHCP/CCAA are not linked to the biology of the Covered Species. Section 6.1.1 states: "to minimize and mitigate the impacts of incidental take within the Plan Area as described in this AHCP and to ensure that such take does not jeopardize the Covered Species, Simpson intends to undertake management measures that will, during the term of the Permit protect, and where needed allow development of the functional habitat conditions that are required for long-term survival to support well-distributed, viable populations of the Covered Species." However, in the two pages that follow, all of these goals and objectives are set out without justification of how they address the needs of the Covered Species. For example, the summer water temperature objective is based on the current levels of temperature found in the Plan Area. As discussed in I. above, the use of this degraded system as a baseline is inappropriate and biologically invalid. The sediment delivery objectives are not tied to the habitat needs of the Covered Species. The sediment delivery studies in Simpson Hydrographic Planning Areas (HPAs) must tie sediment delivery volumes to habitat degradation, stasis or improvement. Further, the assumption that reducing road-related sediment by 70% from current levels is adequate to avoid road-related jeopardy to the covered species is impossible to assess give the lack of ecological basis for such a standard. The appropriate objective for slope stability measures is to prevent alteration of the natural landslide regime. Given this ecological basis, the fact that the AHCP/CCAA still allows new roadbuilding in riparian areas and on landslide-prone locations is potentially significantly detrimental the biological status of the Covered Species. The AHCP/CCAA fails to address this. Appendix E does, however, provide information that current levels of management-related erosion increase the watershed scale level of erosion between 30 and 300% beyond natural conditions. Although not directly linked to biological significance, one would assume that such a large level of increased erosion will have a detrimental effect on the Covered Species. As such, this effect must be addressed in the AHCP/CCAA.

G4-8

G4-9

G4-10

G4-11

G4-12

As another case in point, the riparian management measures specifically fail to address the needs of the Covered Species. For example, the importance of creating unharvested streamside areas and retaining the largest trees are not addressed. It is particularly important for the amphibian species to create and maintain interior or "core" areas of riparian forest where conditions are suitable for cold-water adapted amphibians. Wide no-cut buffers of 30 meters or more are necessary to provide the microclimate required by the adult life stages of the tailed frog and southern torrent salamander. (Welsh et al. 2000). As currently proposed, timber harvest is allowed in all streamside riparian management zones (RMZs), explicitly ignoring the biological needs of the Covered Species.

to minimize and mitigate any impacts of incidental take on the ITP species and, with respect to the covered ESP species, to comply with the CCAA standards. See Master Response 8.

Response to Comment G4-8

See Master Response 1

Response to Comment G4-9

See Master Responses 1 regarding baseline conditions, and Master Response 17 regarding road density.

Response to Comment G4-10

To clarify, implementation of the Operating Conservation Program is not intended to result in a 70 percent reduction in sediment delivery from roads or management-related landslides, but a 70% reduction in management-related sediment delivery from landslides in the SSS zones. The Services recognize AHCP/CCAA Section 6.1.2.2.4, Number 2, which states as the Plan's biological objective: "Achieve a 70 percent reduction in sediment delivery from management-related landslides in harvested steep streamside slopes compared to delivery volumes from appropriate reference areas within clearcut stands." However, the Services also recognize that, for the reasons discussed in Master Response 12, biological goals and objectives are not themselves enforceable in this Plan. This said, the Plan does not propose to reduce road related sediment delivery by 70 percent. By the end of the term of the Permits, road-related sediment is expected to be reduced by 90% (AHCP/CCAA Appendix F). The various elements of the road program, including risk assessment, watershed and sub-watershed prioritization, road assessment, and the implementation standards are described in AHCP/CCAA Sections 6.2.3 and 6.3.3. The riparian conservation measures in AHCP/CCAA Section 6.2.1 do not allow road construction to occur in RMZs with the exception of very specific reasons that must be explained and justified (see AHCP/CCAA Section 6.2.3.11.5). Additionally, there are specific measures in the Plan to avoid new road construction on all MWPZs (i.e., steep streamside slopes, headwall swales and deep seated landslides) and shallow rapid landslides.

Response to Comment G4-11

See response to Comment G4-7.

Appendix E of the AHCP/CCAA states that recent TMDL studies found a 30% - 300% increase in erosion due to timber management influences during the period since the CFPRs were enacted. The Plan cites that these results should be viewed with caution owing to the different scales and methods employed on each of these studies. Further caution is advised in comparing these results to actual current forest management impacts due to annual incremental increases in protection provided by the evolving rules. For example, the Threatened and Impaired rule package (14 CCR 916.9) was passed in 2000, which means the past 4 years of standard practices are more conservative than the previous 25 years of standard practices. Also, although the studies were reported to cover the period of only the last 30 years, it is likely that residual legacy impacts were unknowingly or inadvertently included in the data, such as, for example, sedimentation from a poorly placed road (either by surface erosion or mass wasting) that would not be permitted (or even proposed) under current standards of practice. This example reinforces the caution of extrapolating results due to different methodologies of data collection and study design. Lastly, the Plan proposes to minimize and mitigate the impact of take with a suite of conservation measures (AHCP/CCAA Section 6.2), including, among others, aggressive road management measures (AHCP/CCAA Section 6.2.3) and riparian management measures (AHCP/CCAA Section 6.2.1). The Services believe that implementation of the Operating Conservation Program as a whole will meet the ESA Section 10(a) Permit issuance criteria, which are discussed in AHCP/CCAA Section 1.4.1 and Master Response 8.

Response to Comment G4-12

See response to Comment G3-44 and Master Response 18. Further, site specific survey data collected within the Plan Area and those of Diller and Wallace (1996 and 1999), all presented in AHCP/CCAA Appendix C11, indicate that the covered amphibian species do not require wide no-cut buffers. Therefore, the Services believe that the buffers for RMZs as provided for in AHCP/CCAA Section 6.2.1 are expected to adequately protect the covered amphibian species.

Response to Comment G4-13

All Plan measures were reviewed to ensure that such subjectivity would not exist as to make implementation difficult or the Plan itself unenforceable. The Plan has extensive analytical support and an objective and sound rationale for the Plan's conclusions (see generally AHCP/CCAA Sections 2 through 5 and the Appendices) and the resulting measures contained in the Operating Conservation Program (AHCP/CCAA Section 6.2). The AHCP/CCAA Section 7 analyzes the effectiveness of the Plan's conservation strategy. The AHCP/CCAA Section 7's analysis extends the AHCP/CCAA Section 4's assessment of the current conditions for the covered species in the area where the Plan will be implemented and the AHCP/CCAA Section 5's assessment of the potential impacts of covered activities that may result in take and the types of effects that such take may have on covered species. In AHCP/CCAA Section 7, all possible impacts of take that may occur are examined, together with their relative significance to each of the covered species by category and in relation to all potential impacts and measures.

Response to Comment G4-14

The commenter referred to a workshop that was held on March 18 and 19, 1999. The statistician the commenter refers to presented mean bankfull widths for Cañon Creek, indicating that the mean bankfull width increased from 47.4 feet in 1995 to 62.1 feet in 1996. The statistician indicated that this statistically significant increase in mean bankfull width was a result of a large flood event with approximately a 10 year recurrence interval. The statistician did not indicate that, during the course of the study, the channel

G4-13 Overall, the AHCP/CCAA invokes extremely subjective, discretionary provisions with no analysis of how the measures would impact the Covered Species.

VI. LACK OF QUANTITATIVE ANALYSIS THROUGHOUT

G4-14 The AHCP/CAA lacks any quantitative analysis and is instead replete with broad, unsubstantiated statements. The following excerpts from Section 7 are illustrative: "The increased pool habitat will help avoid displacement or minimize the effects of displacement of juvenile salmonids caused by peak flows," and "Over time, this conservation measure will increase the amount of LWD in streams, which will ultimately increase overwintering habitat for juvenile salmonids. Large woody debris recruitment will mitigate the impacts of displacing Covered Species that results from altered hydrology by providing increased habitat alternatives for juveniles that are displaced during a storm event." These statements beg the questions: How much pool habitat will be increased? What will the peak flows levels be? Will the increase in pool habitat be enough to mitigate the altered peak flows so that the necessary natural/ biological conditions are met? How much LWD will be increased in the streams? How does this compare to natural quantities of LWD? What type of altered hydrology, in what quantities will occur? Will the amount of increased habitat alternatives be enough to maintain populations of juveniles?

G4-15 Other general questions unanswered by the AHCP/CCAA are: How do the management goals compare quantitatively with the current regulatory statutes that Simpson is already beholdant to by state and federal law? What are the effects of current management practices on the Covered

G4-16 Species in the Plan Area? How will the each specific conservation management practice address the impacts of Covered Activities on the Covered Species? These crucial questions are not answered anywhere in the AHCP/CCAA or the DEIS. The strongest approach at causal language relating practices under the Proposed Plan to effects on Covered Species are illustrated in this example from Section 5.3.4 "Negative effects of excess course sediment on pool habitat are believed to be potentially significant for the salmonid Covered Species." This lack of quantitative analysis is simply unacceptable and all broad conclusion about the impact of the Covered Activities on the Covered Species are grossly unsubstantiated.

G4-17 DEIS Section 4, Environmental Consequences: "The conservation measures under the Proposed Action are anticipated to minimize the potential impacts that could otherwise result from altered hydrology in the Promary Assessment Area. They would reduce the impacts of forest management on surface runoff and peak flows, reduce soil compaction and disturbance, and maintain or enhance in-channel LWD. Any impacts to hydrology and water quality that would occur would be mitigated by improved riparian conditions resulting from riparian management and decreased sediment production and delivery, as described below." Unfortunately, the following discussion does not contain the necessary quantification of impacts on the Covered Species. Therefore, the general conclusions of no negative effects that the DEIS claims are unsubstantiated.

increased to 150 feet as the commenter indicated. The channel shift that occurred in the Mad River in 1998 has extended the low flow confluence of Cañon Creek further downstream which may limit early access of anadromous salmonids. However, data submitted by Green Diamond in support of its Plan indicates that since the 1996 flood event, anadromous salmonid access into Cañon Creek has occurred, including coho salmon, even in low flow years. See AHCP/CCAA Section 4.4.8.7.1.

Response to Comment G4-15

The ESA does not require a quantification of conservation benefits for ITPs, but instead that a Permit applicant's conservation program minimize and mitigate the impacts of authorized incidental take of covered species that may result from covered activities "to the maximum extent practicable" (50 CFR 17.32(b)(2)(i)(B)). See Master Response 9. Both qualitative and quantitative analyses are acceptable and desirable in the context of an HCP/CCAA (*National Wildlife Federation v. Babbitt*, 128 F.Supp.2d 1274, 1291 [2000]). The management measures Green Diamond has elected to include in its Operating Conservation Program are set forth in AHCP/CCAA Section 6.2 and the biological goals and objectives upon which they have been developed are set forth in AHCP/CCAA Section 6.1. Implementation of the Operating Conservation Program will minimize and mitigate the impacts of incidental take as described in the Plan and ensure that such take does not jeopardize the continued existence of the covered species and will protect and, where needed, allow development of the functional habitat conditions that are required for long-term survival to support well-distributed, viable populations of the covered species. Further, the Plan will meet the ESP/CCAA standards set forth in the AHCP/CCAA Section 1.4.1 and in Master Response 8 with regard to the unlisted covered species subject to USFWS jurisdiction. Accordingly, the Operating Conservation Program (AHCP/CCAA Section 6.2) complies with current regulatory requirements. Further, approval of the Plan and issuance of the Permits fits into a larger context that includes, among other things, the CFPRs and other State law, Green Diamond's NSO HCP and other conservation efforts. See AHCP/CCAA Section 1.4.

Response to Comment G4-16

AHCP/CCAA Section 7 specifically describes how the conservation measures will address the impacts of taking on the covered species and describes the expected effectiveness of the measures to achieve their purposes. The measures included in the Operating Conservation Program are considered as a whole, rather than separating out the benefits of each measure. In addition, as stated in AHCP/CCAA Section 1.4.2, Green Diamond's current management practices fall under the guidance of CFPRs and Green Diamond's NSO HCP. See AHCP/CCAA Section 1.4.3. In addition, Green Diamond's management practices are subject to other resource conservation efforts including the Salmon Creek Management Plan and the Management Strategies for the Little River Watershed, and cooperative agreements such as those with the Yurok Tribe and the Coastal Conservancy, Redwood National Park and other agreements as outlined in AHCP/CCAA Section 1.4.4. The net effect of these management practices is that significant protection currently is being provided to the covered species, water quality and aquatic habitats. Quantification of benefits has been provided where possible. For example, the Plan predicts that measures to treat high- and moderate-risk sites in the road implementation plan will stabilize approximately 48 percent of the road-related sediment in the first 15 years of the Plan, as opposed to only 19 percent without the Plan. It is not known how much pool habitat will be increased as a direct result of the reduction of sediment inputs to the stream, and the ESA does not require the Services to quantify the benefits to the covered species covered by the Permits, as long as the criteria for Permit issuance have been met. (See also Master Response 8.) In other words, the Plan as a whole, including each of the individual measures, will supplement existing mechanisms to protect the covered species and their habitats in the Plan Area over the term of the Plan and Permits.

Response to Comment G4-17

The text of the EIS quoted in the comment is from the description of environmental consequences on hydrology and water quality (EIS Section 4.3). Accordingly, it would not be appropriate to include a discussion of the impacts on the covered species in this Section. In contrast, the discussion of potential impacts to aquatic resources (EIS

Section 4.4) focuses on the effects of the Proposed Action on hydrology, riparian conditions, sediment production and delivery, and aquatic habitat. Where possible and based on the availability of data specific to the Primary Assessment Area and the 11 HPAs, these effects are quantified or described (e.g., LWD recruitment, stream shading, water temperature, sediment production and delivery) in support of the stated conclusion. Potential impacts to the covered species are discussed in more detail in EIS Section 4.5.

Response to Comment G4-18

For the reasons discussed in responses to Comments G4-6, G4-14 through G4-17, G4-19 and Master Response 8, the Services disagree with the premises of this comment and its conclusions. Based on these responses and other information contained in the Plan, the Services believe that the requirements of ESA Section 10(a)(2)(A) have been satisfied.

Response to Comment G4-19

The referenced statement was not made with respect to all impacts of timber harvesting but in relation to the subject of altered hydrology. As explained in AHCP/CCAA Section 5.2, the potential impacts of altered hydrology are complex. AHCP/CCAA Section 5.2.2 provides the following example of the difficulty in determining the extent to which watershed hydrology is actually altered by timber harvesting activities and, similarly, the extent to which such altered hydrology may negatively impact the covered species:

“For example, management-altered hydrology has the potential to harm both the early stages of development (eggs and alevins) as well as over-wintering juvenile salmonids. On the other hand, the effects of altered hydrology may be beneficial for adults returning to spawn in the fall and summer juvenile populations. Therefore, depending on which potentially limiting factors are actually limiting for salmonid production in a given sub-basin, some levels of altered hydrology may be beneficial. However, if other factors are limiting, altered hydrology may cause take and lead to local declines in populations of salmonids. For instance, if summer water temperatures are limiting, increases in summer base flows

V. IMPACTS OF AHCP/CCAA ON THE COVERED SPECIES NOT ADEQUATELY ASSESSED

G4-18 [Given that the current status of the Covered Species is not adequately described (II. and IV. above) and that the potential impacts of the timber management activities (II. And IV. above and next paragraph) nor the conservation measures (III. and IV. above) are not sufficiently presented, it is clear that the AHCP/CCAA fails to assess its potential impacts on the Covered Species. Thus, the AHCP/CCAA expressly fails to meet the requirements of the Endangered Species Act (ESA) which mandates that an HCP must ensure that the effects of the authorized incidental take will be adequately minimized and mitigated to the maximum extent possible (ESA 10(a)(2)(A)). As such, if the AHCP is approved in its current form, it will violate the ESA.

G4-19 [Additionally, Section 5 of the AHCP/CCAA concludes in sections that it is “difficult to assess” the impacts of timber harvesting on Covered Species. Although unambiguous scientific evidence may be lacking in this particular case (because the background data has not been adequately presented), it is a recognized fact that timber harvesting is a principal cause of the decline of salmonid populations, and that lack of protection from timber practices contributed largely to the listing of these species under the federal and state ESAs (see Lippe and Bailey 2001). Even the source that the AHCP/CCAA cites numerous as an authority on the biological effects of logging on salmonids (Spence et al. 1996) unambiguously states that logging “alter(s) watershed processes, resulting in degradation of streams, lakes, and estuaries.” Simpson’s claim of scientific ignorance is unacceptable given the established link between logging practices and degradation of salmonid populations.

G4-20 [In several parts of Section 7 of the AHCP/CCAA, there are blanket statements that the conservation plan will benefit the Covered Species. For example, 7.2.1.2.3 states: “A benefit of tree retention with regard to slope stability on deep-seated landslides, headwall swales, and SMZs is the maintenance of forest canopy, which will preserve some measure of rainfall interception and evapotranspiration...[which] is expected to contribute to acceptable slope stability conditions in some locations through partially mitigating high ground water ratios that may be management related.” In addition to the fact that “acceptable” conditions will occur in only “some” locations (implying that unacceptable conditions will occur in others), this statement is not backed up with an analysis of the benefits of the conservation plan measures and how they, quantitatively compare to the detrimental impacts of timber harvesting activities. This is one example among many in this section that demonstrate the lack of a meaningful assessment of the effectiveness of this AHCP/CCAA.

VI. LACK OF CUMULATIVE EFFECTS AND WATERSHED/ DOWNSTREAM EFFECTS ANALYSES

An EIS must analyze “cumulative actions, which when viewed together have cumulatively significant impacts.” (40 C.F.R. 1508.25(a)(2).) “Cumulative impact” is defined by NEPA as the impact on the environment that results from “the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal

could be beneficial. In contrast, increases in winter peak flows could cause take and lead to local declines if spawning or over-wintering survival rates were limiting.”

Notwithstanding the challenge associated with this analysis, the Plan meets its obligation to conduct the analysis. To counteract possible effects associated with uncertainty in this regard, the Plan provides measures to avoid or minimize and mitigate any negative impacts that could result from altered hydrology and provides that such measures will be implemented in each of the HPAs regardless of whether altered hydrology is, in fact, the habitat factor in individual HPAs that appears to be limiting for the covered species, their habitats, or the proper functioning of healthy aquatic/riparian ecosystem within that HPA, e.g., see AHCP/CCAA Section 6.2.3 (road management measures) and Section 6.2.4 (harvest-related ground disturbance). Accordingly, the Plan contains an adequate assessment of the potential impacts of take relating to altered hydrology and includes measures that are adequate to address such impacts by imposing them throughout the Plan Area regardless of whether they are actually occurring or will occur.

Response to Comment G4-20

The Plan is designed so that its conservation measures as a whole not only minimize and mitigate individual impacts of take, but also would result in improvements in habitat conditions for the covered species. The analysis in AHCP/CCAA Section 7 extends the AHCP/CCAA Section 4 assessment of the current conditions for the covered species in the area where the Plan will be implemented and the AHCP/CCAA Section 5's assessment of the potential impacts of covered activities that may result in take and the types of effects that such take may have on covered species. The AHCP/CCAA Section 7 assesses the benefits of the conservation strategy's effectiveness in meeting the purposes of the Plan - it examines all possible impacts of take that may occur, together with their relative significance to each of the covered species by category and in relation to all potential impacts and measures. This analysis, along with the EIS, provides a basis upon which the Services may determine that the Plan, as revised in response to comments, meets the ESA Section 10(a) issuance criteria.

As discussed in response to Comment G4-15, there is no obligation to use quantitative analysis only. Qualitative analysis is also useful in the HCP context.

Response to Comment G4-21

The statement that the Plan contains an admission that cumulative impacts from the Plan exist is based on a misreading of the reference statement in the Plan. The referenced section of the Plan actually states that certain sediment-related impacts, as a type of impact, are cumulative in nature and then goes on to explain how Plan measures are designed to minimize such impacts. Master Response 3 discusses the Plan’s cumulative effects approach and conclusions in greater detail.

Implementation of the Operating Conservation Program as a whole will provide maintenance and improvement of properly functioning habitat and related environmental conditions, for the benefit of the covered species and their habitats and will contribute to conservation efforts intended to preclude or avoid a need to list the ESP species in the future. See AHCP/CCAA Sections 4, 5, 6, and 7.

Response to Comment G4-22

This comment reflects a misreading of the analysis contained in the Plan. The referenced statement explains how certain types of environmental conditions can result from the type of activities covered by the Plan-if such impacts are not minimized or mitigated. As explained, the Plan contains numerous measures to minimize and mitigate such impacts, and a number of its measures are intended to improve existing conditions (see AHCP/CCAA Sections 5 and 7.4, EIS Sections 4.2.8, 4.3.8 and 4.4.8, among others, and Master Response 3).

or non-federal) or person undertakes such other actions.” (40 C.F.R. 1508.7). In addition an EIS must examine “reasonable options” for avoiding or mitigating any significant cumulative effects identified. (40 C.F.R. 1508.25).

Early in Section 5.7, the critical question of cumulative impacts is raised correctly as : “In the case of issuance of an ITP/ESP, the cumulative effects issue is whether the incremental impacts of take, when combined with impacts from other projects, will appreciably reduce the likelihood of survival and recovery in the wild of any Covered Species (the ‘jeopardy’ standard’); if so, the AHCP/CCAA would fail one of the significant approval criteria for both ITPs and ESPs.”

G4-21 Unfortunately the cumulative impacts assessment in the AHCP/CCAA is inconclusive, contradictory, and quantitatively inadequate. The AHCP/CCAA does admit that cumulative effects from the plan exist. In Section 5.3.4, in discussing the impacts of timber harvesting on sedimentation, it is stated that “The impacts are generally cumulative in nature.” Another admission which relates to Large Woody Debris (LWD) states: “The decline of recruitment of potential LWD from riparian zones can be expected to reduce LWD recruitment to streams for decades following timber harvest of riparian areas...[and] in larger streams lower in the watershed... the impacts may be cumulative.” Soon thereafter, this admission is contradicted in Section 5.7 which states: “[T]he incremental effect of Plan implementation will be positive compare with existing baseline conditions and will result in generally improving habitat conditions for native salmonids over the term of the Permits in all HPA. Therefore, Plan implementation will not result in negative cumulative effects.” Clearly, the only way that this illogical conclusion could be reached is through the use of the inappropriate baseline conditions of current logging practices perpetuated into the future (see I. above). In Section 7.4, the understanding of the true cumulative effects are demonstrated: “cumulative impacts could result from the spatial and temporal interactions of factors such as water temperature, hydrology, nutrients and barriers to movements with sediment and LWD.” The above contradictions included in the AHCP/CCAA regarding cumulative impacts are unacceptable. Further, the broad generalizations and unsubstantiated conclusions regarding this issue make it impossible to assess the validity of claims regarding the cumulative impacts, be they taken as positive or negative.

G4-23 Although entitled “Cumulative Watershed Effects,” Appendix E.5 of the AHCP/CCAA fails to address the cumulative effects of the specific Covered Activities on the Covered Species. Instead, this section is only a broad definition of cumulative watershed effects, with examples that may or may not apply to the Plan Area, and with no plan specific assessment provided.

G4-24 Section 4.3.7 of the DEIS claims that “Overall, the cumulative effect of all these resource management programs would be to protect and/ or improve hydrology and water quality conditions in each of the 11 HPAs beyond currently existing levels and beyond levels that would be expected under the No Action Alternative.” Clearly this is another case where the use of the inappropriate baseline (see I. above) is used to make a false conclusion, this time in relation to cumulative effects. Therefore, the conclusion in ES-7.3 of the DEIS that “Because the overall effect of implementation would result in net environmental benefits, implementing either the

See Master Response 1 for a discussion of the appropriateness of the baseline.

Response to Comment G4-23

See Master Response 3. The Services believe the Plan's analysis of potential cumulative effects and the measures it proposes to address such potential effects are sufficient to accomplish the purposes explained in the Plan.

Response to Comment G4-24

As noted in EIS Section 4.1.2.1 (NEPA Requirements for Cumulative Impacts Assessment), CEQ regulations state that "the range of alternatives considered [for cumulative impacts analyses] must include the No Action Alternative as a baseline against which to evaluate cumulative effects" (40 CFR 1508.7). As discussed above in the response to Comment G4-2, the CEQ notes that the "no action" alternative may be thought of in terms of continuing with actions where ongoing programs and activities (such as timber harvesting pursuant to the CFPRs and road construction) will continue, even as new plans are developed. (<http://ceq.eh.doe.gov/nepa/regs/40>). For the purposes of this Plan and these Permits, the No Action Alternative equates to "no change" from current management direction or level of management intensity. See Master Response 1 regarding current baseline conditions and Master Response 2 regarding the No Action Alternative.

Response to Comment G4-25

For the reasons discussed in Master Response 3 and based on analysis provided in the EIS, the Services respectfully disagree with this comment.

Response to Comment G4-26

See Master Response 3.

Response to Comment G4-27

The ESA provides that ITPs must be issued pursuant to “otherwise lawful activities.” As explained in AHCP/CCAA Section 1.4.2, the CFPRs will continue to govern Green Diamond’s THP process, and those rules have provisions for recognizing HCPs approved by the Services in addressing certain requirements of the rules. Additional discussion of the CFPRs is provided in Master Response 7.

Response to Comment G4-28

The ESA requires the Services to determine that an ITP applicant will meet the ESA Section 10(a) approval criteria, e.g., to minimize and mitigate the impacts of take to the maximum extent practicable and that such take will not appreciably reduce the likelihood of survival and recovery of the species in the wild. ESP applicants must include in the operating conservation program of a CCAA measures that, if combined with other conservation measures implemented on all other necessary properties would remove or preclude the need to list the species in the future. It is not necessary for each individual measure included in the Operating Conservation Program (AHCP/CCAA Section 6.2) to exceed the provisions of the California FPRs to satisfy the requirements of the ESA. The ESA Permit issuance criteria are described in AHCP/CCAA Section 1.4.1 and Master Response 8.

G4-25
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G4-29
G4-30
G4-31

proposed AHCP/CCAA or the action alternatives in conjunction with other management actions would not likely result in cumulative impacts.” is unacceptable and must be revisited.

In addition to the required cumulative effects analysis, the AHCP/CCAA and DEIS fail to consider larger-scale watershed and downstream effects. Section 1.3.2.4.1 and Table 1-2 of the AHCP/CCAA indicate that of the nine coastal drainages covered, the current ownership ranges from 0.3-88%. What are the effects to the downstream areas not covered in the Plan Area? This is particularly important in terms of possible effects on surrounding public lands. These documents must address the fact that the management practices may effect more than just the Plan Area owned by Simpson.

VII. AHCP/CCAA MANAGEMENT DOES NOT GO BEYOND STATUS QUO CALIFORNIA STATE FOREST PRACTICES RULES (FPRs)

As written, it is difficult to discern whether the management prescriptions under the AHCP/CCAA comply with current California State Forest Practices Rules. The AHCP/CCAA needs to clearly identify all mitigation measures and quantify if and how they differ from current FPRs.

In areas where the prescriptions are comparable to the FPRs, often the AHCP/CCAA does not go significantly beyond the already required statutes. For example, the total zone widths for RMZs are in line with the maximum required under the FPRs. Therefore, implementing this plan does not increase riparian zone protections beyond that already covered by state law.

Additionally, it has been well documented that the FPRs in California are inadequate to protect species of concern. It has even been established that this insufficient protection has contributed directly to the need to list some of the Covered Species under the Federal Endangered Species Act (Lippe and Bailey 2001). Therefore, this perpetuation of status quo management practices does not minimize or mitigate environmental impacts to the level required for an issuance of an Incidental Take Permit.

VIII. COHO COMMENT

Beyond the comments above, Defenders would like to address that is unclear how the AHCP/CCAA would meet currently unidentified recovery objectives for the Southern Oregon-Northern Coastal California coho ESU. This species is found within the Plan Area and a species recovery plan is in process for this salmonid. Not only will Simpson need to address the needs of this species in or out of the context of an HCP, but California state regulations will invoke Section 2081 of the California Endangered Species Act and require an Environmental Impact Report under CEQA. Several of these requirements, notably the cumulative effects analysis, are much more stringent than those presented in the current DEIS and AHCP/CCAA, therefore strengthening the need for the comments in this letter to be addressed.

The relationship between Operating Conservation Program measures and the CFPRs is described in Master Response 7.

Response to Comment G4-29

Implementation of the Operating Conservation Program will not “perpetuate the status quo.” In addition to having to meet the requirements of all other applicable laws and regulations, the Plan imposes a new layer of requirements. The ESA requires that the applicant meet the criteria of ESA Section 10(a), which include ensuring that take is incidental to otherwise lawful activities.

Response to Comment G4-30

As the comment notes, no recovery plan objectives have been established for coho salmon. The ESA does not require ITP applicants to affirmatively recover listed species. However, implementation of this Plan will improve conditions for all of the covered species by focusing conservation efforts on the one or more factors in each of the HPAs that act on different life stages of the covered species and have a greater likelihood of limiting the survival, growth or recovery of resident populations. In addition, the Operating Conservation Program as a whole addresses potential impacts and limiting factors collectively so as to ensure that implementation of the conservation strategy will minimize and mitigate impacts of incidental take on the ITP species to the maximum extent practicable.

Response to Comment G4-31

With regard to State law issues referenced in the comment, to the Services knowledge that the applicant has not sought take authorization from the CDFG, although the Fish and Game Commission has begun the formal process for listing coho salmon under the California ESA. Both the definitions of take and the requirements for take authorization vary between State and Federal ESAs. The CEQA has a role in various aspects of Green Diamond’s activities in the Plan Area, such as when the CDF approves a THP or when the CDFG approves a Streambed Alteration Agreement under Section 1603 of the State Fish and Game Code. Pursuant to State law, Green Diamond and these agencies will address CEQA issues as they arise.

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Response to Comment G4-32

Comment noted. Please see responses to Comments G3-1 through G3-97 (Daniel Hall's comments).

IX. INCORPORATION OF AMERICAN LANDS' COMMENTS


G4-32

Defenders has had the opportunity to review the comments on these documents submitted on behalf of American Lands' by Daniel Hall. We agree with his assessment and hereby incorporate those concerns into these by reference.

X. CONCLUSION

Overall, the quality and content of the ACHP/CCAA and DEIS are inadequate and do not meet statutory requirements under NEPA or the ESA as set forth above. As such, these comments must be addressed before an Incidental Take Permit can be issued to Simpson for the Covered Species.

Sincerely,


Cynthia Wilkerson
California Species Associate

X. Literature Cited

Lippe, T.N. and K. Bailey. 2001. Regulation of logging on private land in California under Governor Gray Davis. Golden Gate University Law Review, 31(4): 1-17.

Spence, B.C., G.A. Lomnický, R.M. Hughes, and R.P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. Corvallis, OR. Man Tech Environmental Research Services Corporation.

Welsh, H.H., Jr., T.D. Roelofs, and C.A. Frissell. 2000. Aquatic ecosystems of the redwood region. Pages 165-200 in R.F. Noss, ed., The Redwood Forest: History, Ecology, and Conservation of the Coast Redwoods. Island Press, Covelo, California.

Letter - G5. Signatory -Friends of the Van
Duzen.

Swift, Richard/SAC

From: JB [james.f.bond@noaa.gov]
Sent: November 18, 2002 7:38 AM
To: Garwin Yip; Swift, Richard/SAC; Neal Ewald
Cc: Amedee Brickey (E-mail)
Subject: [Fwd: Simpson Habitat Conservation Plan]



Citizens Comment
to Simpson SY...

----- Original Message -----

Subject: Simpson Habitat Conservation Plan
Date: Sun, 17 Nov 2002 22:46:33 -0800
From: Steinberg Family <stein@humboldt1.com>
To: amedee_brickey@fws.ca.gov, James.F.Bond@noaa.gov

Enclosed you will find an attachment with Friends of the Van Duzen comments on the Simpson HCP. Information on TMDL are on Palco lands but we believe that Simpson's HCP does not adequately address the sedimentation issues. Thank you for including these comments on the Simpson HCP.

Sal Steinberg
Community Representative
Friends of the Van Duzen
PO Box 315
Carlotta, Ca.95528

Response to Comment G5-1

The Van Duzen River is part of the Eel River HPA. See AHCP/CCAA Section 4.4.11. Specific information regarding the Van Duzen, including its 303(d)-listed status, geology and vegetation, and the presence or absence of the covered species in or near its waters are considered in the Plan. See, e.g., AHCP/CCAA Sections 4.3.6, 4.4.11.3, 4.4.11.5, 4.4.11.8 and Table 4-14. Green Diamond's Operating Conservation Program is based on information about the covered species, their status and habitat conditions, on an HPA-by-HPA basis. AHCP/CCAA Section 5 assesses the potential impacts to covered species and their habitats that may result in take, AHCP/CCAA Section 6 includes biological goals and objective and the Operating Conservation Program, and AHCP/CCAA Section 7 builds on earlier analyses to draw specific conclusions regarding the effectiveness of the conservation strategy, including the portion of the Van Duzen River within the Eel River HPA.

G5-1

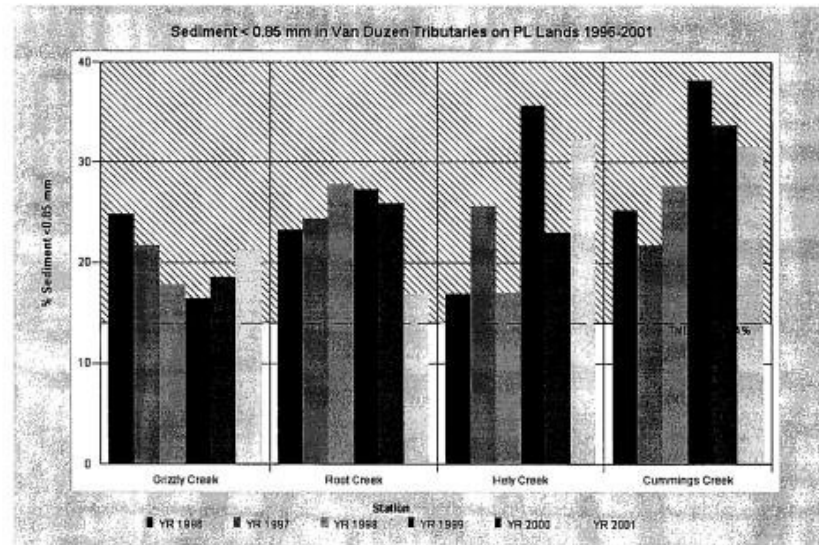
**Friends of the Van Duzen
Comment to Simpson Habitat Conservation Plan**

One of the major purposes of a Sustained Yield Plan is to insure the protection of the watershed especially in regards to preserving habitat for fish, amphibians, and reptiles. Simpson's timber harvest plans in the Van Duzen watershed especially their cutting across from Wilder Road have contributed large amounts of fine sediment to the Van Duzen mainstem, caused flooding for residents, and destroyed the aesthetic viewshed. Simpson's large clearcuts in the Stevens Creek drainage above Grizzly Creek have caused landslides, contributed fine sediment to the Van Duzen tributaries, and affected the very vulnerable marbled murrelet population.

The Van Duzen River watershed has reached a critical time. Once a thriving coho, Chinook, and steelhead population, the latest California Dept. of Fish and Game study shows that the coho is almost extinct and that the Chinook and steelhead are seriously endangered. In the PALCO watershed assessment for the Van Duzen, in the amphibians and reptiles section, Tetra Tech divided their research into 33 geomorphic units. 25 out of 33 units did not meet properly functioning conditions for turtles, salamanders, or the tailed frog due to fine sediment and embeddedness. How does the Simpson study adequately address the protection of species along the Van Duzen?

In 1999 the Environmental Protection Agency The levels of fine sediment in the Van Duzen are well beyond the thresholds set for Total Maximum Daily Load. Here is the data from the PALCO study.

KRIS Coho
Area: Van Duzen
Topic: Sediment: Fines <0.85mm Van Duzen Tribs 1996-2001



The percentage of fine sediment less than 0.85 mm in all Van Duzen River tributaries draining PALCO lands is higher than thresholds set by the U.S. Environmental Protection Agency for the Garcia River (14%) in all years since 1996. Hely and Cummings Creek have extremely high fine sediment in this size class indicating active sediment sources. Fine sediment levels in all these streams

Response to Comment G5-2

The Plan recognizes the regulatory status of the Van Duzen under the CWA Section 303(d) process as water quality limited for sediment. AHCP/CCAA Section 4.3.6, Table 4-3. The existing sediment load is a baseline condition (see Master Response 1) and the potential for increased sediment input has been identified as a potential impact to the covered species and their habitats (AHCP/CCAA Section 5.3; Appendix E). AHCP/CCAA Section 6.1.2.2.4 includes a biological objective for reducing sediment delivery into watercourses. This and the other biological goals and objectives set forth in AHCP/CCAA Section 6.1 were used to guide development of specific measures that are included in the Operating Conservation Program (AHCP/CCAA Section 6.2). Implementation of the Operating Conservation Program will minimize and mitigate the impacts of take to the maximum extent practicable and ensure that such take will not appreciably reduce the likelihood of survival and recovery of the covered species in the wild. See Master Response 8. If results of the monitoring program (AHCP/CCAA Section 6.2.5) demonstrate that adjustments to the Operating Conservation Program are necessary, the adaptive management program (AHCP/CCAA Section 6.2.6) provides a mechanism to adjust the conservation measures. See AHCP/CCAA Section 6.3.5.1.2 regarding the “feedback loop” between the Monitoring Program and the Adaptive Management Program.

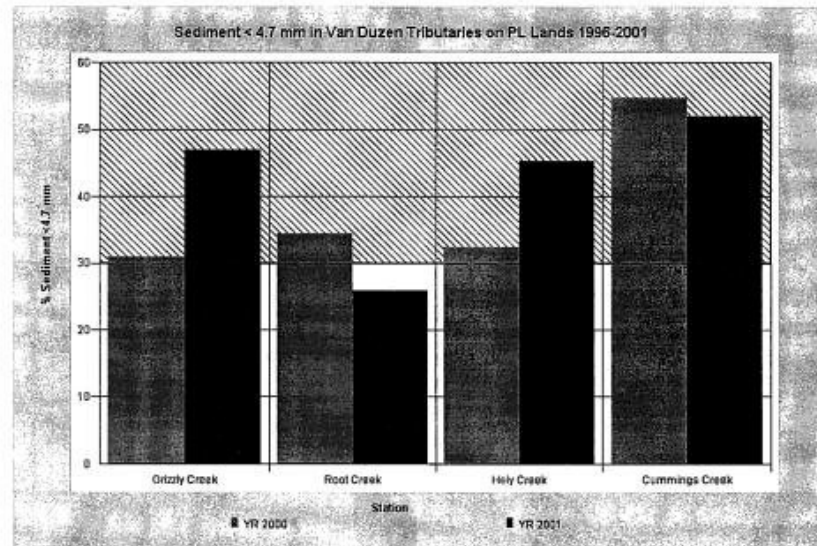
The commenter wants to know how the Plan addresses the “TMDL issue.” To the Services’ knowledge, Green Diamond has not applied for any CWA or State Porter-Cologne Act approvals uniquely associated with TMDLs. However, as discussed above, the Plan has taken into account water quality issues associated

are so high that they are likely to infiltrate salmon and steelhead redds and cause increased egg and alevin mortality. Road densities are very high and may be the source of high fine sediment levels in some streams but logging has also been active and has triggered many landslides.

G5-2

The Simpson study does not adequately address the problem of sedimentation in the Van Duzen River Watershed. It does not adequately address the TMDL issue. According to the Kelsey study, the Coastal Range is the most erosive in all of North America. How does Simpson justify their policy of continued clear cutting in the Van Duzen Basin, and the discharge of sediment into the rivers and tributaries. How does the SYP address the need for monitoring stations to measure sediment discharge in an impaired watershed? Further studies of fine sediment on Palco lands show the following.

KRIS Coho
Area: Van Duzen
Topic: Sediment: Fines <4.7 mm Van Duzen Tribs 1996-2001



The percentage of fine sediment less than 4.7 mm in all Van Duzen River tributaries draining PALCO lands was higher than thresholds set by the U.S. Environmental Protection Agency for the Garcia River (30%) in 2000 at all sites and all but Root Creek in 2001. High fines of this size infiltrate stream gravels forming an impervious layer and capping salmon and steelhead redds preventing emergence of fry. While fines less than 0.85 mm move out of stream systems quickly, sand sized particles cycle downstream slightly slower. Grizzly, Hely and Cummings Creeks all show acute problems with fines of this size, which are undoubtedly limiting salmon and steelhead survival. Sand would be cleared

with the 303(d) TMDL process. Given that the Permits are issued “incidental to otherwise lawful activities,” Green Diamond is responsible for ensuring compliance with Federal or State water quality laws and regulations (see AHCP/CCAA Section 1.4). Further, the biological goals and objectives of the Plan are consistent with the goal of the TMDL process of reducing sediment input in water bodies impaired by sediment. The Plan includes measures to reduce sediment inputs from legacy conditions on the landscape in the Road Implementation Plan and accelerated sediment reduction measures described in AHCP/CCAA Section 6.2.3 and 6.3.3 and to assess the effectiveness of such measures (AHCP/CCAA Section 6.2.5).

Response to Comment G5-3

The Federal processes of approving the Plan and issuing the Permits is independent of the TMDL process. However, as described above, the Plan addresses sediment input and other water quality issues throughout. The status of certain waterbodies within the Plan Area as water quality-impaired is discussed in AHCP/CCAA Section 4.3.6 and depicted in Table 4-3. Green Diamond must continue to comply with all applicable laws and regulations, including those under the jurisdiction of the State Water Resources Control Board and appropriate RWQCBs, including any duly adopted TMDL implementation plan. See AHCP/CCAA Section 1.4.2. As noted in AHCP/CCAA Section 1.4.5, the Plan serves many uses. In addition to satisfying ESA requirements regarding authorization for incidental take, the Operating Conservation Program (AHCP/CCAA Section 6.2) will address other significant, closely-related issues including water quality.

Response to Comment G5-4

Descriptions of the covered species and their habitats, including coho and Chinook salmon, are provided in AHCP/CCAA Section 3 and Appendix A. Specific information about Chinook salmon spawning habitat is provided in AHCP/CCAA Table 3-1. AHCP/CCAA Section 3 and Section 4.4 describe all of the covered species (listed and unlisted) and their status in the Plan Area on an HPA-by-HPA basis and these species' habitats and habitat conditions on an HPA-by-HPA basis. AHCP/CCAA Section 6.2 sets forth the Operating Conservation Program that focuses conservation resources on the habitat characteristics that

from a stream after several years of recovery from erosional events and extremely elevated levels indicate active sources not legacy problems.

G5-3 **How does the Simpson Habitat Conservation Plan address the need for establishing and enforcing a true TMDL?**

G5-4 The issue in the Van Duzen is indeed the buildup of fine sediment and its effect on aquatic species. Now that coho are almost extinct can Chinook spawn in the sediment choked beds? How does the Simpson Study adequately address the issue of fisheries.

The Grizzly Creek area is a large concern. Huge clearcuts by Simpson in the Stevens Creek Watershed have contributed to an instability in the area. Studies by California Dept. of Fish and Game show that there exists only about a dozen nesting pairs of marbled murrelets in the Grizzly Creek area.

G5-5 **How does the Simpson study attempt to deal with the marbled murrelet. There can be no take permit for this species as not many exist!**

G5-6 Lastly, how does the Simpson study attempt to evaluate the **cumulative effects to the watershed**. Even though the Environmental Protection Agency declared the basin as sediment impaired in 1999, increased timber harvest by Simpson and Palco have left the watershed in critical condition.

G5-7 The following is a graph developed by Legacy using the latest information from the California Dept. of Forestry GIS maps of timber harvest activities from 1989-2002. Notice the tremendous increase in cutting in 2001. What level of timber harvest can be expected from Simpson? What means will be taken to restore the watershed? At what level will Simpson be able to log the watershed?

The Van Duzen Watershed must be taken as a whole. Palco and Simpson are the two major land holders. The basin can not accommodate the logging of 2500 acres of lands as done in 2001.

have been scientifically determined to have the greatest impact on the survival and recovery of the covered species in the Plan Area. Based on this work, AHCP/CCAA Section 7 describes the effectiveness of the measures incorporated in the Plan in reducing sediment inputs and otherwise providing for improved conditions to result from the Operating Conservation Program. See, for example, AHCP/CCAA Section 7.2.3, regarding recruitment of LWD, AHCP/CCAA Section 7.2.4, regarding riparian microclimate and AHCP/CCAA Section 7.2.5, regarding water temperature, among others. Measures were selected for implementation over the entire Plan Area to address identified habitat features. Of particular importance to spawning habitat is the permeability of spawning gravel and the supply of LWD. Timber operations have the possibility of affecting those by increasing the potential for sediment input and by harvesting trees that otherwise would be likely to recruit to a Class I watercourse. Therefore, measures were developed to address these concerns. See, for example, AHCP/CCAA Sections 6.2.3, 6.2.4 and 6.2.1.2.4.

The Van Duzen River is part of the Eel River HPA. See AHCP/CCAA Section 4.4.11. Specific information regarding the Van Duzen, including its 303(d)-listed status, geology and vegetation, and the presence or absence of the covered species in or near its waters are considered in the Plan. See, e.g., AHCP/CCAA Sections 4.3.6, 4.4.11.3, 4.4.11.5, 4.4.11.8 and Table 4-14.

Response to Comment G5-5

The marbled murrelet is not a covered species. See AHCP/CCAA Sections 1.1, 1.3.3. Green Diamond did not seek and will not receive authorization to take this species. The EIS addressed impacts to marbled murrelets and other terrestrial species from Plan implementation. EIS Section 4.6.3.3 and Table 4.6-1 (“Wildlife Species of Concern: Habitat Associations and Potential impacts”). This species, along with all currently listed species under the jurisdiction of the USFWS will be addressed in the USFWS biological opinion.

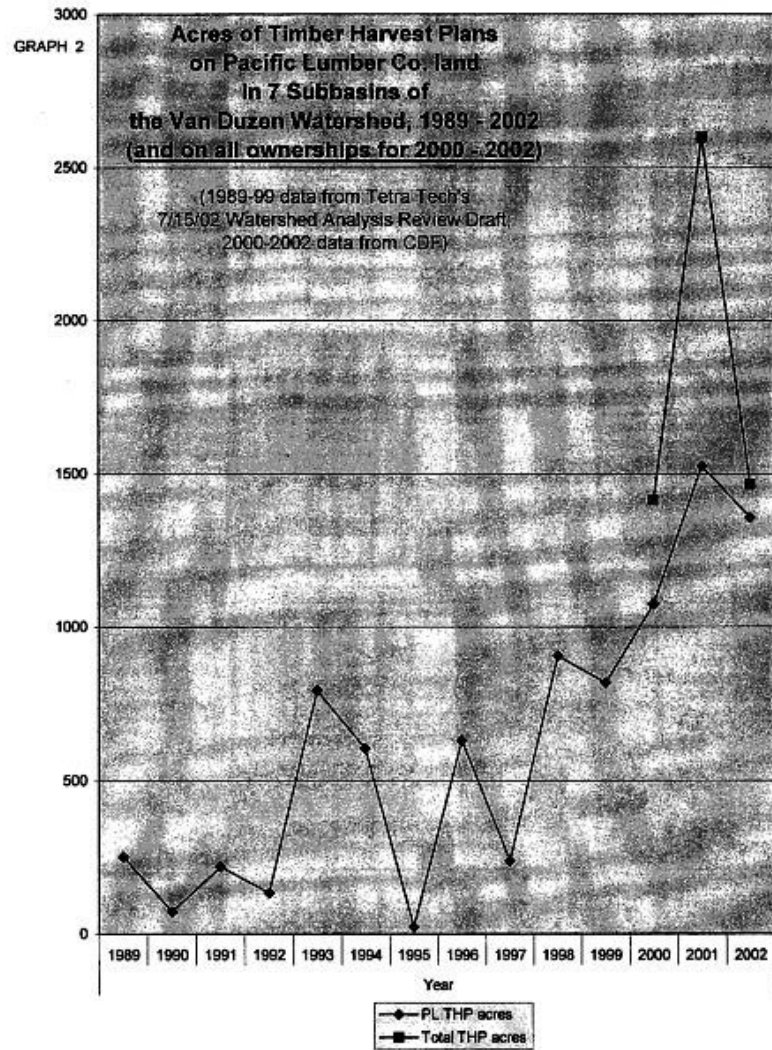
Response to Comment G5-6

Existing adverse conditions in the watershed are considered in the Plan (AHCP/CCAA Section 4.3.6) and the EIS (EIS Sections 3.3.5 and 4.2.1) as part of existing baseline conditions. See Master Response 1 regarding baseline conditions and Master Response 3 regarding the cumulative effects analysis.

Response to Comment G5-7

See Master Response 11.

Based upon information provided in AHCP/CCAA Section 4.4.11 and Table 1-1, that the Van Duzen River falls within the Eel River HPA, and that there are approximately 205,000 acres in the HPA, of which 8,000 acres are currently within the Plan Area. Presumably, nearly all of this commercial timberland will be harvested by Green Diamond sometime within the 50-year term of the Permits, since Green Diamond’s rotation age is slightly more than 50 years on average (see AHCP/CCAA Section 2.4). The Plan identifies excess sediment inputs from geologically unstable areas resulting in aggraded channels and embedded substrates as a significant factor limiting achievement of properly functioning habitat within this HPA. As described in AHCP/CCAA Section 7, implementation of the Plan is expected to contribute toward improvement of that condition.



Note: All 2002 THPs but one have not yet been approved.

Graph prepared by Robert Brothers, Legacy - TLC, for Comments by the Friends of the Van Duzen, 9/13/02
See Appendix 6, Tables 3-5 for related numerical data.

Letter - G6. Signatory - www.freeyellow.com.

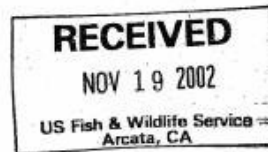
Response to Comment G6-1

All high and moderate risk sites, regardless of whether the sites are on roads appurtenant to THPs, count towards the road implementation plan requirements. See AHCP/CCAA Section 6.2.3. Green Diamond has a commitment to provide \$2.5 million a year for the first 15 years to treat high and moderate risk sites. Of this, an estimated \$1 million will be spent on roads appurtenant to THPs. Treating roads that are appurtenant to THPs is not expected to dramatically shift the emphasis of road treatments according to the prioritization tables because a large proportion of Green Diamond's current harvest activities are in high priority Road Work Units.

As part of the road implementation plan, Green Diamond will be required to decommission a large number of roads. AHCP/CCAA Table 6-10 presents the projected miles of road that fit into one of three road classifications: management roads, temporary decommissioned roads, and permanent decommissioned roads. Currently the majority of Green Diamond's roads are classified as management, but the table shows the course the road implementation plan will lead as the Plan is implemented over time. Green Diamond also builds new roads associated with THPs. Many are designed for single-use, classified as temporary and decommissioned upon completion of operations. During the road assessment process, all roads, irrespective of age, must be evaluated for sediment production. The results of the road assessment will indicate which roads will be treated first for upgrading or decommissioning based on future sediment yield,

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Roads, Stream Buffers, Covered Species Canopy Cover, Temperature, Percent increase in sediment discharge, Herbicides, Conclusions, Appendix a-g



Tailed Frog Adult

By Doug Smith <http://www.freeyellow.com/members8/thpsonlinenow>

Simpson Facts: The action area is 416,531 acres and 1,866 acres of lands which Simpson owns perpetual harvesting rights. The Simpson has 3,800 miles of logging roads. Simpson's AHCP holdings include 1540 miles of class I and class II miles of streams. Forest types less than 60 years old, with 80% of the area, and 15% of the area is in a forest type 60 years or older. A RMZ is a Riparian Management Zone. HPA is a Hydrologic Area.

The Simpson AHCP/CCAA has many beneficial actions that will bring a positive change to forestry in the modern age. It will allow the Simpson Corporation to continue to single tree select the old growth from the riparian areas and continue clear-cutting. What is different one would ask and the answer would be a confusing bank account of forest debit and credit. This is a new game of harvesting the mitigation saved from the last harvest cycle. Harvesting the bank forest (where ever that is) in order to do the right thing when it comes to setting aside unstable harvest areas near stream banks. As the process of approval marches forward red and yellow lights are already flashing and a mediation process that may work will be approached with in 30 days of the documents signing.

I believe the only things other than, reducing stream to road crossings and connectivity of roads, that will keep salmon from flopping on the edge of extinction is clear-cutting prohibition. I believe it must be better for species and cheaper for Simpson to remove crossings rather than to up grade the road, culverts and replace fill materials. This is the only way to reduce the number of culverts. In the AHCP//CCAA Simpson states 53% of the road crossings had some erosion failure across the property. I say save money and cut your labor costs in half by pulling crossings instead of trying to replace or upgrade them unless temporary bridges or bottomless culverts are used.

I have learned much from reading this AHCP/CCAA and have an appetite of questions like; where is the over all data? There is data here and there for canopy closure or conifer closure but not for all HPA watersheds.

The statement that CWEs will be mitigated to insignificance is laughable that sediment inputs can still occur when other activities such as storm proofing a road will temporarily reduce the increase of sediment to 4% because all culverts are never failsafe.

G6-1

Roads

The roads will only be fixed on appetent roads (Haul roads). The AHCP/CCAA leads some to believe there will be no net gain of roads because as Simpson states; the "practice of decommission non-management roads" will offset new roads. Are the roads to be decommissioned the sediment causing

treatment immediacy and cost-effectiveness. However, based on Green Diamond's experience, which is described in the Plan, the roads targeted for decommissioning will likely have a higher treatment immediacy and will be targeted first. In addition, treatment of new roads constructed after Permit issuance will not count towards Green Diamond's commitment to provide \$2.5 million a year for the first 15 years to treat high and moderate risk sites.

Response to Comment G6-2

The Services understand that ATVs are used in the winter period primarily for inspection of roads and crossings and identification of existing and potential problems associated with roads. AHCP/CCAA Section 6.2.3.11.4 allows for use of ATVs on unsurfaced seasonal roads during the winter period, provided that, "Any damage caused to drainage or erosion control structures by using ATVs on any road will be repaired immediately following damage."

Road densities are discussed in Master Response 17. The Services acknowledge the preference of the commenter to use road density as a factor in addressing such impacts, but believe that the measures in the Plan are well-suited to achieve its purposes. In the Plan and IA, Green Diamond has committed to implement an Operating Conservation Program to conserve habitat for and mitigate impacts on the covered species (See AHCP/CCAA Section 1.1). The Services believe that this Operating Conservation Program as a whole meets ESA Section 10 requirements.

Response to Comment G6-3

The Services were unable to locate Figure 15 referenced in the comment. See Master Response 17 regarding road density.

Response to Comment G6-4

The Services' understanding is that the data provided in AHCP/CCAA Tables F2-2 through F2-5 were current with the exception of additional inventories that were being conducted at

G6-1

abandoned roads from the last decade or legacy roads?

Section 2.2.1.1 states "limit vehicular use on un-rocked roads during winter operations to all terrain vehicles (ATVs) only." Pacific Lumber/Maxxam's HCP has no vehicle use and fix all drainage structures even if used by others. Recent logging costs have brought about the idea of using ATVs to haul small to medium logs downhill to landings. Is Simpson considering ATV use for any yarding including winter operations and have they used ATVs in the past? No ATVs must be allowed on un-rocked roads or skid trails during winter operations or wet periods. The AHCP/AACC must stat the road crossings and connectivity density must be reduced to half of current densities in each sub-watershed of the plan area.

G6-2

Section 2.2.1.3 states; no time line on implementation plan of how much maintained or Road upgrading or road decommissioning only "as appropriate" the completion of only "prioritization of sub-watershed road work units" with in 5 years of issuance. Roads are to be updated and rarely decommissioned where roads will not have any significant decrease in densities.

G6-3

The road density in figure 15 must be taken in to account and the rest of the Sub-basins need similar data to figure 15 in each Sub-basin on Simpson ownership in the Final AHCP/CCAA.

G6-4

Section f-2.3 states "road upgrading and road decommissioning for Rowdy Cr and the Little River is expected to cost nine million dollars" What is the figure separated for just road decommissioning? The data in tables f2-2 through F 2-5 us two years old in two months. Is there a statically significant difference if the tables were current to 19-11-2002?

G6-5

Is it true that figures based on total inventoried not on the total property for the table F 2-6? The huge value of "53% of crossing failure (erosion) frequency on abandoned roads" is 1 in 2 causing erosion. This points out that half of the crossings on Simpson's property should be removed and not replaced. The inventoried roads have diversion potential of 31% average from a range of 24% to 81%. The average road to stream connectivity is 33% with a rang of 6-74%. The 74% connectivity is three out of four of the roads. The table's future of average connectivity will be 7%. What is the range for that projection? How far in to the future is that calculated? 5, 15, or 50 years? On page F-38 state "salmon Cr and Rowdy Cr it was found that 12% and 21% of road networks respectively are directly connected" to the streams. What is the percent connectivity figure comparing Simpson roads the whole watershed road and stream networks?

G6-6

It is assumed there are 10 to 25% more roads then are documented in the Simpson GIS data. Is this not a significant cause for erroneous analysis. F-29 states "much of this variability is likely attributed to relative differences in road and skid trail densities in each sub-area watershed. So Simpson admits to road and skid trail densities data that must be incorporated into the final AHCP.

G6-7

From section E-5 "forests roads increase peak flows and sediment inputs to small watersheds 2.5% - 3.9% of the watershed is composed of road surfaces." What is the density of rocked and un-rocked roads in each HPA watershed? How many of the HPAs over the 3.9% threshold. Over the life of the plan all roads must become detached hydrologically and densities must be reduced to below 3.9% for each sub-area watershed. This AHCP/CCAA has no road density data. I was disappointed to have to roads analysis myself. The AHCP/CCAA must state that it is mandatory that all new stream crossings be pulled upon completion of all THPs in all HPAs. Jacoby Cr Road Density is 2.7 mi/mi² with proposed roads up to 3.9 mi/mi² so Simpson must not build any new roads. Yeager Cr has 5.5 mi/mi² is the road density as stated PL' s HCP figure 3.6-4

G6-8

G6-9

The AHCP/CCAA states; "Only 45% of roads will be maintained annually." Are they the mainline roads? Why not inspect all roads or decommission the other 55% not maintained.

Stream Buffers

G6-10

In this plan there was no discussion of potential tree heights. To create data for shade on streams that would add the aspects of the hill shade (DEM) to the greatest tree height potential from that site and compare that to current tree height. This GIS technique was written in the Navarro River TMDL document. This gives the buffer widths with the highest priority for maximization of the width and conifer canopy cover to produce the greatest benefit for the covered species. A 30', 50', 100', buffer width that has an aspect that would allow direct sunlight potential for durations (1-3hrs) that causes stream warming is ineffective. The AHCP/AACC must apply stream buffers that take in account of aspect to determine minimum no cut

the time of Plan preparation. The additional inventory information from these areas, plus other watersheds, will be included in the five-year assessment of future sediment yield (see AHCP/CCAA Section 6.2.3.2.2). However, the Services believe that the information provided in these tables provide a good representation of roads across the Plan Area spanning a number of geologic types and geographical terrains.

An estimate of costs associated with decommissioning alone is not available or necessary because the Road Management Measures (AHCP/CCAA Section 6.2.3) require both decommissioning and upgrading.

Response to Comment G6-5

The information presented in AHCP/CCAA Table F2-6 is based on 518 miles of inventoried road from five watersheds on Green Diamond property. In some instances, the estimates are based on Green Diamond's professional experience and judgment. The five watersheds span a number of geologic types in the Plan Area. Green Diamond extrapolated the sediment production and delivery figures from these watersheds to the remainder of the Plan Area to furnish reasonable estimates for future sediment delivery.

The projected average stream connectivity is 7 percent (see AHCP/CCAA Section F 2.4). This estimate is based on 100 feet of connected road per crossing with an average crossing density of 3.5 crossings per mile. The Plan requires road upgrading and implementation of new road construction guidelines (AHCP/CCAA Section 6.2.3.5) that will hydrologically disconnect the roads from the watercourses by installing ditch relief culverts or rolling dips approximately 50 to 100 feet before the ditch water enters a Class I or II watercourse. Implementation of the road implementation plan spans the 50-year term of the Permits. However, there is a 15-year acceleration period for the road implementation plan (see AHCP/CCAA Section 6.2.3.2.1) where approximately 48 percent of the potential sediment from high and moderate risk sites will be treated, which includes hydrologically disconnecting the roads from the watercourses.

The AHCP/CCAA states that the roads in Salmon Creek and Rowdy

Creek were 12 percent and 21 percent hydrologically connected to the watercourses. Information on connectivity for each of the entire watersheds is not available to compare with the connectivity of Green Diamond's roads.

Response to Comment G6-6

All high and moderate risk sites will be treated by the end of the 50-year term of the Permits. AHCP/CCAA Section 6.2.3.2.3 provides for a financial adjustment of the accelerated implementation plan if the refined estimate after the five-year assessment differs from the original estimate of future sediment yield by greater than 5%.

Response to Comment G6-7

The goal of the slope stability conservation measures is "to reduce management related sediment delivery to the aquatic system from landslides and landslide related erosion that might occur in specific portions of the landscape." (See AHCP/CCAA Section 6.3.2.1.). A discussion of the relative effectiveness of silvicultural prescriptions on slope stability is provided in AHCP/CCAA Appendix F1 and the modeled effectiveness of the slope stability conservation measures is shown in AHCP/CCAA Table F3-8. Data from the Plan Area has been reviewed through the steep streamside slope (SSS) assessment and the mass wasting assessment, to estimate the expected effectiveness of the various prescriptions and the relationship between timber management and mass wasting, as described in AHCP/CCAA Sections D.3.4 and D.3.5. See response to Comment J1-19 regarding the SSS pilot study and the response to Comment S5-77 regarding the mass wasting assessment pilot study.

The slope stability conservation measures include the use of SHALSTAB as a screening tool to aid in identifying terrain that may include headwall swales (AHCP/CCAA Section 6.2.2.2.1). SHALSTAB itself, however, does not identify headwall swales. Headwall swales only can be identified through direct field observation, regardless of whether the landform occurs inside or outside a SHALSTAB area. A selection silvicultural method is the proposed default prescription for

field verified headwall swales rather than complete avoidance (AHCP/CCAA Section 6.2.2.2.3).

Response to Comment G6-8

Many roads are designed for single-use with that THP and decommissioned upon completion of operations including the removal of the stream crossings. Other new roads are needed to access additional THPs in the future and will be classified as management roads. AHCP/CCAA Section 6.3.3.2.1 notes that as timber harvesting operations along management roads are completed, the roads will be decommissioned and other previously decommissioned roads may be reopened as timber operations along them begin.

Response to Comment G6-9

The Plan requires inspection of all mainline roads every year (AHCP/CCAA Section 6.2.3.9.3). All other management roads or roads yet to be decommissioned that are accessible to maintenance crews will be maintained (AHCP/CCAA Section 6.2.3.9.4). Because of the number of roads currently on the landscape, the Plan establishes a rotating schedule under which maintenance will occur. Based on this schedule and the number of mainline roads, the Plan contains an estimate that approximately 45 percent of Green Diamond's roads will be maintained annually at the beginning of the Plan. As the Plan is implemented over time, the number of roads that will require maintenance would decrease but the actual percentage of maintained roads would increase because there will be fewer roads due to the road decommissioning that will occur under the Plan. See Master Response 17 on road densities.

Response to Comment G6-10

See Master Response 18

Response to Comment G6-11

See Master Response 18 regarding riparian widths and Master Response 6 regarding the relationship between this Plan and the Pacific Lumber Company's HCP.

Windthrow is a natural phenomenon in forested landscapes. This process is the most likely mechanism that will accomplish recruitment of woody materials into stream channels. Recruitment of LWD is included in the Biological Goals and Objectives (AHCP/CCAA Section 6.1.2.2.2).

Plan standards for Class I RMZs require high tree canopy closures to be maintained within the zone (AHCP/CCAA Section 6.2.1.2.1) and trees that are likely to recruit to the watercourse are required to be left (AHCP/CCAA Section 6.2.1.2.5). For Class II RMZs, overstory canopy closures of 85 percent within the inner zone and at least 70 percent in the outer zone are expected to maintain sufficient trees near the watercourse to provide a long term source of large wood recruitment. Trees likely to recruit from a Class II RMZ to a Class I RMZ must be left in the zone in accordance with AHCP/CCAA Section 6.2.1.4.3. In addition, all safe snags must be left in RMZs (see AHCP/CCAA Sections 6.2.1.1.10 and 6.2.1.4.7). These habitat elements will be left for wildlife habitat and as potential sources of future LWD in stream channels.

AHCP/CCAA practices for RMZ areas are expected to assure a consistent supply of trees and snags capable of recruitment to Class I and II watercourse channels. RMZ widths for the Green Diamond AHCP/CCAA were developed using the goals and objectives set forth in AHCP/CCAA Section 6.1.

G6-10

buffers so no direct sunlight falls on the stream.

Reid and Hilton (1998) found increased tree fall rates from blow down in riparian zones as far as 200 meters from the edge of clear cuts in the North Fork Caspar Creek basin. They also found that 30% of trees recruited to the stream were knocked in by "trigger trees" which were outside one site potential tree height. It seems likely that large wood recruitment could be substantially altered by blow down under the HCP with only 100 foot and 30 foot no cut zones on Class I and II streams, respectively, and clear cuts allowed up to the edge of the outer band width (170 feet and 100 feet). Streamside buffers must be designed so that there is no blow down and complete blow down more than 150 feet of buffer would be a design flaw in the THP process. Has a blow down event occurred of such great magnitude in the past? What was the width of a buffer left when such a large blow down event occurred? What is the minimum width of buffer that would be 100% effective to prevent large scale blow down?

G6-11

Simpson must add the width of road harvests inside the RMZ in setting the total no cut buffer width on all three stream classes. Pacific Lumber/Maxxam's HCP includes the width of the road harvested inside RMZ, when setting their final buffer width.

Stream buffer width minimum must be wide enough in design that road ditches that drain within 50' to 100 feet of both class I and class II streams to dispel effects of discharge; as stated in the AHCP/CCAA. These stream buffer width minimums must be no cut fully vegetated when applied when road relief culverts are discharged.

A Fact 61% of class II streams would have 100 foot RMZ and 70 foot RMZ on the remaining 39%.

SSS	Steep Streamside Slope	
RMZ	Riparian Management Zone	
RSMZ	Riparian Slope Stability Management Zone	Inner Zone
SMZ	Slope Stability Management Zone	Outer Zone
EEZ	Equipment Exclusion Zone	

G6-12

All buffer widths are in slope distances not horizontal distances so mapped buffers are not the reality on the ground. This becomes a problem when the slope is very steep. Rise over run distances reduce the buffer widths by a significant percentage. The maximum buffer width must be applied to offset this effect.

G6-13

The section 6.2.1.2.3 states that "less than 15 conifer stems per acre that are greater than 16 inches dbh." What is that figure converted into basal areas? What would that figure be in conifer canopy cover? This statement allows all class II streams to experience 15 conifer stems some time during the term of the plan on the inner zone. This 15 conifer stems retention standard cannot lower the canopy cover to more than 70% in the AHCP/AACC. Is there already a lower than 70% canopy cover that is allowed under this prescription?

G6-14

6.2.1.1 Inner RMZ class I stream.

Inner zones with minimum 50', 30', zero or one conifer retention for class I, II, III respectively.

Slope	Width
<30%	50'
30-60%	60'
>60%	70'

The inner 50' must have 85% canopy closure and the outer 100' of the buffer must have 70% canopy closure. Total width of buffer is 150 feet.

G6-15

RMZ class II stream 70-100'

Inner zone	30'	Total width
Outer zone	40-70'	From perennial vegetation.

1 The first 1000' of 1st order reach 2 All 2nd order or larger Reach.
Only one harvest entry into class II RMZ over the life of the plan on all parts of the plan area. This is not a limit it is an allowed harvest of the stream buffers.

Response to Comment G6-12

The Plan acknowledges that the effect of increasing side slope steepness increases the potential for LWD recruitment, and this has been accounted for in AHCP/CCAA Section 6.2.1.1.1, where the width of the inner zone increases with greater slope steepness, and in AHCP/CCAA Section 6.2.1.2.5, where more trees are likely to recruit with greater slope steepness. The inner zone of the RMZ has a high overstory canopy retention (85 percent overstory canopy retention) but the probability that a tree within the inner or outer zones on steeper slopes is likely to recruit also dramatically increases. See Master Response 5 for “likelihood to recruit” language.

Response to Comment G6-13

AHCP/CCAA Section 5.3 specifically addresses the “linkage” requested by the commenter—the potential for increased sediment input due to harvest and road building activities.

AHCP/CCAA Section 6.2.5 provides a description of the measures proposed to monitor the effectiveness of the reduction in sediment delivery from road-related sources.

Specific protocols for monitoring the effects of sediment delivery on aquatic habitats are outlined in AHCP/CCAA Appendix D. These include: D.1.5 Road Related Sediment Delivery (Turbidity) Monitoring; D.2.2 Channel Monitoring; and D.3.6 Long-term Habitat Assessments. Green Diamond’s fish habitat data are presented in AHCP/CCAA Appendix C (specifically Appendices C1 and C2 for habitat information and C3 for thalweg profiles and channel widths analyzed to date).

Because these studies will continue under the AHCP/CCAA (see Section 6.2.5) additional habitat information will be generated and provided in the biennial reports prepared and submitted to the Services (see AHCP/CCAA Section 6.2.7.3).

Response to Comment G6-14

No response necessary. The commenter reiterates parts of AHCP/CCAA Sections 6.2.1.1 and 6.2.1.2.

Response to Comment G6-15

No response necessary. The commenter reiterates parts of AHCP/CCAA Sections 6.2.1.3 and 6.2.1.4.

Response to Comment G6-16

See Master Response 18 regarding riparian widths. Further, studies on Class III and headwater streams (see AHCP/CCAA Appendices C4 and C11) indicate that mature trees do not necessarily become functional LWD in Class III watercourses. Mature trees in the headwater streams tend to be too large and span these small channels without providing any LWD benefit to the channel. Much of the functional wood in these headwater streams can be provided by limbs and other logging debris from the timber harvest.

The conservation measures provided for EEZs in Tier B Class III watercourses provide for the retention of one conifer per 50 feet of stream within the 50 foot EEZ (AHCP/CCAA Section 6.2.1.7). In addition, all conifers that act as control points within the channel or contribute to bank stability must be retained according to the Plan. Finally, all LWD on the ground must be left following harvest. The Services believe that, collectively, these measures and others set forth in the Operating Conservation Program provide adequate protection for covered species and their habitats within the Plan Area. The Services do not believe that providing a minimum diameter as a measure for the few retained conifers would provide meaningful additional conservation benefit under the circumstances here. The Services believe that, overall, implementation of the Operating Conservation Program will meet the requirements for issuance of the ESA Section 10 permits (see Master Response 8).

Response to Comment G6-17

Single tree selection (see definitions, AHCP/CCAA Section 10.2) is a default prescription and, as shown in AHCP/CCAA Section

G6-16 **Class III stream buffers**
 Teir A below slope limit Teir B above slope limit
 30' EEZ No conifer minimum 50' EEZ
 Teir B has 60% - 70% steeper slopes requirements for each HPA group retain hardwoods and non-merchantable trees in the EEZ including one conifer per 50' of stream. This may be a dwarf non-merchantable tree that will not help the stream to be a properly functioning condition (PFC). The plan must be amended to require minimum size of the retained conifer trees must be above pole timber to provide PFC at 8-16 inch dbh on the class III.

G6-17

HPA Group	Class I	Class II	Class III	Slope Gradient
Smith River	150	100	70	65%
Coastal Klamath	475	200	100	70%
Korbelt	200	200	70	65%
Humboldt Bay	200	200	70	60%

The SSS has an inner RSMZ and an outer SMZ. RSMZs that will have no harvesting occur in the Blue Creek and Costal Klamath HPAs. The other watersheds have:
 Inner Zone of RSMZ on all class I 70 feet
 Inner Zone of RSMZ on all class II 30 feet
 Class I and class II streams have a No harvest inner zone and 85% canopy in outer zone
 Over story canopy in RSMZ inner zone 85%
 Over story canopy in RSMZ outer zone 75% for class II-1 streams
 Only one harvest entry into class II SMZ over the life of the plan on all parts of the plan area. The singletree selection is the silviculture method. This is not a limit, it is an allowed harvest of the stream buffers. It could be analogist that only one landslide per harvest unit would be allowed but that would not be beneficial to the covered species.

G6-18 The AHCP plan is not canopy cover but the standard is based on the over story canopy that is based on the site that has harvested canopy cover. Are there any class III streams with 60% - 70% steep slopes in the HPAs considered? Where is the map of these areas? Where are the maps of the SSS, RSMZ, and RMZ areas? What happened to CDF standards of steep slopes classified at 50% to 60%? Class III streams in the AHCP area must have a minimum of 30 no cut buffer width.

- G6-19
- A. Simplified Prescription strategy alternative
- Class I **200 feet No cut fixed widths**
 - Class II **130 feet No cut including ponds, swamps, bogs, and seeps**
 - Class III **25-50 feet Equipment Limitation Zone**

Note that it is an ELZ limiting heavy equipment use in class III riparian areas, not a Equipment Exclusion Zone excluding bulldozers from riparian areas. The ELZ must be changed to an EEZ for class III. What limits are placed on a ELZ?

"Buffer strips approximately 47 Meters (154 feet) wide would support amphibian communities similar in species richness to that of average un-logged forest." This quote is from the paper D. G. Vesly was published in 2001 and it also states using spherical dosimeter cause a difference in value near clear cut openings next to stream buffers rather that a lower density of over story trees in the buffer. These "forest edges have been found to have higher wind velocities and greater diurnal variation in temperature and relative humidity than forest interiors. The effect of reduced canopy closure and lower availability of decayed logs may affect long-term persistence of salamander population at buffers we surveyed. Buffer strips of 20 meters wide contained approximately 80% of the detectable torrent salamanders sites that were clear cut supported about 1/2 of the species richness and 1/3 total abundance of salamanders in un-logged forests." (Vesly 2001) A negative "influence of a clear cut edge extends 240 meters into the forest interior." (Chen et al 1995) In 15 studies salamanders averaged in clear cuts was lower 20% of that in control stands. (Hunter 1995)

Femat 1993 (PL HCP) figure 3.6-4 shows that even a 200-foot buffer is 40% effective with

6.2.2.1.7, limits tree harvest within SMZs. This prescription should provide conditions for retained trees including spacing, species retained, size classes, and harvest entry in SMZs. Please refer to AHCP/CCAA Section 6.2.2.1 for a thorough description of the conservation measures that are required to limit adverse impacts to covered species from sediment delivery from steep streamside slopes. The Services believe that, overall, implementation of the Operating Conservation Program will meet the requirements for issuance of the ESA Section 10 permits (see Master Response 8) and, therefore, that no change is required in the Plan's proposed use of the single-tree selection method.

Response to Comment G6-18

Class-III watercourse RMZs are addressed by conservation measures provided in AHCP/CCAA Section 6.2.1.5 and further described in AHCP/CCAA Section 6.3.1.3, which measures include those to address steep slopes adjacent to Class III watercourses. The Services understand that these areas are not presently identified across the Plan Area, but will be identified in the field and addressed through California's THP process. The same is true for SSS and RMZ areas, which will be mapped and protected based on field observations, and review by a California Registered Geologist where appropriate, through the THP process. However, Appendix F3 of the Plan does present sediment modeling for the pilot watersheds that calculates the approximate cumulative area in acres and by percentage of watershed area for RMZs and SMZs as well as for other MWPZs. The rationale for the initial default slope gradient thresholds for the various HPA groups for SSS is based on empirical data from the Plan Area, as described in AHCP/CCAA Section 6.3. The minimum gradient and maximum slope distance for individual HPAs will subsequently be established through the SSS Delineation Study during the first seven years, as described in the AHCP/CCAA in Section 6.3.2.2.4, Section 6.3.5.4.2 and Appendix D.3.3. The CDF standards for steep slopes as described in the FPRs are unaffected by the AHCP/CCAA.

Also, see Master Response 16 regarding the 70 percent effectiveness requirements for the SSS measures. The Services believe that, overall, implementation of the Operating Conservation Program will meet the

requirements for issuance of the ESA Section 10 permits (see Master Response 8) and, therefore, that no change is required in the Plan's proposed use of the single-tree selection method. No maps are provided in the Plan or associated EIS.

Response to Comment G6-19

Under the Simplified Prescription alternative (Alternative B), Class III watercourses will be afforded the same protection as in the No Action Alternative.

Response to Comment G6-20

See Master Response 18.

Response to Comment G6-21

The commenter seems to have misinterpreted a biological objective (AHCP/CCAA Section 6.1.2.2.3) for a summary statement about the impact of harvesting activity on the covered amphibians. Please note that this section of the AHCP/CCAA is the "Amphibian Population Objective." For a discussion of potential impacts on the covered amphibian species, see AHCP/CCAA Sections 5 and 7. For a discussion of the role of biological goals and objectives see Master Response 12.

Response to Comment G6-22

The Service is not aware of long-term data on the population trends of the covered amphibian species within the Plan Area. The only available data with respect to the Plan Area are the monitoring data listed in Appendix C1 of the AHCP/CCAA, Section 1.2 and Appendix C1, Section 1.3. Contrary to the assertions of the commenter, these data do not indicate a population decline for either species, only some variability in the data collected to date. There are too few years of data to allow a meaningful statistical analysis, and the only conclusion that can be made at this time is that there is substantial annual variation in the estimated numbers of individuals. This does not mean that the populations are actually fluctuating annually, since it is equally likely that the variation in the population data is a function of sampling variability.

G6-20 [decreased relative humidity that can effect nighttime foraging opportunities for the covered amphibians. A minimum of 100 foot buffer has 80% effectiveness for radiation and 50% effectiveness for air temperatures. The buffers suggested in the AHCP/CCAA are not effective at protecting the properly functioning habitat requirements Completely functioning Habitat is possible to be 100% effective when buffer widths are; 85' for bank stabilization, 128' for shade nutrition and 170 ' for sediment on Large Woody Debris. The buffer widths for micro-climate is 510 feet.

G6-21 [**Covered Species**
Section 6.1.2.2.3 states "harvest activities have no measurable impact on populations of the covered amphibians." The AHCP does not specify which types of harvest will or will not impact. Which silvicultural methods lead to that determination? Another section stated that it was premature to make decisions on the analysis of the data gathered and then Simpson makes such a statement of faulty reasoning. The AHCP states that the Tailed Frog data to date has had very little harvesting history. Are the covered species in decline currently and in the past? Is the data on amphibians found to be statistically significant with "substantial annual variation." I observed in tables on pages C-23,C-24 hat the same monitoring sites on torrent salamanders and tailed frogs are both diminishing in the abundance of number of individuals.

Streams containing Coho from stream surveys:Canyon Cr, NFMad, Little River, Sullivan Cr
These streams must be afforded the simplified prescription strategy alternative or Greater maximum buffer width specified in this document.

G6-23 ["Buffer strips approximately 47 Meters (154 feet) wide would support amphibian communities similar in species richness to that of average un-logged forest." This quote is form the paper D. G. Vesly was published in 2001 and it also states using spherical dosimeter cause a difference in value near clear cut openings next to stream buffers rather that a lower density of over story trees in the buffer. These "forest edges have been found to have higher wind velocities and greater diurnal variation in temperature and relative humidity than forest interiors. The effect of reduced canopy closure and lower availability of decayed logs may affect long-term persistence of salamander population at buffers we surveyed. Buffer strips of 20 meters wide contained approximately 80% of the detectable torrent salamanders sites that were clear cut supported about 1/2 of the species richness and 1/3 total abundance of salamanders in un-logged forests." (Vesly 2001) A negative "influence of a clear cut edge extends 240 meters into the forest interior." (Chen et al 1995) In 15 studies salamanders averaged in clear cuts was lower 20% of that in control stands. (Hunter 1995) Is this a significant decline in potential habitat and number of species found in post harvest clear cuts? No clear-cut silviculture must be prescribed within 47m (154') or at least a minimum of 150' on class III streams the AHCP/CCAA must state.

G6-24 [Femat 1993 figure shows that even a 200-foot no cut buffer is 40% effective with decreased relative humidity that can effect nighttime foraging opportunities for the covered amphibians. A minimum of 100 no cut foot buffer has 80% effective for radiation and 50% effective for air temperatures. The buffers suggested in the AHCP/CCAA are not effective at protecting the properly functioning habitat requirements. The Northwestern Pond Turtle is sensitive to shade and require canopy closures of at least 50% for thermal cover for nesting and hiding cover. Many streams on Simpson's property **do not meet Properly Functioning Conditions and life history requirements of the Northwest Pond Turtle. Why was Northwestern Pond Turtle not added to the AHCP/AACC?**

G6-25 [Historically citizens of the Van Duzen Watershed have enjoyed watching turtles, when their habitat was less impacted. Local citizens have observed the disappearance of the Northwestern Pond turtle. What is the data on embeddedness and percent fines for all Simpson properties in the plan area? Are the percents statistically high on Simpson lands when compared to these properly functioning conditions?

G6-26 [Similar to the Southern Torrent Salamander, Tailed frogs prefer between 18-33% embeddedness. **Measurements for fine and embeddedness significantly exceed both the NMFS PFC Matrix and the life history requirements of the tailed frog.** Southern Torrent Salamander, Tailed frogs prefer between 11-16 % Fines Substrate Composition as fair condition.

Response to Comment G6-23

As described in the Plan, studies done throughout North America indicate that clearcuts may have a negative effect on salamander numbers. However, this information is primarily related to terrestrial plethodontid amphibian species and, as such, has no direct relevance to this Plan. The covered amphibians in this Plan are both closely tied to aquatic or riparian habitats and should not be directly impacted by adjacent even-aged management, as would the terrestrial amphibian species cited above. Therefore, the USFWS does not believe that the ESP approval criteria (see EIS section 1.3 and Master Response 8) require any change to the Operating Conservation Program's riparian widths. See Master Response 18.

Response to Comment G6-24

The decision whether, or if, to include species, such as the Northwestern pond turtle, as covered species is at the discretion of the Permit applicant. Here, Green Diamond elected to include six aquatic species (see AHCP/CCAA Section 1.3.3) but has elected not to seek ESA Permit coverage for the Northwestern pond turtle, which currently is not federally listed under the ESA.

Response to Comment G6-25

The summary of pool-tail out embeddedness estimates for Plan Area streams are shown in Tables C1-2 through C1-8 in Appendix C1 the AHCP/CCAA. The percent fines were not measured directly during the habitat typing surveys. The embeddedness of the channel substrate in pool-tail outs provides a gross indication of the amount of fines present in spawning gravels. However, the embeddedness estimates tend to be subjective, are imprecise and typically are not verifiable. Because of these limitations, it would be inappropriate to apply statistical significance to these indirect measures.

Response to Comment G6-26

The Plan presents data in Appendix C-1 on stream assessments that include an index of embeddedness, but no direct measures of this variable. In addition, these data were collected for fish bearing reaches

of streams, which generally do not include the headwater stream segments in which tailed frogs and torrent salamanders are found. As described in AHCP/CCAA Section 3.2.2.1, Diller and Wallace (1996 and 1999) found that both amphibian species tend to be associated with streams that have fewer fines and less embeddedness. Consequently, the Operating Conservation Program includes numerous measures to reduce fine sediment delivery into streams throughout the Plan Area. See, for example, AHCP/CCAA Section 6.2.3 regarding road management measures, and Section 6.2.4 regarding harvest-related ground disturbance measures. Observations throughout the Plan Area indicate the largest source of fine sediments is from roads, which is why the Plan is focused on reducing sediment production from roads, and that focus is correlated very well with the life history requirements for the covered amphibian species.

Response to Comment G6-27

The commenter appears to have misinterpreted or misapplied the results from the habitat typing surveys. The overstory canopy cover values that the commenter extracted from AHCP/CCAA Appendix C1 are from habitat typing surveys. During these surveys, the overstory canopy density is measured in the middle of a stream habitat unit. The stream itself typically is non-forested environment, however the riparian vegetation grows along its edges. One would not expect to have 100 percent overstory canopy cover over an entire stream, especially as the width of the stream increases downstream. The canopy cover from the habitat typing surveys does not reflect the canopy cover of the adjacent riparian area. In most cases, the riparian zones exceed the minimum canopy closures necessary to allow harvesting to occur as part of the riparian conservation measures. If the minimum overstory canopy requirements are not met then the canopy cover in the riparian zone will not be reduced during harvesting operations; in such a case, the riparian zone will de facto become a no-cut area.

Habitat typing surveys were not performed in Redwood Creek or any of its tributaries within the Plan Area in connection with preparation of the Plan. The data for the Blue Creek and Mad River HPAs are presented in the Plan in Tables C1-4 and C1-7, respectively.

Response to Comment G6-28

See response to Comment G6-27.

The Services are not aware of any quantitative data for stream

G6-27 **Canopy cover on streams.**
Why are these numbers below 85% Canopy Cover. 5 out of 11 HPAs under the 85% Canopy Cover threshold. 5 HPAs have under the 85% threshold, 3 have no data, why? And only the main stem of the little river exceeds the threshold. Do you see red lights?

Figure 1. Stream Canopy Covers.

Watershed	Conifer Cover	Canopy Cover	85% threshold	(B) Index LWD Vol. vs. WA
Smith HPA	2-7%	63-94%	Under	All below line
Costal Klamath HPA	3-27%	71-97%	Under	4 out of 5 above the line
Redwood Cr HPA	no data	no data		
Blue Cr HPA	no data	no data		Under the line
Little River main stem	13%	95-99%		
Little River Tributaries	23-33%	73-74%	Under 3X times	4 above the line
Slide Creek	77%	38%	Under 2X	
NF Mad HPA	5%	73 - 91%	Under lacks conifer	both points under
Mad River HPA	no data	no data		
EEL River HPA	?	7- 87%	Under to such an extreme	
Sub Watersheds				
			% conifer	% deciduous
Mcgarvey Cr	8%	89%	Hunter Cr	7% 80%
Tenver	25%	36%	Bear	7% 78-88%
Hoppah, High Prairie	>20%		Sulpher	6% 89%
West Fork Howe Cr	5% small	87%	Ah Paha	11% 93%
Salmon Cr	17% medium	83%	Tarup	7% 97%
Ryan Cr	32% large value	68%	Blue Cr	34% 42% WF 6% 87%
Dominie Cr	class 2 BACHI study	95%	Potato Patch	10% 90%
Winchuck Cr		86-94%	Roach Cr	28% 72%
Maple Creek Windy Point		69-74%	Morek	34% 66%
Dry Cr	25%	73-81%	Cappel	41% 59%
Wilson Cr	17%	83%	Tully	8% 92%
Stevens Cr	29%	71%	Robbers	8% 92%
Howe Cr	19%	81%	Johnson	3% 97%
Lindsay Cr	21%	79%	Pecwan	31% 69% EF 24% 76%
Long Prairie Cr	13%	87%	Tetah	11% 86%
Railroad creek	31%	69%	Mettah	17% 83%
Mainstem little river	16%	84%	Sf Mettah	22% 78%

G6-28 Is it possible to have an average canopy closure of 85 - 70% by increasing the buffer width into stream side forests until the 85 - 70% numeric value is achieved? Those streamside forests must remain no cut zones until the riparian canopy closure reaches the numeric of 85 - 70%. Where is the data on stream vegetation by type species present or absent like figure 7 in the appendix? Where is the data like Figure 13 Map of the lack of large closed canopy vegetation in the Lower Klamath River Valley? The canopy cover needs to be clipped to the stream buffer to get forest type cover in the stream buffers proposed. The Final AHCP/CCAA must have conclusions based on actual data presented in the appendix and any similar data property wide. The Final AHCP/CCAA must have the analysis and data reported.

G6-29 I see a trend of high canopy cover is relative to low conifer cover. If the conifer covers are low in winter months how much radiation form sunlight is reaching the habitats of the amphibian covered species? I also see a trend of Sub-basin watersheds have an even number under the 85% threshold as are over the threshold.

G6-30 **Percent increase in sediment discharge.**
In Redwood Cr "4% of erosion was caused by sheet and rill erosion."
"Long tem increase in sediment delivery from clear cuts 1.25 - 4 times the background" amounts.

vegetation by species for this area. The information obtained from habitat typing surveys conducted to date obtained the percent overstory canopy closure (density) and overstory canopy cover by type (deciduous or conifer) and is provided in Tables C1-2 through C18 in Appendix C1 of the Plan. The cover type assessment does not break down the deciduous or conifer tree percentages by species (e.g., percentage of fir, or percentage of madrone, etc.).

Response to Comment G6-29

On streams with a high proportion of deciduous trees (e.g. red alder), the amount of sunlight reaching the stream in winter does increase. This provides a direct benefit to tailed frogs since the larvae feed on diatoms, which require sunlight to grow. In winter, it is not likely that there would be concomitant negative effects from increased sunlight on water temperature or microclimate. Increased sunlight reaching the stream also is a potential temporal benefit to tailed frogs in summer, but the benefit of increased diatomaceous growth may be offset by increased water temperature or altered microclimate.

The influence of increased deciduous riparian vegetation is not as easily predicted for southern torrent salamanders. Streams in which torrent salamanders are found depend on allochthonous energy inputs, and the leaves of red alder are easily decomposed and high in nitrogen. Therefore, it seems likely that increases in deciduous riparian vegetation would increase the productivity of the aquatic system without negative impacts on water temperature or microclimate. However, this has not been investigated and any conclusions are highly speculative. Therefore, the Services do not believe that the information provided can be used reliably to describe “trends” as the commenter suggests

Response to Comment G6-30

The analysis presented in AHCP/CCAA Appendix F was not presented for application directly to any particular THP in order to evaluate compliance with any applicable standard, such as the Basin Plan’s Action Plan for logging, which provides that turbidity shall not be increased above background levels. That provision applies to discharges from specific timber harvesting operations. The analysis in Appendix F

was meant to provide an indicator of how sediment inputs occur generally and to evaluate different sediment control measures. In any case, approval of the Plan and issuance of the Permits would not excuse Green Diamond from otherwise applicable legal requirements. The State and Regional Water Quality Control Boards would continue to have the same authority to regulate water quality before and after Permit issuance.

Response to Comment G6-31

Green Diamond's activities in the Plan Area will continue to be subject to the Water Quality Control Plan for the North Coast Region (the "Basin Plan") and other applicable laws, regulations and policies (See AHCP/CCAA Section 1.4.2.). Green Diamond is responsible for compliance with these other applicable law and regulations. The State and Regional Water Quality Control Boards would continue to have the same authority to regulate water quality before and after issuance of the Permits. The analysis presented in AHCP/CCAA Appendix F was not presented for application directly to any particular THP in order to evaluate compliance with any applicable standard, such as the Basin Plan's Action Plan for logging, which provides that turbidity shall not be increased more than 20 percent above naturally occurring background levels and which applies to discharges from specific timber harvesting operations. Instead, the analysis in Appendix F was meant to comparatively analyze average long-term sediment delivery under a variety of management scenarios and conservation measures.

Rate of harvest and peak flow issues are discussed in Master Response 11.

Response to Comment G6-32

See responses to Comments G6-30 and G6-31.

Response to Comment G6-33

The objective is not to allow a certain percentage of sediment delivery, but to reduce deliveries by 70 percent of the level that

G6-30

This is an increase from 125% to 400% in sediment delivery. Simpson states "Most likely to equal 2.0," which is 200%. (Source from section F 1.2.1.5.1 page F-14) Does everyone see that Simpson is admitting to exceeding the basin plan threshold of 20% sediment; if Simpson continues to use clear-cut silviculture prescriptions?

G6-31

Roads also have an effect on the runoff that causes peak flows to occur. "For roads before storm proofing, road-related inputs are calculated as 20% increase in sediment input over background rates for each percent of the watershed area occupied by roads. After storm proofing each percent of road area contributes a 4% increase." (Addendum Reid 2000) The thing is that the Water Quality Control Board's Basin Plan requires that any discharge of sediment that is above the 20% of background levels is a nuisance and could result in the permit or non-permit of waste discharge requirements as well as cleanup and abatement orders. If a non-permit of waste discharge requirement were posted then the activity such as road building or timber harvesting would be prohibited until such a time that the levels fall below the 20% threshold.

Figure 3. EROSION INCREASES

Un-storm proofed roads	20% ¹
Storm proofed roads	4%
Rill and sheet erosion	4% ¹
Management related (THP)	30-300% ²

No Harvest Activity 8% increase in sediments above background levels.

1. Addendum Reid 2000
2. AHCP/CCAA 5.3.1 P.5-7

G6-32

The minimum cumulative Percent is 38% increase in sediment yields. The maximum cumulative Percent is 324% increase in sediment yields. Simpson's minimum figure of Management related activities producing 30% increase in sediment is above the basin plan threshold of 20%. With this fact Timber harvest would cause sediment increases beyond the allowable limit of the basin plan.

G6-33

Section 6.1.2 2.4 states that; Simpson's target is to achieve 70% reduction in sediment delivery from management related landslides. As an objective it still allows for 30% sediment delivery from management related landslides.

G6-34

The AHCP/CCAA must have the words added to say Simpson "Or Contractors" to the sentences in sections (6.2.3. 13.4), (6.2.3. 14.1), (6.2.3. 14.2).

Figure 4 TMDL Study of Sediment Sources

Sediment Study	Years of Study	Harvest Related	Other Management	Natural
Redwood Cr	1954-1980	17%	44%	40%
Van Duzen	1955-1999	18%	10%	72%

G6-35

The TMDL study of sediment sources for redwood creek is 8% for tributary landslides 8% for bare ground erosion, 15% road and skid trail, 8% road related landslides and 22% for road gullies. The TMDL study of sediment sources for Van Duzen is Clear Cut Tractor 11%, Clear Cut Cable 3%, Partial Harvest was 2%, Advanced 2nd Growth was 2% the skid trails was 5% and roads 5% of the sediment contributed. (WNC 2001) This analysis shows sediment production rates that are doubled above natural background amounts in redwood creek a clear violation of the water quality basin plan. What is the fate of the other watersheds in the plan area?

G6-36

Suspended sediment is the single most important dependent variable for assessing potential cumulative impacts attributable to the rate of harvest. If not addressed here, where and when will it be scientifically addressed so that all watersheds have suspended sediment monitoring and analysis. No watershed should be allowed any timber harvest until waste discharge reporting and monitoring are conducted on all timber harvest plans commenced after the date of signing the AHCP. The AHCP has no data on suspended sediment amounts or duration of time at elevated harmful suspended sediment amounts. Simpson and the Forest Science Project has collected suspended sediment amount data so the final AHCP must have the data collected to date published and an analysis of that data.

G6-37

The Pacific Lumber's partial Van Duzen watershed analysis indicated the following. In the

would likely result from clearcutting these areas. The ESA requires an ITP applicant to minimize and mitigate the impacts of take to the maximum extent practicable and to ensure that any such take will not appreciably reduce the likelihood of survival and recovery of the species in the wild. Implementation of Green Diamond's Operating Conservation Program (AHCP/CCAA Section 6.2) is expected to meet these requirements. See AHCP/CCAA Section 5.7 and Master Response 3, regarding consideration of project impacts of Plan approval and issuance of the Permits, and Master Response 8 regarding Permit approval criteria.

Response to Comment G6-34

AHCP/CCAA Section 6.2.3 contains the road management measures, but it is not possible to understand what, specifically, the comment refers. However, contractors are in some cases employed for road construction and repair. Green Diamond will be held responsible for any work performed by contractors in implementing the Plan. There is nothing unique about road management that compels inclusion of "Contractors" in that Section, and to add it would seem to imply that other Plan measures do not apply to Green Diamond when carried out by contractors, which would not be correct.

Response to Comment G6-35

As noted, the Plan recognizes the status of certain waterbodies in the Plan Area as being listed pursuant to the CWA as water quality limited for sediment (AHCP/CCAA Section 4.3.6, Table 4-3). Conditions in other watersheds in the Plan Area are discussed on an HPA-by-HPA basis in AHCP/CCAA Section 4.4. As discussed, the Plan's measures provide efforts to reduce inputs from existing sediment sources on Green Diamond lands within these watersheds and will thereby contribute to the goals of the TMDL program.

Response to Comment G6-36

Appendix F of the Plan presents sediment studies and modeling efforts, including an assessment of long-term sediment production with and without the Plan. Suspended sediment also is addressed in AHCP/CCAA Section 5.3, regarding sediment transport processes and

AHCP/CCAA Section 5.3.4 regarding potential effects on covered species. The Plan includes measures to reduce all sediment inputs (see AHCP/CCAA Section 7.2.2) and proposes to conduct turbidity monitoring within each of the four experimental watersheds (AHCP/CCAA Section 6.2.5.1.4). Turbidity monitoring will be used to measure the road-related fine sediment inputs to Plan Area streams, and evaluate the effectiveness of the road upgrading measures in reducing these inputs. Permanent turbidity monitoring stations within the experimental watersheds (see AHCP/CCAA Sections 6.2.5, specifically 6.2.5.4) will integrate the effects of all upstream sources.

Contrary to the assertion in the comment, the Forest Science Project has not collected suspended sediment or turbidity data and Green Diamond just recently began collecting these data. At the time the Plan was prepared, Green Diamond was not collecting suspended sediment or turbidity data. Green Diamond currently is collecting these data in select watersheds and sub-basins. However these are long-term monitoring projects, and their results will not be available for approximately five to ten years.

Response to Comment G6-37

See Master Response 6 regarding the relationship between this Plan and the Pacific Lumber Company HCP. A portion of the Van Duzen River does flow through the Eel River HPA (AHCP/CCAA Section 4.4.11). The Operating Conservation Program (AHCP/CCAA Section 6.2) includes measures to control sediment from roads and skid trails (AHCP/CCAA Section 6.2.3) as well as from harvest-related ground disturbance (AHCP/CCAA Section 6.2.4) and other possible sources. The ESA does not require that any particular measure or set of measures be adopted, but that the ESA Section 10(a) Permit issuance criteria discussed in EIS Section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8 be met. The Services believe that the Plan, as a whole, including its sediment control measures, meets these requirements.

Response to Comment G6-38

The commenter can review the recorded water temperatures of individual monitored streams, which are provided in Appendix C5.1 of the Plan. Of approximately 400 temperature profiles in 108 Class I streams or stream reaches and 210 profiles in 70 Class II streams, a small fraction exceeded the suggested MWAT threshold of 17.4°C.

The water temperature data were collected before the draft AHCP/CCAA was prepared, so the sites were not inspected to determine the potential cause of the elevated water temperatures following the protocols outlined in the Plan. However, there were several patterns associated with these sites that suggest several potential causes. To begin with, many of the sites with higher water temperatures were low in the watershed where late season flows were reduced and in some cases the individual reaches were cut off from flowing water and were essentially “ponds.” Several other high water temperatures were associated with the lower reach of a stream where flood waters during the previous winter had scoured riparian vegetation immediately adjacent to the stream banks. Another example of high water temperatures was found in areas where streams flowed through natural open prairies. Although there were likely other factors such as aspect, elevation and distance to coast that contributed to the elevated water temperatures at these sites, it was not apparent that riparian buffer width or adjacent road conditions were in any way related. Quantitative information on either of these factors is not available at any of the sites where higher water temperatures were recorded.

The Services believe that, overall, the Plan meets the requirements for issuance of the ESA Section 10 permits (see Master Response

lower domain from Grizzly Creek to the confluence of the Van Duzen with the Eel, potentially controllable sediment yield accounts for nearly 36% of the total lower watershed yield. The controllable sources include road and skid trail sources (16%) and timber harvest related sources (20%). Table 9 and Figure 5 indicate potentially controllable sediment yield accounting for nearly 36% of the total lower watershed yield. This figure for controllable yield is the highest in any of the three domains. Controllable yield in the upper domain is estimated at 20% with controllable yield in the lower domain at 16%. Over the 44 year analysis period, potentially controllable sediment sources in the lower watershed totaled 2,505,500 cubic yards.

Temperature

Section 5-24 states; “A few isolated streams or reaches have waters temperatures that could cause local decline in populations of the covered species.” Where are these reaches and streams? What is the status of the road conditions near these areas. These streams or reaches must be afforded the simplified prescription strategy. Any stream that has lethal conditions for salmon must have maximum no cut buffer widths of 200, 150 and 30 feet.

Figure 2. Temperature Thresholds

	Red	Yellow	Class	Years
Smith HPA	0	1	2	
Blue Creek HPA	0	2	2	
Costal lagoon HPA	0	2	?	
Interior Klamath HPA	0	1	2	2000
Costal Klamath HPA	0	0,3 on line	1	
Redwood Creek HPA	1 on 1	1 on 1, 2 on class 2		
Little River HPA	0	1	1	
Mad River HPA	6	2,1 on line 1		
NF Mad HPA	0	1	1	
Humboldt Bay HPA	2	0	1	
EEL River HPA	2	1	1	

All streams but Humboldt Bay HPA and the Coastal Klamath HPA have yellow lights. In the northern HPAs the class 2 streams and in the southern HPAs class 1 streams are the ones having problems. Redwood Cr, Mad River, Eel River HPA and the Humboldt Bay HPAs all have Red light Maximum average weekly temperature exceeding the threshold.

Herbicides

“Simpson would not use herbicides within WLPZs along CLASS I watercourses or within the ELZs or WLPZs of Class III watercourses where water is present.” The problem is contractors not Simpson use herbicides. The AHCP/CCAA MUST STATE; “CONTRACTORS” will not use herbicides when water is present. p.13 of 002 2.1.3.4 Hardwoods section.

The AHCP must state that if herbicides are used to kill more than 90 sq feet than the area must be treated to prevent erosion.

Conclusions

1. Sediment increases without management
2. Buffer widths must be maximized to have properly functioning habitat.
3. Where and what type of habitat is the AMRA forest bank?

The data provided in many figures did not say that the listing is all the data available. Is there data not supplied in the AHCP? Missing Mapped data include: Stream temperature points of (7DMAVG). Potential and water drafting locations. Locations of potential yarder corridors through riparian buffers. Maps of road type densities, crossing density, connectivity sites viewed by sub-watershed area. Maps of quarries near class I streams. The visibility of turbidity standards on rock quarries in the AHCP/CCAA must be monitored using interments and quantitative amounts.

8) and, therefore, that no change is required in the AHCP/CCAA's proposed use of the measures that are the subject of this comment.

Response to Comment G6-39

Green Diamond has not proposed to include herbicide use as a covered activity (see AHCP/CCAA Sections 1.3.4 and 2), therefore no Permit coverage will be authorized for use of herbicides. The Services believe that programmatic consultation with the EPA on pesticide registration is the appropriate place to address impacts associated with application in accordance with label restrictions. However, comments regarding herbicide use are addressed in Master Response 4.

Response to Comment G6-40

Much of the detail sought by the commenter is found in the various appendices to the Plan. The Effectiveness Monitoring Site Map (Figure 6-9 of the Plan) did not include all of the monitoring activities described in the Plan because, as described in the Plan, some of the monitoring sites have not yet been established but will be as the Plan is implemented. Additionally, some locations cannot be shown effectively on a map at a scale that could be feasibly included within the document. In addition, it was infeasible to include all of the existing temperature monitoring sites on Figure 6-9 in the Plan because the high density of sites across the Plan Area which would physically overlap many of the other depicted sites.

Providing maps for many of the subjects that the commenter requested for inclusion into the Plan was not feasible, nor are maps required where the information mapped therein is irrelevant to the Plan analysis. Some of the information, such as connectivity sites, have not yet been collected for the entire Plan Area. Green Diamond would be required to collect this information as part of the road assessment process as it develops. The information will be retained in a database for use during road implementation plan projects. Maps of road type densities and crossing densities could be mapped once the road assessments are completed.

Mapping potential water drafting locations and locations of potential yarding corridors through riparian buffers would not be useful for inclusion into the AHCP/CCAA because they are only potential locations, not actual sites. However, planned water drafting sites that would be used as part of harvesting operations will be mapped by Green Diamond, and available pursuant to the THP process.

There are specific conservation measures proposed and outlined in the Plan that are required as part of activities relating to rock quarries and borrow pits. AHCP/CCAA Section 6.3.3.13. Activities in and around the quarries and borrow pits are treated similarly to the Road and Landing Use Limitations described in AHCP/CCAA Section 6.3.3.9.

Regarding riparian widths, see Master Response 18 and the above responses to comments.

Regarding the adaptive management reserve account, see Master Response 15.

Response to Comment G6-41

The AMRA is set forth in AHCP/CCAA Section 6.2.6.3, and is discussed in AHCP/CCAA Section 6.3.6.2 and Master Response 15. The acreage referred to in the AMRA is located within Green Diamond's ownership. There is no existing map of the AMRA acreage. Regarding marbled murrelet, see response to Comment G5-5. Rate of harvest is discussed in Master Response 11. Road density is discussed in Master Response 17.

Response to Comment G6-42

As discussed in AHCP/CCAA Section 7.4, the measures in the Plan were designed to improve conditions in the Plan Area compared to current conditions and the No Action Alternative. Further, as explained in AHCP/CCAA Section 7.6, each of the potential impacts of incidental take that are summarized in AHCP/CCAA Section 5 would be minimized and mitigated to the maximum extent practicable for the ITP species as a result of Plan implementation. Because the Operating Conservation Program as a whole addresses potential impacts collectively, NMFS expects that the covered activities conducted pursuant to the Operating Conservation Program would benefit all of the covered species in the Plan Area and minimize and mitigate the impacts of taking to the maximum extent practicable.

Regarding the assertion that other measures, such as "no harvest buffers and a reduction of roads and crossings" would be "more positive," the Services note that the selection of specific prescriptions, including whether to include no-harvest buffers of any width or to reduce roads or stream crossings, is a matter of the

G6-41

Is the adaptive management reserve account a forest bank comprised of a-e habitat of Marbled Murrelet that sacrificial for wider RMZ limits? Is this account on Simpson property or is it government property? Where is the map of the acres?

Simpson failed to assess the rate of harvest and road building.

Our analysis IN ATTACHED DOCUMENTS of the cdfdata in this study as well as previous studies affirms that, due to the impaired condition of the watershed, only minimal disturbance from logging or road building should be allowed until the watershed shows signs of recovery.

Bombshell of a conclusion from the AHCP/CCAA

G6-42

1. "The incremental effect on the covered species of implementing the AHCP/CCAA will be positive." The "positive" effect is not as positive as is possible as could be achieved with no harvest buffers and a reduction of roads and crossings. Or is this a negative effect because of ongoing increase in sediment from management related activities. Continued even aged timber harvest using tractors will no be a positive effect on percent fines even if tons on perched fill is kept form failure if a sediment budget is positive on the landscape it has a negative effect in stream.

G6-43

2. The AHCP/CCAA Plan implementation will "not result in negative cumulative effects" is an incorrect aeration as proved by the Percent increase in sediment discharge section of this paper.

G6-44

3. On page 5-22 it states "In Simpson's view, the plan contributes to the maintenance and restoration" (Of ROADS is what it should say) "properly functioning habitat and thereby contributes to the recovery of listed species." Is this the only mention of properly functioning habitat? Is there data to support which streams are functioning properly and which are not? The proof is in the fact that all streams have declined covered species or have been declared impaired by the Regional Water Board.

A significant premise on page 5-7 is that the "plans conservation measures of the AHCP/AACC not only fully minimize and mitigate individual impacts" but will "result in significant improvements in habitat conditions." That is the logic that got all these watersheds in impaired condition.

G6-45

The idea that one could continue to harvest forests at a level in the past that caused degraded habitat conditions to be continued with a average of 1% of the sub-basin with a ten year rolling average. From my analysis Simpson will not change the high level of acres actively harvested. It is not necessarily the number of harvests that causes degraded habitats it is the overall level of activity in a given year over the percent of the watersheds area. In the appendix a-g have many tables oh how much harvesting occurred by the percent of watershed. This average can't be Simpson property solely; it must take into account total harvests in a watershed.

G6-46

I have a problem with the conclusion of C-5.2.2.4 where "timber harvest lowers stream temperatures." The research has not enough data or number of occurrence of studied harvests to make that determination.

REFERANCES

Addendum: Review of Freshwater Flooding Analysis Summary. Dated 25 October 2000
Thomas Lisle, Leslie Reid, Robert Ziemer.

Bury 1968 The distribution of *Ascaphus truei* Herpitológica 24(1) p.39-46

Bury 1983 Differences in amphibian population in logged and old growth redwood forest. *Norwest Science* 57:167-178

Vesly D. G., McComb W.C. 2001 Salamander abundance on amphibian species richness in riparian buffer strip in Oregon Coast Ranges.

WNC Networker Summer 2001

FEMAT (Forest Ecosystem Management Assessment Team). 1993 Forest ecosystem management: an ecological, economic and social assessment. Report of the Forest Ecosystem Management Team. 1993-793-071. U.S. Government Printing Office.

Permit applicant's discretion (HCP Handbook at 3-19). The Services' role in designing the conservation program is to "be prepared to advise" during the development of the Plan and to judge its consistency with the ESA Section 10(a) approval criteria as a whole once the application is complete (HCP Handbook at 3-6 and 3-7). The prescriptions Green Diamond has elected to include, with the input of the Services, are set forth in the Operating Conservation Program (Plan section 6.2). The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance (see Master Response 8) be met. The Services believe that the Plan meets these criteria.

This is expected to help test the conclusions of the Plan and adjustments can be made as appropriate within the limit of the AMRA.

Response to Comment G6-43

A discussion of cumulative effects, including the effectiveness of the Operating Conservation Program as a whole, is provided in Master Response 3 and discussed in the response to Comments G4-20 through G4-23, among others. As explained therein, the Plan supports this conclusion.

Response to Comment G6-44

Conditions in watersheds in the Plan Area are discussed on an HPA-by-HPA basis in AHCP/CCAA Section 4.4.

Response to Comment G6-45

See Master Response 11 regarding the rate of harvest.

Response to Comment G6-46

Fortunately, the Plan requires continued data collection and study which would be useful in overall knowledge of timber operations' impacts on certain aquatic species in the vicinity of the Plan Area. The data from the BACI Water Temperature Study are preliminary. This monitoring is in the early phases of a long-term study. Additional monitoring sites are and have been added along with additional post-harvest monitoring on the existing sites to further explore the complex interaction between timber harvesting in small headwater streams and water temperature.

Appendix a-g (Ownership table and graph of harvest [yard/silviculture], watershed total harvest tables, thp maps and roads in buffer maps, new roads map and graph clipped to the Simpson boundary. Photo of costal Trinidad under snow to prove rain on snow event could happen to all the HPAs.)

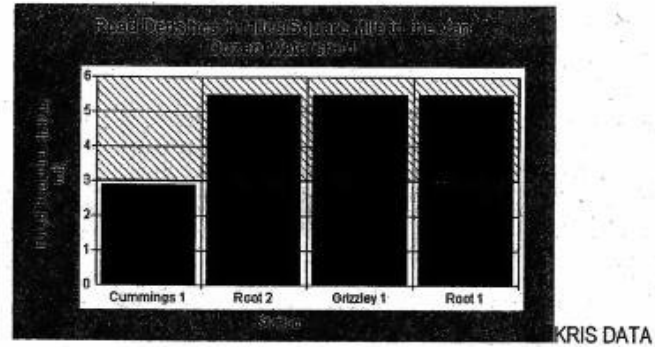


Table 5 Representing a 136% Increase in Clear Cutting Updated 8/12/02 (Van Duzen WA Comments BY LEGACY-TLC)

- Projected 10 year plan for the Van Duzen called for timber management of 4437 acres.
- In a 3 year period from 1999- present, Palco has logged or had plans approved to manage 4222 acres.
- In a 3 year period from 1999 – present, Palco has been approved for clearcutting 2113 acres and submitting plans to clearcut 128 acres for a total of 2241 acres clearcut in the watershed.

Current Riparian Conditions in Van Duzen Watershed

- 28.6% of sites did not meet the PFC target for LWD.
- 98% of the stands in the Van Duzen WAU did not meet PFC targets for LWD recruitment.
- Lethal Stream Temperatures in Grizzly Creek and Van Duzen mainstem.
- 33% of all streams in WAU are not meeting the PFC of 85% canopy cover.
- Buffer zones not wide enough to supply adequate LWD, counter edge effects and moderate temperature via relative humidity and ambient air temperature
- Deficit of organic material and ground cover on over 25% of stream channels studied.

Figure 8 Redwood Cr Basin Estuary	Prairie Creek	Lower	Middle	Upper	TOTAL	
Area (mi.)	5	40	69	100	68	282
Roads (mi.)	58	271	327	461	382	1,499
Density (mi./mi.2)	11	7	5	5	6	5
Acres Harvested	563	3,521	28,654	49,830	16,807	99,058

NICWAP DATA IN FIGURE 8

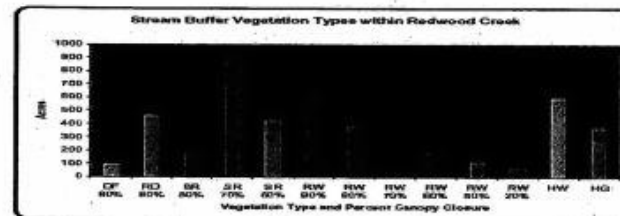


Figure 7: Stream Buffer Vegetation Type and Density Cover.
 *Vegetation type classes are shown as vegetation type and canopy closure is shown as percent.
 Douglas-fir (DF), Redwood - Douglas-fir (RD), Sitka Spruce - Redwood (SR), Redwood
 (RW), AR Redwood species (HW) and annual grassland (HG) have no cover percent.

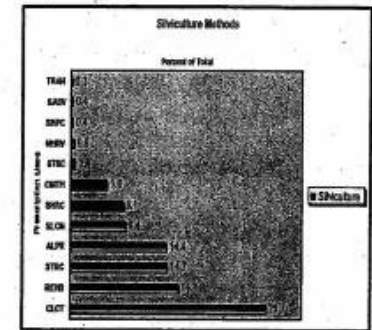
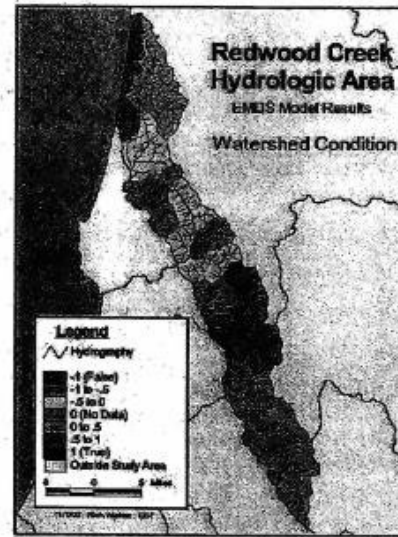


Figure 14. Upper Redwood Creek Silvicultural Methods and Intermediate Treatments, 1985 to 2000.

Notice that clear cutting at the bottom is the largest recent percent. Seed Tree Removal, Alternative, and Rehabilitation prescriptions are often the end result that looks like a clear cut after timber harvest occurs.

Figure 9. NICWAP Program Results Redwood Cr.

Which sub-basins have most of the properties that Simpson management created current conditions shown in the above image?

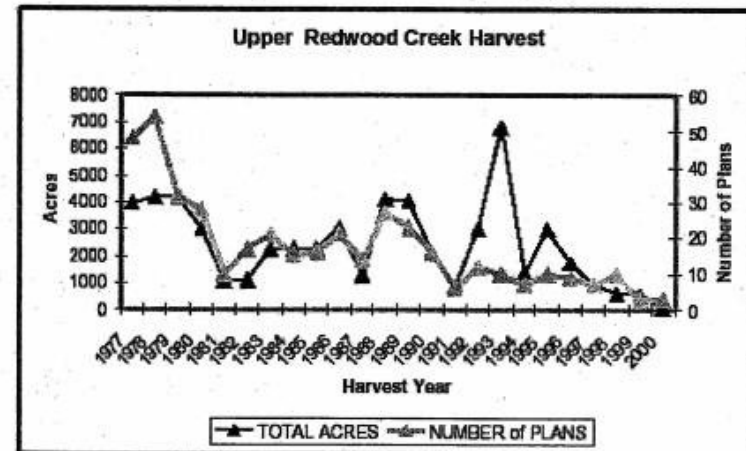


Figure 10. Relation of size harvest activities compared to the number of timber harvest plans.

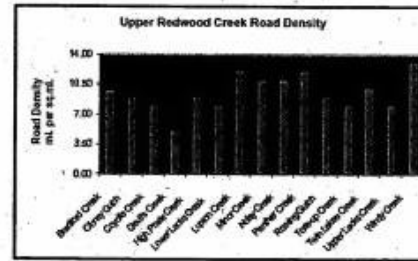


Figure 12 Road Density for Selected Planning Units within the Middle and Upper Reaches of Redwood Creek.

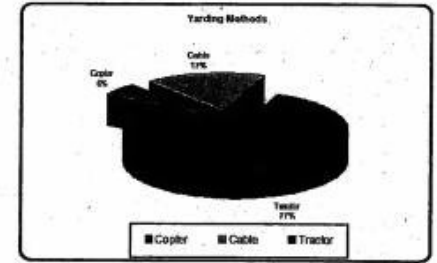


Figure 13 Upper Redwood Creek Yarding Systems Utilized during the period of 1987 to 2000.

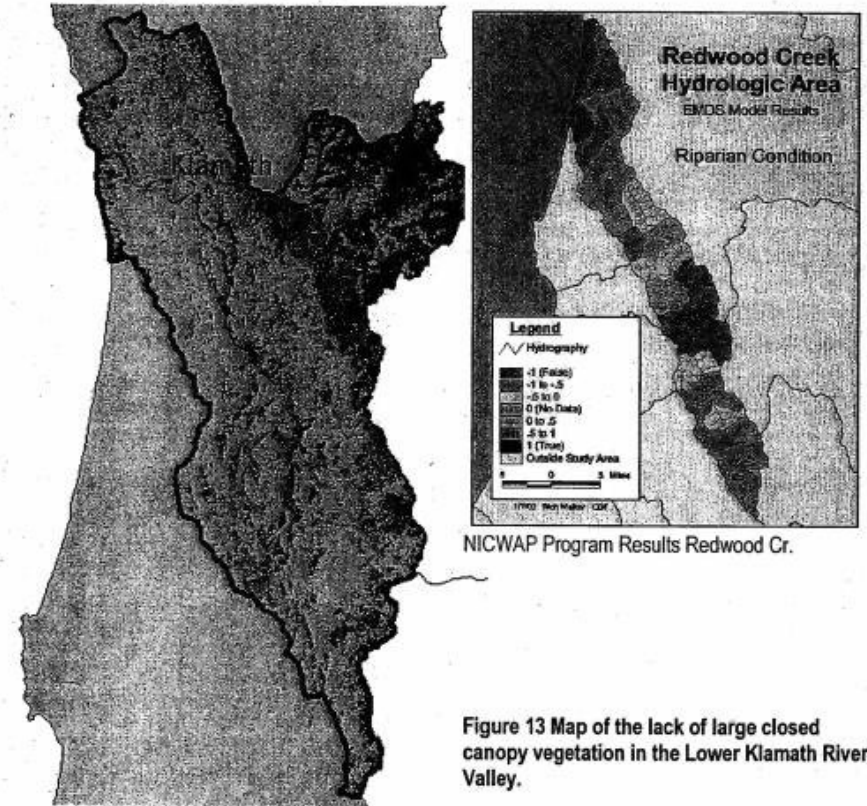
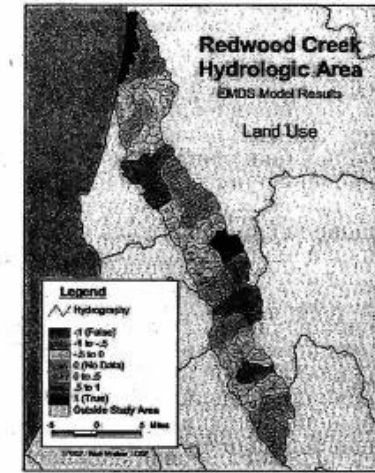
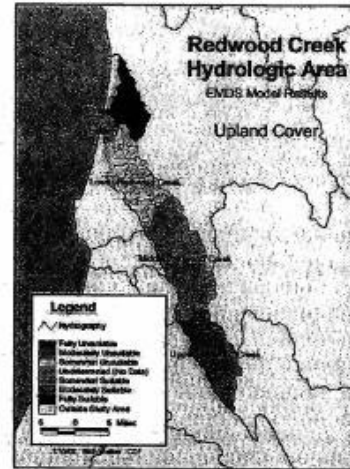
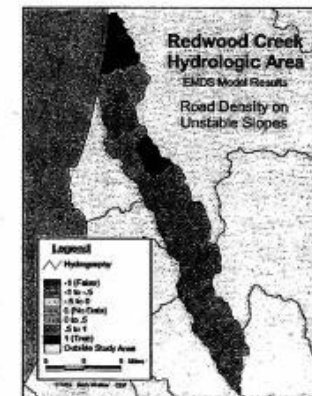
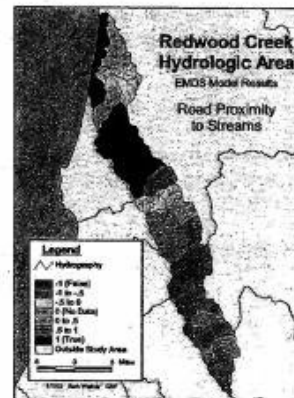
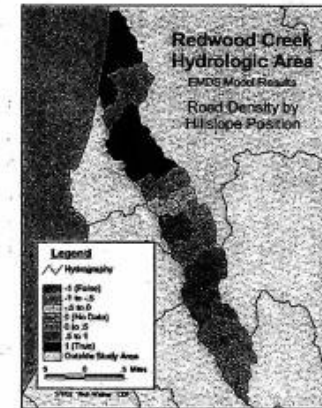
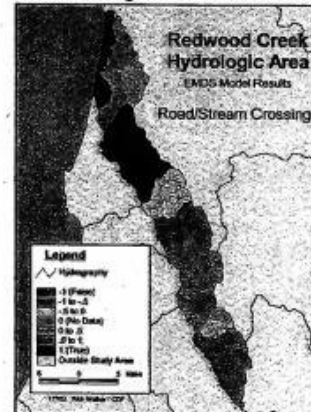


Figure 13 Map of the lack of large closed canopy vegetation in the Lower Klamath River Valley.



NICWAP Program Results Redwood Cr.



NICWAP Program Results Redwood Cr.

Table 8: Cumulative Harvest Percentage of Original Forests Within Redwood Creek, excluding the Prairie Creek Area, for Key Years.

Year	Percent	% Change
1948	5	
1954	21	16
1962	35	14
1978	62	27
2000	64	2

Table 1: Reference Curve Metrics for EMDS Watershed Condition Model.

Watershed Condition Factor	Reference Curve Metric
Canopy	Percent area of riparian vegetation within 200' feet of stream and compared to canopy closure on reference streams.

Riparian Function

Canopy Density Average percent of the thalweg within a stream reach influenced by tree canopy. <50% fully unsuitable.

The curve breakpoints are taken from the EMDS model created by Reeves, Reynolds, et al. for the Coho salmon on the Oregon coast. (Reeves, pers. comm.) For canopy 30% to 70% forest cover outside of the riparian buffer and inside the values are 50% to 85% in order to have properly functioning habitats for salmon.

Table 22: Harvest Rates and Acres Logged within Lower Redwood Creek from 1945 to 1978.

Time Period	Harvest Acres	Annual Average
1945 - 1955	3,593	326
1956 - 1964	9,627	1,069
1965 - 1968	4,365	1,120
1969 - 1978	11,069	1,106

Table 27: Comparison of the Acres Harvested for the Two Subbasins Upstream of the Park Boundary for the Period of 1950 to 1999.

Years	Middle	Upper Subbasin
1950 - 1959	1,960	1,117
1960 - 1969	1,505	741
1970 - 1979	8,553	1,147
1980 - 1989	24,750	13,693
1990 - 1999	3,291	729

Table 32: Comparison of Acres Harvested for the Two Subbasins Upstream of the Park Boundary for the Period of 1950 to 1999.

Years	Middle	Upper Subbasin
1950 - 1959	1,960	1,117
1960 - 1969	1,505	741
1970 - 1979	8,553	1,147
1980 - 1989	24,750	13,693
1990 - 1999	3,291	729

Instream sediment sampling at Highway 299 indicates that the percent of fine materials does not meet TMDL targets, which may indicate the presence of less suitable spawning substrate for salmonids. Historic and recent timber harvest in Middle and Upper Redwood Creek subbasins frequently removed large conifer vegetation down to the stream bank, severely reducing the available recruitment supply of large woody debris. The annual clear-cut equivalent acre calculations were made for each silvicultural methods percent were multiplied by the number of acres of each silviculture where clear cutting, transition, sanitation Salvage, rehabilitation and road right of way were given a 100% of vegetation removal. Shelterwood removal and seed tree removal were given 75% value, and shelterwood prep, seed tree step, selection, commercial thin and alternative prescription were given a 50% value.

Letter - G6

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Clickxings.shp

Unique Value

Pyzname

Number	Pyzname	Label	Count
•	Ah Pah Creek	Ah Pah Creek	41
•	Bear Creek	Bear Creek	56
•	Bens Creek	Bens Creek	164
•	Cappell Creek	Cappell Creek	68
•	E. Fork Pecwan Cree	E. Fork Pecwan Cree	27
•	High Prairie Creek	High Prairie Creek	34
•	Hoppaw Creek	Hoppaw Creek	13
•	Indian Creek	Indian Creek	64
•	Johnson Creek	Johnson Creek	54
•	Lower Blue Creek	Lower Blue Creek	34
•	Lower Little Pine Cree	Lower Little Pine Cree	11
•	Lower Pine Creek	Lower Pine Creek	25

Fruits & Vegetables

kg1

Clickxings.shp

Unique Value

Spwzname

Number	Spwzname	Label	Count
•	Ah Pah Ridge	Ah Pah Ridge	277
•	Blue Creek	Blue Creek	138
•	Pecwan Creek	Pecwan Creek	284
•	Pine Creek	Pine Creek	143
•	Roach Creek	Roach Creek	324
•	Tully Creek	Tully Creek	267
•	Turwar Creek	Turwar Creek	380

Fruits & Vegetables

Letter - G6

Page 16

Clickwings.shp

Unique Value

Firstname

NAME	NAME	NAME	Count
Lower Pine Creek	Lower Pine Creek	Lower Pine Creek	25
Lower Roach Creek	Lower Roach Creek	Lower Roach Creek	32
Lower Tectah Creek	Lower Tectah Creek	Lower Tectah Creek	76
Lower Tully Creek	Lower Tully Creek	Lower Tully Creek	1
Lower Turwar Creek	Lower Turwar Creek	Lower Turwar Creek	39
Lower West Fork Hur	Lower West Fork Hur	Lower West Fork Hur	55
Mawah Creek	Mawah Creek	Mawah Creek	71
McGarvey Creek	McGarvey Creek	McGarvey Creek	87
Mettah Creek	Mettah Creek	Mettah Creek	30
Middle Roach Creek	Middle Roach Creek	Middle Roach Creek	10
Moreck Creek	Moreck Creek	Moreck Creek	4
Potato Patch Creek	Potato Patch Creek	Potato Patch Creek	40
Snow Camp Creek	Snow Camp Creek	Snow Camp Creek	32
Surpur Creek	Surpur Creek	Surpur Creek	108
Tarup Creek	Tarup Creek	Tarup Creek	72
Upper Little Pine Cree	Upper Little Pine Cree	Upper Little Pine Cree	57
Upper Pine Creek	Upper Pine Creek	Upper Pine Creek	18
Upper Roach Creek	Upper Roach Creek	Upper Roach Creek	180
Upper Tectah Creek	Upper Tectah Creek	Upper Tectah Creek	53
Upper Tully Creek	Upper Tully Creek	Upper Tully Creek	31
Upper Turwar Creek	Upper Turwar Creek	Upper Turwar Creek	72
Upper West Fork Hur	Upper West Fork Hur	Upper West Fork Hur	80

Fruits & Vegetables

Advanced Search

K91

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 Legend Name: Unique Value

Symbol	Name	Value	Count
●	Arcata	Arcata	49
●	Arcata Bottoms	Arcata Bottoms	3
●	Bary Ridge	Bary Ridge	4
●	Bell Creek	Bell Creek	1
●	Blue Side Creek	Blue Side Creek	3
●	Booths Run	Booths Run	4
●	Boulder Creek	Boulder Creek	11
●	Bracut	Bracut	43
●	Bulwinckle Creek	Bulwinckle Creek	26
●	Butler Valley	Butler Valley	4
●	Camp	Camp	11
●	Camp 12	Camp 12	3
●	Cummings	Cummings	15
●	Dean Creek	Dean Creek	13
●	Eddysville	Eddysville	8
●	Elkhead	Elkhead	4
●	Fields Landing	Fields Landing	4
●	Freshwater Creek	Freshwater Creek	11
●	Gas Wells	Gas Wells	10
●	Goodman Prairie Cree	Goodman Prairie Cree	16
●	Graham Creek	Graham Creek	29
●	Hutchey Creek	Hutchey Creek	15
●	Hydesville	Hydesville	26

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 Legend Name: Unique Value

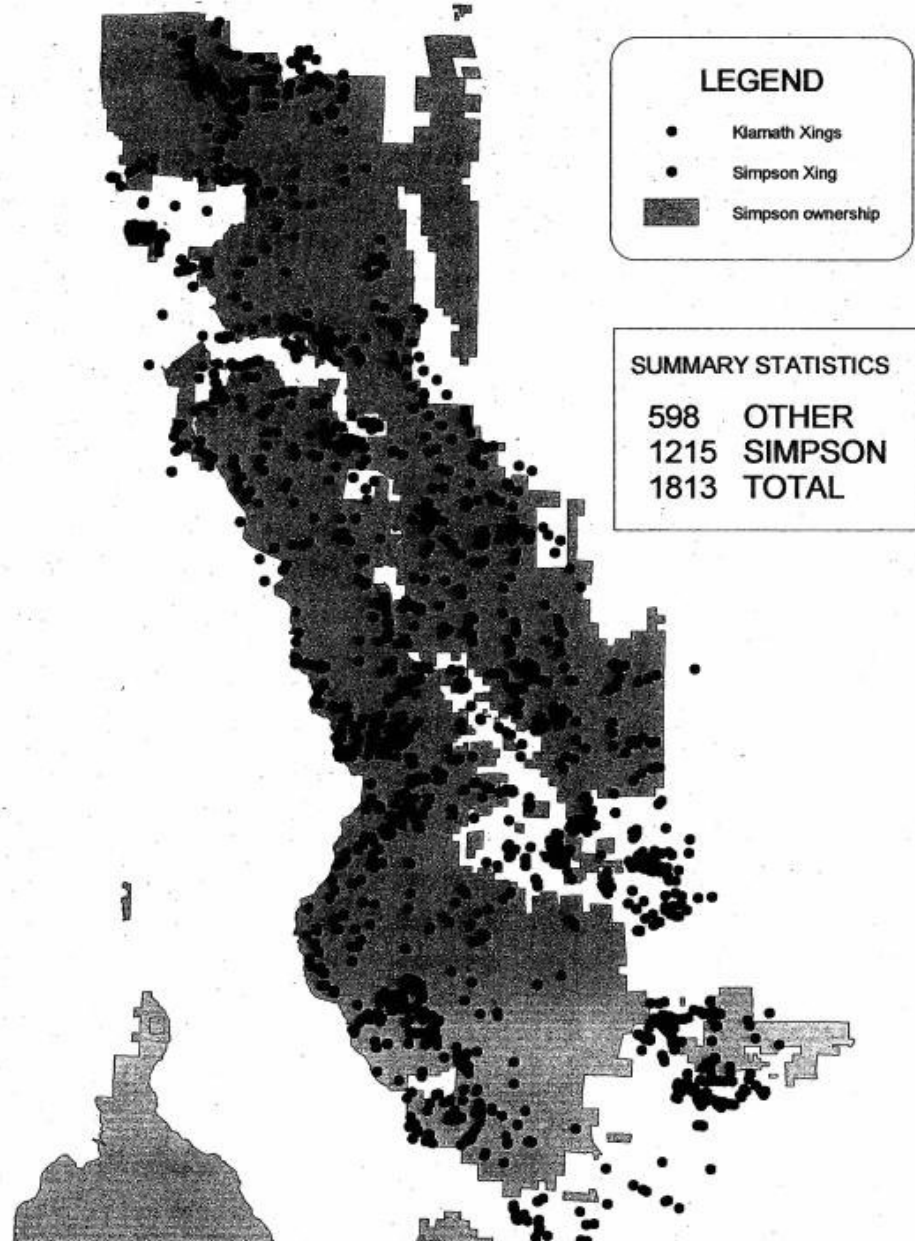
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●	Hydesville	Hydesville	26
●	Joly Giant Creek	Joly Giant Creek	9
●	Lawrence Creek	Lawrence Creek	17
●	Loleta	Loleta	39
●	Lower Elk River	Lower Elk River	15
●	Lower Jacoby Creek	Lower Jacoby Creek	19
●	Maple Creek	Maple Creek	35
●	McKay Tract	McKay Tract	11
●	Mill Creek	Mill Creek	7
●	Mother Creek	Mother Creek	15
●	Newberg	Newberg	34
●	North Fork Yager Cre	North Fork Yager Cre	40
●	Norton Creek	Norton Creek	12
●	Palmer	Palmer	24
●	Powers Creek	Powers Creek	50
●	Ryan Slough	Ryan Slough	26
●	Salmon Creek	Salmon Creek	4
●	Scout Camp	Scout Camp	7
●	Shaw Creek	Shaw Creek	2
●	Side 8	Side 8	16
●	South Fork Elk River	South Fork Elk River	4
●	Squaw Creek	Squaw Creek	13
●	Strawberry Creek	Strawberry Creek	11

Legend Editor
 Name: Hbavstmp1.shp
 Legend Name: Unique Value

Symbol	Name	Value	Count
●	Strawberry Creek	Strawberry Creek	11
●	Turkey Foot	Turkey Foot	18
●	Upper Jacoby Creek	Upper Jacoby Creek	11
●	Upper Salmon Creek	Upper Salmon Creek	2
●	Warren Creek	Warren Creek	14
●	Yager Creek	Yager Creek	17

H&A
①

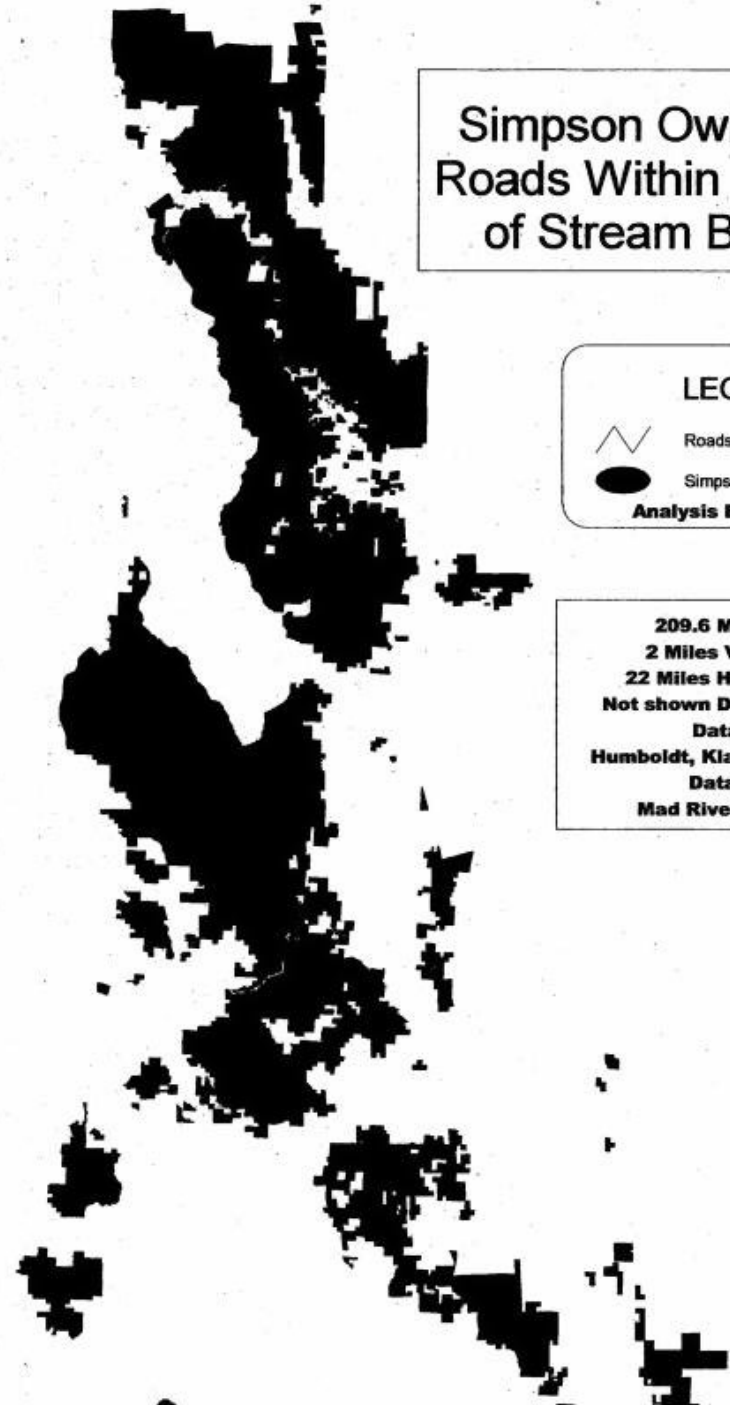
Klamath Glenn Road to Stream Crossing Points



Letter - G6


Page 19


Dow Jones & Co., Inc.	3,157,600	194,192	.34
Gannett Co., Inc.	1,675,800	129,246	.23
Knight-Ridder, Inc.	1,850,000	117,475	.21
		440,913	.78
Business Services _ 1.97%			
Deluxe Corp.	2,000,000	56,500	.10
Diebold, Inc.	700,000	18,375	.03
Dun & Bradstreet Corp.	4,962,800	145,782	.26
Electronic Data Systems Corp.	3,050,000	178,425	.31
First Data Corp.	5,396,400	246,548	.44
IKON Office Solutions, Inc.	7,285,000	50,084	.09
Interpublic Group of Companies, Inc.	2,724,400	110,679	.19
Pitney Bowes Inc.	5,314,500	242,142	.43
Service Corp. International	7,078,000	67,684	.12
		1,116,219	1.97
Leisure & Tourism _ .37%			
McDonald's Corp.	5,000,000	206,250	.37
Merchandising _ 3.60%			
Albertson's, Inc. 1.33%	20,694,440	751,467	
J.C. Penney Co., Inc.	12,540,500	318,215	.56
Limited Inc.	6,750,000	277,594	.49
Lowe's Companies, Inc.	2,500,000	137,500	.24
May Department Stores Co.	15,870,800	550,518	.98
		2,035,294	3.60
Diversified Telecommunication Services 11.96%			
AT&T Corp.	23,987,500	1,121,416	1.98
CenturyTel, Inc.	670,000	27,093	.05



**Simpson Ownership
Roads Within 75 Feet
of Stream Buffers**

LEGEND

 Roads within 75' of Streams

 Simpson ownership

Analysis By Doug Smith

209.6 Miles Total
2 Miles Van Duzen
22 Miles Humboldt Bay
Not shown Del Norte Roads
Data Rich
Humboldt, Klamath, Redwood
Data Poor
Mad River and Coast

Financial Services _ 3.28%			
American Express Co.	300,000	46,200	.08
Fannie Mae	4,925,000	348,444	.62
Household International, Inc.	24,047,482	1,073,119	1.90
MBNA Corp.	1,396,200	38,570	.07
Provident Financial Corp.	1,947,400	212,267	.37
SLM Holding Corp.	2,750,000	134,578	.24
		1,853,178	3.28
Insurance _ 4.60%			
Aetna Inc.	4,875,005	244,969	.43
Allstate Corp.	25,900,000	744,625	1.32
American General Corp.	7,205,000	534,521	.94
Aon Corp.	12,031,000	427,101	.76
Jefferson-Pilot Corp.	3,700,000	277,731	.49
Lincoln National Corp.	6,050,000	279,056	.49
Marsh & McLennan Companies, Inc.	1,200,000	94,875	.17
		2,602,878	4.60
Total Finance	12,365,990		21.86
Multi-Industry			
Multi-Industry _ 1.86%			
AlliedSignal Inc.	9,300,000	529,519	.94
Dover Corp.	6,350,500	270,293	.48
Minnesota Mining and Manufacturing Co.	2,500,000	237,656	.42
Whitman Corp.	1,050,000	13,650	.02
Total Multi-Industry	1,051,118		1.86
Miscellaneous			

Letter - G7. Signatory -CATs Californians for Alternatives to Toxics.

Response to Comment G7-1

The analysis in the EIS considers impacts (individual and cumulative) associated with the covered activities associated with the Proposed Action, which is issuance of a Federal ITP and ESP. Green Diamond has not proposed to include herbicide or rodenticide use as a covered activity (see AHCP/CCAA Sections 1.3.4 and 2; EIS Section 2.2), nor are the Services required to require its inclusion. Comments regarding herbicide use are addressed in Master Response 4.

Response to Comment G7-2

See Master Response 4 and responses to Comments G2-3 and G3-52, among others.

Response to Comment G7-3

The EIS describes the covered activities (EIS Section 2.2) and addresses the environmental consequences associated with each of the alternatives, including the No Action Alternative and the Proposed Action (EIS Chapter 4). The covered activities do not include operation of lumber mills. The current environmental conditions of waterways within the Plan Area are discussed in EIS Chapter 3. Potential water quality effects of pentachlorophenol or other chemicals from mill operations are not germane to the Services' consideration of the impacts of take on the covered species from the covered activities. Limiting the discussion to the relevant scope is consistent with 40 CFR 1502.15, which states that the description of the environmental setting in the EIS "shall be no longer than necessary to understand the effects of the alternatives."

CATs Californians for Alternatives to Toxics

315 P Street Eureka, CA 95501 USA

phone (707)445-5100 fax (707)445-5151

e-mail: cats@alternatives2toxics.org web site:

<http://www.alternatives2toxics.org>

November 19, 2002

To: Amedee Brickey
Fish and Wildlife Service
1655 Heindon Road
Arcata, CA. 95521

Re: Simpson Resource Company, California Timberlands Division Aquatic Habitat Conservation Plan (HCP) and Candidate Conservation with Agreement Assurances (CCAA) Draft Environmental Impact Statement (DEIS)

Dear Sirs,

Californians for Alternatives to Toxics (CATs) is a public interest organization concerned about the use of and alternatives to pesticides in California. The activities planned for the Simpson Aquatic Habitat Conservation Plan (AHCP) and Candidate Conservation with Agreement Assurances (CCAA) and analyzed in the Draft Environmental Impact Statement (DEIS) are of particular concern to our members who have an abiding interest in the effect of herbicides and other pesticides in the forest environment.

G7-1

Simpson states that it did not seek coverage of vegetation control with herbicides as part of the Permits. According to Pesticide Use Reports filed with the Humboldt County Agriculture Commissioner in 2001, Simpson used 3,147 gallons and 400 pounds of pesticides in 2001, including 3 pounds of gopher bait. Does Simpson intend to use gopher bait again? This is a rodenticide, not an herbicide and thus must be included in any future permit applications and attendant assessments and analysis that have to do with herbicides.

G7-2

Due to a recent Consent Decree, the U. S. Environmental Protection Agency will begin conducting consultations about the herbicides most used by Simpson and relating to the impacts of the herbicides in forestry operations to several of the listed endangered species in the areas of Simpson's operations. See attached Consent Decree Californians for Alternatives to Toxics, The Environmental Protection Information Center inc., and The Humboldt Watershed Council, Plaintiffs, vs. Environmental Protection Agency, Christine T. Whitman, Defendants. Case No. C00-3150 CW for further details (<http://www.alternatives2toxics.org/epa.htm>). Simpson and the National Marine Fisheries Service must begin the permitting process when the related determinations are completed and, at latest, when consultations are completed.

G7-3

In describing the current environmental conditions, the probability of contamination with pentachlorophenol at any of Simpson's mills, in particular the mill at Big Lagoon/Redwood Creek, which likely has contaminated the Big Lagoon, was not taken into consideration, nor were the

Letter - G7

Page 2

Nov 09 02 04:58p

CAT#

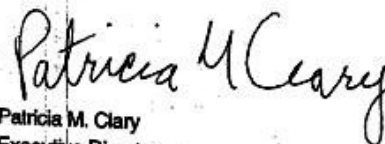
707-445-5151

p. 2

G7-3

probability of contamination with any number of other chemicals, particularly the petroleum hydrocarbons, where the aquatic condition may be affected. We are also aware of a botched clean up of various hydrocarbons at the Corbell Mill that effects Mad River. Contaminated sites must be identified, characterized and analyzed because these sites can have a very significant impact on the base environmental condition and add further stress to the environment and endangered species that must be considered. Because this critical information is missing, the DEIS fails and must be rewritten.

Sincerely,



Patricia M. Clary
Executive Director

Letter - G7

Page 3

2001 PUR

Simpson Timber Co.Pesticide Amounts:

• Aatrex = 161.56B, 30 oz, 332 GA
 172,584 oz } 2,614 oz

• Oust = 3,436.5 oz, 21 GA

• Garlon 4 = 1,779 GA, 52 oz,
 1 lb = 16 oz } 68 oz

• Roundup = 26.5 GA, 128 oz.

• Transline = 72 oz.

• Haster = 5.8 GA, 28 oz.

• 2,4-D = 445 GA

• Herbimax = 342 GA

• Garlon 3A = 8 GA

• Activator 90 = 98 GA

• R-11 = .5 GA

Letter - G7

Page 4

• Gopher Bait = 3 LB \Rightarrow 48 oz.

+ • Arsenal = 26 GA

3,075 GA, 6,394.5 oz

Row:

• Drexel = 5 GA

• Round-up = 21.75 GA

• Garlan 4 = 11 GA

• Activator 90 = 11.5 GA

• Roundup Pro = 12.75 GA

• Glypro = 9 GA

+ • Transline = 1 GA

72 GA

Grand total
+ Row \Rightarrow 3,147 GA, 400 lbs.

Letter - G7

Page 5

CATs Californians for Alternatives to Toxics

315 P Street Eureka, CA 95501 USA
phone (707)445-5100 fax (707)445-5151
e-mail: cats@alternatives2toxics.org web site:
<http://www.alternatives2toxics.org>

November 19, 2002

To: James Bond
National Marine Fisheries Service
1655 Heindon Road
Arcata, CA. 95521

Re: Simpson Resource Company, California Timberlands Division Aquatic Habitat Conservation Plan (HCP) and Candidate Conservation with Agreement Assurances (CCAA) Draft Environmental Impact Statement (DEIS)

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Letter - G7

Page 6

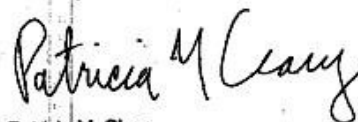
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P. 6

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Sincerely,



Patricia M. Clary
Executive Director

2001 PUR

Simpson Timber Co.

Pesticide Amounts:

• Aatrex = 1161.5 LB, 30 oz, 332 GA
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Letter - G7

Page 8

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• Glypro = 9 GA

+ • Transline = 1 GA

72 GA

Grand total

+ Row

\Rightarrow

3,147 GA, 400 lbs

Letter - G8. Signatory - Salmon Forever.

Response to Comment G8-1

Receipt of the report acknowledged, thank you. The Plan, consistent with regulations governing the Services' approval of ITP applications, includes a conservation plan that is based on the best scientific and commercial data available. Literature relied upon in drafting the Plan is identified in AHCP/CCAA Section 9. The Plan includes measures relating to the potential for slope failure in the Plan Area.

Licensed foresters, California Registered Geologists and other resource professionals will assist with planning operations in the Plan Area, including implementation of the Operating Conservation Plan. However, determinations of "significance" and "risk of take" were not within the applicant's discretion but were reviewed by the Services. The Plan sets forth a variety of measures to address various potential impacts, such as those from slope failure. The Services believe that the Plan as a whole meets the HCP/CCAA approval criteria (Master Response 8) and that the Plan will achieve its purposes.

In any case, IA paragraph 8.5 memorializes the Services' authority to conduct inspections and monitoring in connection with the Permits in accordance with Federal regulations. Further, there will be annual reviews for the first five years of the Plan. In the second and fourth years, the annual meeting will be followed with a field review of implemented conservation measures to allow technical evaluation of conservation measure implementation. AHCP/CCAA Sections 6.2.7.4, 6.3.7; IA paragraph 8.5. Biennial reports notwithstanding, the Services may request any additional available information reasonably related to implementation of the

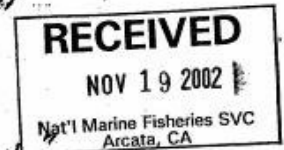
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Amedee Brickley or Susan Neel-Goodsir
This report is to be
Attached to Comments
of Harriet Hill, Salmon
Forever and Jesse Howell for Simpson
HCP/SYP
—thanks Jesse Howell
SUSAN NEEL-GOODSIR for
822-8411

TO: FWS, NMFS, CDF
RE: Simpson HCP/SYP
Date: Nov 19, 2002

Prehistory Report



TO Whom it may concern,
Observational methods used to determine the significance of ^{changes in} slope failure hazard ^{associated with the plan SYP} or inadequate. The attached report provides best available information for failure hazard for similar soils to those found on Simpson lands. This report documents increased hazard resulting from vegetation removal/soil pore pressure changes/road side cast, fill, and cut related failures.

G8-1

Furthermore, a geotech who ~~has~~ ^{determines} "significance" using a poorly defined or undefined parameters, provides an arbitrary and capricious determination of "significance" to the wildlife biologist or fisheries professional who must determine what level of "risk" or "take" the species can tolerate. Finally, it is unprofessional conduct for the geotech to go on "risk" whether that risk be to beneficial use of water, hydrology, or species. Sincerely, Jesse Howell

Plan in Green Diamond's possession or control, or in the possession or control of any of its affiliates, contractors or other third parties covered by the Permits for the purpose of assessing whether the terms and conditions of the Permits and the Plan are being fully implemented. Green Diamond is required to use its "best efforts" to provide any such information within 30 days of the request (IA paragraph 8.3). Professional technical staff of the Services and of Green Diamond will work together to evaluate effects associated with Plan implementation in the Plan Area.

See Master Response 13 regarding the role of foresters and practice of geology. As discussed there, any covered activities that involve geological issues and require the expertise of an RG would need to be carried out by, or occur under the supervision of, an RG as required by California law. See Business and Professions Code section 7800 *et seq.* The Services believe that the Plan has adequate measures to minimize and mitigate impacts to the covered species to the maximum extent practicable. See AHCP/CCAA Section 6.2.2 and 6.3.2 for a discussion of the measures.

Letter - G8

Page 2

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MANAGEMENT-RELATED LANDSLIDES ON
PACIFIC LUMBER LANDS, HUMBOLDT CO., CA:
A GEOTECHNICAL PERSPECTIVE

NOVEMBER 2001

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Purpose

The purpose of this report is to document the findings and implications of landslide and road cut-slope surveys conducted in 1999 and 2000 on Pacific Lumber lands in the Freshwater, Elk River, Van Duzen, Lower Fel, and El Delta watersheds, Humboldt County, California. It must be noted that there are many landslide features mapped in these watersheds which may be active or dormant in nature. The recognition of these potentially-unstable landforms is important and proper precautions must be taken in dealing with them. However, unless reactivated by land-management activities, the focus of this survey was not concentrated on these features but on those landslides which were obviously related directly to land management. In that respect, this landslide survey was not intended to be a complete landslide inventory only to provide insight on how to identify and quantify the mode of management-related slope failures and the factors contributing to those failures. Soil-mechanics-based stability analysis methods were used in this quantification process. The effects of management activities such as road cut-and-fill slope construction, quarry-site development, and tree removal can-be-and-were modeled in these stability analyses. The end result is a compilation of data which should provide a better understanding of the effects of land management on the stability of slopes. It is intended that this initial data will provide the framework and starting point for a dynamic geotechnical database which will aid land managers in the prevention and/or mitigation of future management-related landslides. Suggestions and guidelines for geotechnical specialists for use in future geotechnical investigation and analysis are included which will facilitate the evaluation of management activities on landsliding potential.

Approach

This work was completed independent of the field work for the mass wasting (slope stability) part of the analysis of these various watersheds. However, to be of maximum value to management, the data gathered for the watershed analysis should also function to support subsequent levels of management (timber harvest planning and development). This required an understanding and quantification of management-related landslides and similar data from actual landslides which compliments and supports the watershed data. This study was intended to

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provide that direct link to the watershed data by using the same soil-mechanics-based stability analysis methods used to analyze existing management-related landslides. These methods of stability analysis are proven methods used universally by geotechnical engineers to quantify and evaluate existing soil, rock, and groundwater conditions for the design and construction of stable slopes or landslide-mitigation structures. In their simplest form, these stability analysis methods are applicable to the evaluation of slopes of watershed proportion. Much effort is being exercised in watershed analysis and the types of information and data being gathered can be useful beyond this level of management decision making if it is put into a geotechnical format. The watershed analysis should be only the beginning of the stability analysis and evaluation process and not a "dead-end". This approach is applicable to all levels of planning and development and is facilitated by a geotechnical database which becomes more accurate with use and feedback.

Since only management-related landslides were surveyed, it became obvious in review that the findings were not purely geotechnical but could be of value directly to land managers. With that in mind, this report is directed at two audiences: the land manager who makes the risk-versus-consequence decisions for the management of landforms of marginal stability and for the geotechnical specialist who can provide the problem definition and evaluation to support that decision-making process. An attempt has been made to separate the body of this report into less-technical paragraphs in which a land manager unfamiliar with soil mechanics can review the contents without getting bogged down with technical jargon. The more-technical material directed at the geotechnical specialist with a soil-mechanics background is included in the later parts of the report, primarily in the Appendices. It must be noted that this is not a soil-mechanics primer and this technical material may not be of interest to the physical geologist or civil engineer who does not have a geotechnical background or geotechnical experience.

Intended Use - By the Land Manager

To land managers, the material in this report is intended to accomplish two things:

- * to provide a better understanding of the importance of geotechnical input (founded on a good database) to the long-term decision-making process and
- * to point out some implications for future management activities which can be concluded from the management-related landslide and road cut-slope surveys.

The primary purpose of a geotechnical database (and the only good reason to have one) is to provide the input for stability analysis for the evaluation of landslide potential from land-management activities and to aid the management decision-making process. Furthermore, since these land-management decisions must be made at more than one level, a dynamic database must be functional enough to support decisions at all levels.

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Decisions on at least three broad levels of land-management must be supported:

Level I - Resource Allocation. This is the broad watershed analysis level. At this level, decisions are often made as to whether-or-not to manage or how intense the management activity can be in relationship to landslide risk and consequence. However, at this level, the data available to support such decisions is often not adequate and these critical decisions should not be finalized without further evaluation at the next level. Therefore, the most significant attribute of this level of analysis is to locate those geomorphic landforms which have the greatest risk and/or consequence and which should require the most attention in the next level.

Level II - Resource Planning. This is the timber harvest planning level. At this level, site-specific data is used to better evaluate the potential for landsliding resulting from land-management activities. Level I data can be field evaluated and additional data gathered as required for the Level II analysis. This data is used to update and improve the database. During this Level II reconnaissance, the most critical locations on the landforms can be identified for evaluation at the next level.

Level III - Resource Development. This is the timber-harvest and road-construction level. At this level, specific slopes are evaluated and specific designs are developed to prevent or mitigate a specific landslide which might result from land-management activities. The data gathered at this level is the most accurate for upgrading the database for future analysis.

It must be recognized that there are other methods in common use for rating the sensitivity of landforms to landsliding potential which do not require a geotechnical database. These methods are often less expensive to apply and rely primarily on the identification and evaluation of physical site factors. These methods are used primarily at Level I and unfortunately, if misapplied, usually result in a "manage-or-don't-manage" decision. Also, particularly at Level I, these methods tend to "dead-end" since they do not lend themselves to applications at the subsequent levels of management decision-making. The reason for this is that these other methods are not based on a sound mechanical model which considers all of the variables in the proper proportion. The "what-happens-if-we-manage-this-way" type of questions that a land manager should ask can only be evaluated by modeling the anticipated changes which could be caused by the management activity in a relative stability analysis. In this type of analysis, the evaluation of the consequences of slope failure is as important as the evaluation of the risk in forming the management decision. The consequences ("so-what-if-it-fails" questions) can be addressed in relative proportion to the risk (potential for irreversible watershed or water-quality damage or land productivity). Such things as loss in root strength, increase in groundwater concentration, changes in slope geometry (road cut-and-fill slope construction), etc. can be modeled and evaluated in a realistic soil-mechanics-based stability analysis. To properly evaluate management alternatives, the separation and quantification of all variables is essential.

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Intended Use - By the Geotechnical Specialist

Much of the information in the later part of this report is intended for a geotechnical specialist with a working knowledge of soil mechanics. In addition to a knowledge of the typical mode of failure and suggestions for slope stability analysis of management-related landslides, there is much information on typical soil parametric values which should be of interest and useful in future geotechnical applications. The intent is to provide a geotechnical starting point for slope stability analysis. The initial hypothesis at the beginning of this project was that an experienced geotechnical specialist with a working knowledge of soil mechanics, using simple field observations and soil identifications, should be able to estimate soil shear strength parameters with sufficient accuracy to perform routine stability analysis. Most practical landslide situations do not warrant or cannot support extensive shear strength testing to quantify these parametric values. The information in this report can be used as the basis for a simplified and cost-effective means for estimating workable values for these parameters. This approach has been used throughout the northern Rockies and Pacific Northwest and, based on the findings of this study, it is applicable for Pacific Lumber property as well. This material is only a starting point and is not intended to replace good judgement or relieve the geotechnical specialist of the responsibility for self-calibration and for field verification on a case-by-case basis.

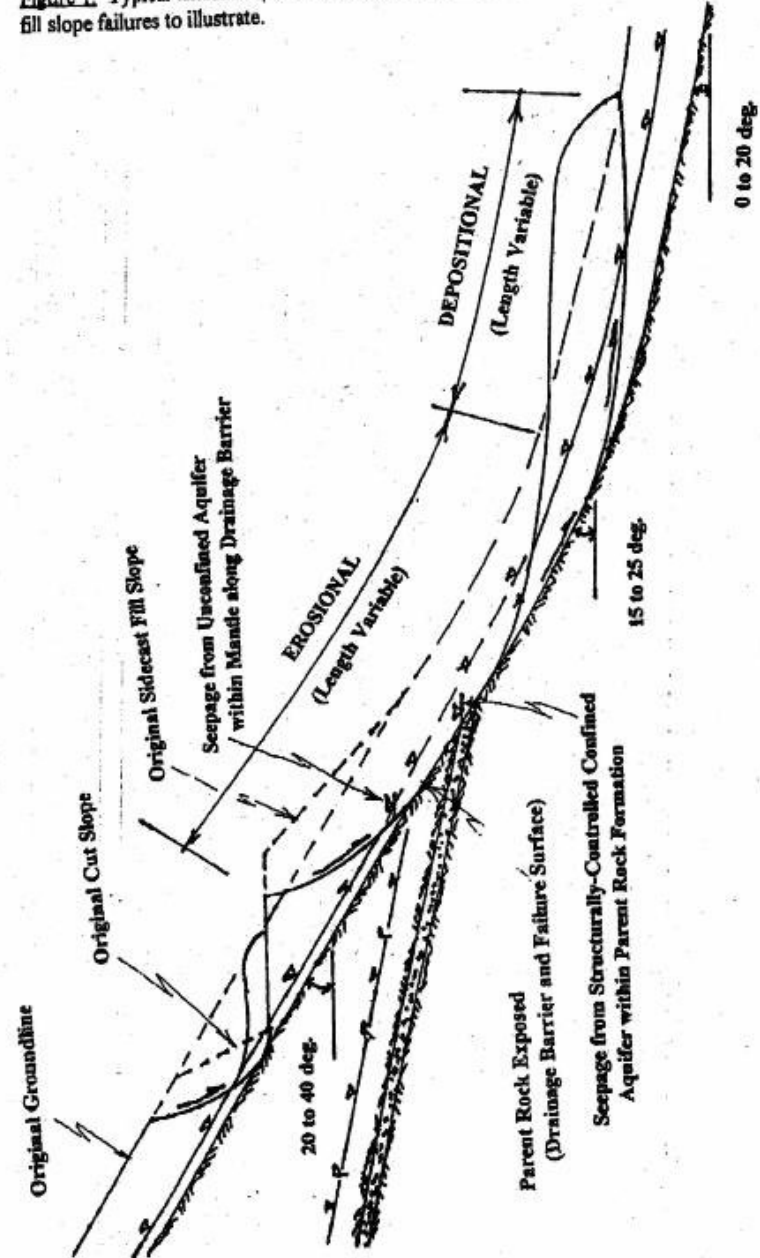
Summary of Surveys & Similar Characteristics of Management-Related Landslides

A total of 128 management-related landslides were surveyed in this study. Most of these were in the Freshwater and Lower Eel Watersheds. A good representation of geomorphic landforms and parent rock formations were included in the area covered. The occurrence of these landslides were probably within the last ten years and perhaps even the last five years judging from the rapid revegetation which makes field identification difficult. Appendix A contains photographs and typical sections of the landslides. Almost all management-related landslides were translational in failure mode (although some may have progressed from a rotational mode into a translational one) in that they were relatively shallow (less than 10 ft. in depth) and extending downslope a considerable distance (usually hundreds of feet) in relation to their lateral extent (usually less than 100 ft.). The surface of sliding and groundwater concentration mechanism was generally exposed directly below the headscarp. The prefailure slidemass material contained very little colluvium (gravity-transported soil and rock deposits) and the failure material was usually residual soil which formed the mantle at the ground surface from the weathering in-situ of the parent rock. This mantle is also the rooted zone where groundwater concentrates at a distinct contact with the lesser-weathered and less-permeable confining surface of the parent rock (see Photos 5 & 6). This condition is the primary reason for the translational nature of the landsliding as groundwater concentrates above the confining surface at the top of the less-weathered and less-permeable parent rock and seepage parallel to this drainage barrier results. Figures 1 and 2 illustrate this condition. As a result, the typical surface of sliding is at the base of the rooted zone which is the maximum depth of soil material of weaker shear strength (usually less than 10 ft. depth of soil mantle involved in the failure mass) and the maximum depth of perched groundwater in this unconfined aquifer. An exception to this generalization was observed in the highly-sheared rock on extremely steep slopes (usually over 80 %) in the Van

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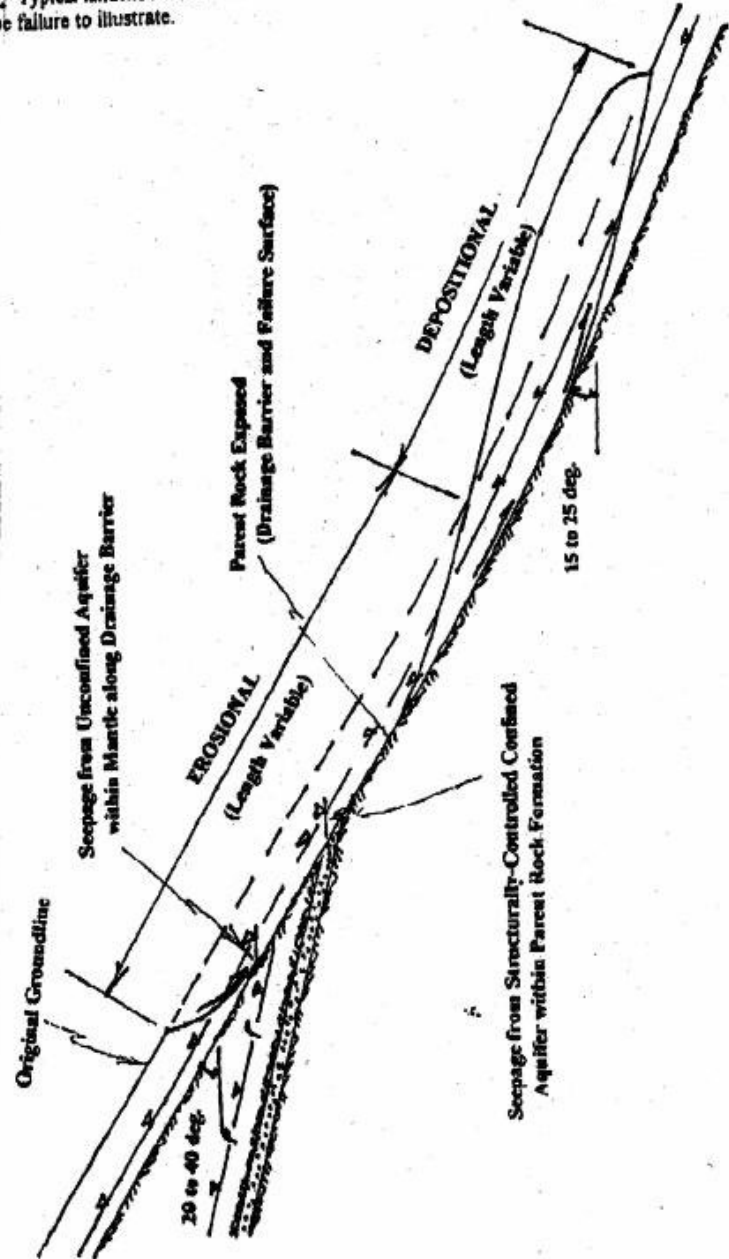
Figure 1. Typical landslide conditions for the Wildcat parent rock formation using road cut-and-fill slope failures to illustrate.



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Figure 2. Typical landslide conditions for the Wildcat parent rock formation using timber harvest-unit slope failure to illustrate.



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Duzen and Lower Eel Watersheds where landslides often had two distinct failure surfaces: one at the base of the rooted zone and a deeper translational surface in the sheared rock. At these sites, the total depth of the failed section was up to 20 ft. deep and probably involved a second unconfined groundwater aquifer perched at the base of the sheared rock (see Photos 23 and 24 and Figure 3).

An additional source of groundwater for the mantle originates from structurally-controlled confined aquifers within the parent rock (drainage barriers of less-permeable material both above and below the aquifer) in fracture zones (Photos 7 and 8) or sand layers (Photos 9 and 10). Photos 20 through 22 and Figures 1 and 2 show the relative physical relationship between these two aquifers on the slope. The quantity of groundwater in the deeper confined aquifer no doubt varies in response to seasonal precipitation changes as does the unconfined aquifer in the mantle but at significantly different response times, seepage velocities, and drainout times due to the differences in aquifer characteristics of the two (permeability, positions on the slope, groundwater flow paths, etc.). Usually there is little evidence at the ground surface above the subsurface seepage zones (such as water-loving vegetation) which would help to identify these location in the field before failure or exposure in a road cut slope.

The overall geomorphic shape of the ground surface and position on the slope were also determined to be a poor indicator of concentrated groundwater. Many landslides were found to originate as a result of seepage near ridge tops and on planar surfaces (Photos 14, 18, and 19) with only a minor concave shape developing as a result of the failure. The lack of widespread deep colluvial soils and/or the structurally-controlled seepage emanating from the parent rock appears to be the primary reasons for this. The seepage from these confined aquifers is also more continuous late into the year than the seepage which originates from the unconfined ("perched") aquifer in the surface residual mantle. This is probably due to the slower seepage velocities and drainout time of the structurally-controlled aquifers. Seepage from these deeper aquifers is probably the primary source of late-season streamflow long after the unconfined aquifers in the soil mantle no longer contain any free water for seepage.

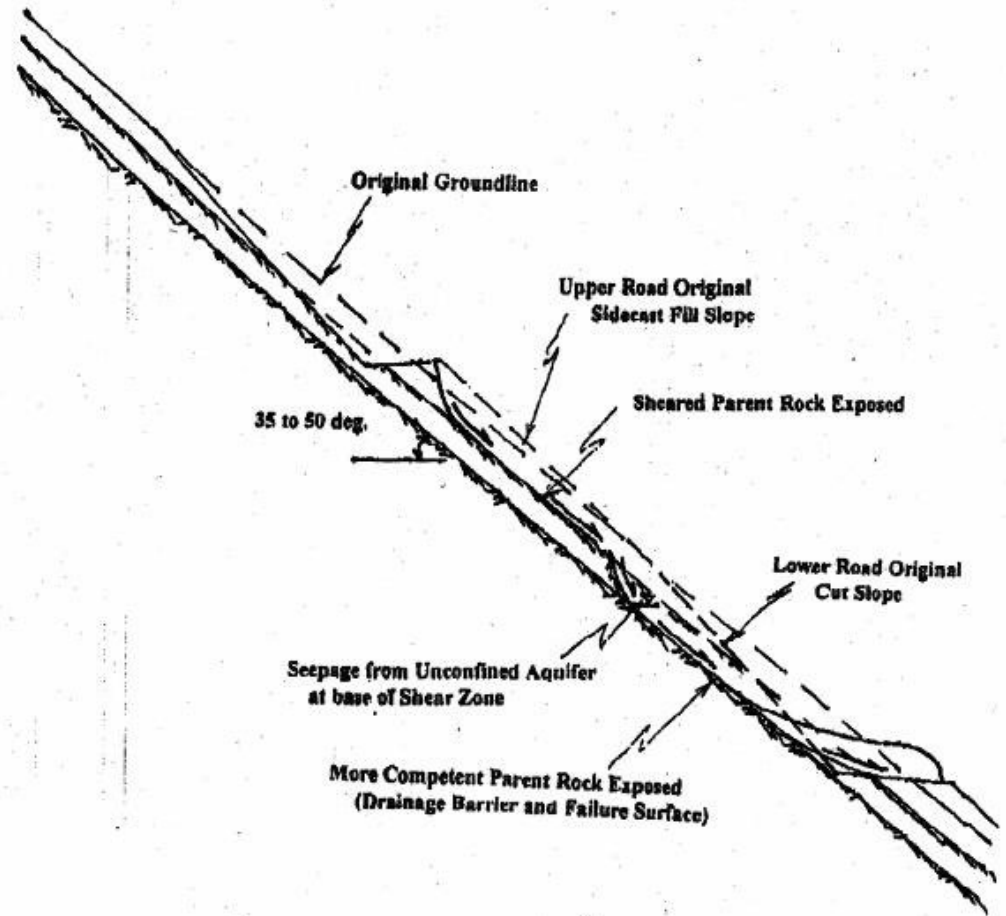
Appendix B contains a summary spreadsheet of the landslides. The spreadsheet contains the stability analysis used to analyze the failure, the management activity that the failure was related to, the parent rock unit, the average translational conditions of the failure, and the parametric values used in the analysis to model the failure conditions. As shown in Appendix B, about 90 % of the landslides were road-related and most of those were the failure of sidecast-fill slopes. The survey may be somewhat biased toward road-related failures since roads were used to access the watersheds. However, every effort was made to survey the cutting units accessed by those roads and to include the slope failures within the cutting units that were not directly adjacent to the roads. Map and GPS locations of the landslides summarized in Appendix B are available from HartCrowser (Fortuna office).

In addition to the landslides, 195 existing road cut slopes were measured. The spreadsheet at the end of Appendix B summarizes the results arranged according to the textural categories used in the landslide study. The data from this cut-slope survey were used as part of the parametric value determination and to provide information for future road design.

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Figure 3. Typical compound fill-slope above and cut-slope below failure which extends through the mantle soil into highly-fracture (shear zone) bedrock. Most prevalent in the Franciscan and Yager parent rock formations of relatively high shear strength.



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Land Management - Road Design

As shown in Appendix B, the majority of management-related landslides surveyed were road-related and most resulted from the construction of sidecast-fill slopes. Figures 1 and 3 illustrate the common road cut and fill slope failures. A stability analysis of the typical site conditions in Figure 1 is summarized in Appendix C. The results of this stability analysis present a better understanding of how the road affects the stability of the slope. The results suggest that the failures (especially the sidecast-fill slopes) are most likely to have been progressive:

- * starting as a shallow rotational arc failure as a result of groundwater concentration at the base of the rooted zone and once mobilized,
- * progressing into a translational failure of the entire soil mantle failing along the base of the rooted zone (the confining surface for the groundwater).

Failure of the translational section extends downslope in an erosional mode (entire depth of soil mantle mobilized) to a position on the slope where the slope becomes more gentle and erosion stops and deposition of the slide debris begins. This is illustrated in Figure 1. In the deposition zone the slide debris is deposited over the existing soil mantle on the more stable slope. The degree of slope where erosional stops and deposition begins is a function of the shear strength of the soil and is predictable.

Some of the results of the landslide survey in Appendix B have management implications applicable to road design and construction. For example, the average natural slope at most road-related landslide sites was about 29 deg. (53%). Since most of these slope failures were sidecast fills, it would be prudent to limit or engineer fill construction on slopes steeper than 55 percent. Also, cut slopes constructed on natural slopes steeper than 55 percent are less likely to progress into translational failures. In the range of natural slopes from 55 to 80 percent, cut slope failures can be expected to be local rotational arc in failure mode which cause significantly less watershed damage than translational failures and can usually be mitigated by engineering design.

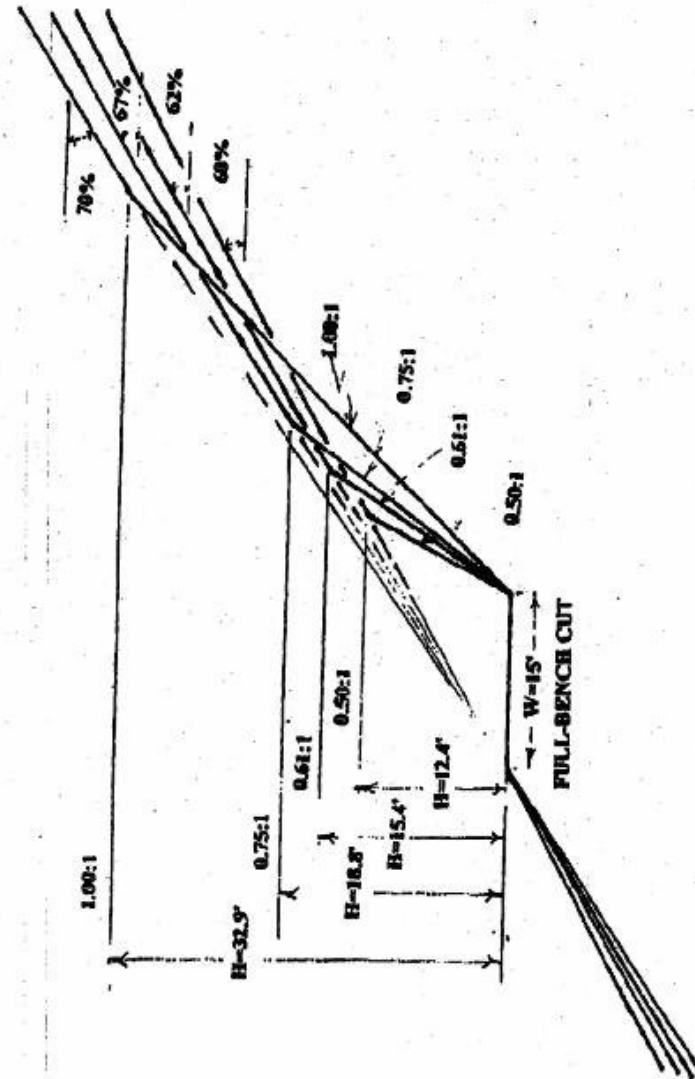
The results of the existing cut slope survey in Appendix B also has some management implications which should be noted. The average existing stable cut slope was about 59 deg. (0.61:1 cut slope ratio) and 15 ft. in vertical height. As illustrated on Figure 4, this cut slope would support a road width of 15 ft. in a full-bench cut on ground slopes up to about 32 deg. (62%). Using the same average parametric values for the soil and a design road width of 15 ft. and a full-bench road template, the stability of cut slopes ranging from 0.50:1 to 1.00:1 in cut slope ratio were analyzed as shown in Appendix C. Figure 4 is the graphical illustration of the following results:

Cut Slope Ratio	Critical Vertical Height (ft.)	Maximum Ground Surface Slope (Full-Bench Cut w/ 15 ft. Road Width)
0.50:1	12.4	31 deg. (60 percent)
0.61:1	15.4	32 deg. (62 percent)
0.75:1	18.8	34 deg. (67 percent)
1.00:1	32.9	35 deg. (70 percent)

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Figure 4. Relationship between the ground-surface slope and the maximum stable out height for a full-bench cut in Wildcat parent rock material.



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In addition, field observations (Photos 1,2,3,5, and 6) indicate that existing cut slopes seem to do better from a surface-erosion standpoint if less slope length is exposed which favors the steeper cut slope design where slope stability allows. Combining this information with the observations made for sidecast-fill slopes, the prudent general practice appears to be to use sidecast fills as required on natural ground slopes up to 55 percent with a cut slope of 0.50:1, use a full-bench-cut design template and a road width of 15 ft. with a cut slope ratio of 0.50:1 on natural ground slopes up to 60 percent, a cut slope ratio of 0.75:1 on natural slopes between 60 and 65 percent, and 1.00:1 on slopes between 65 and 70 percent. Exceptions to this generalization will have to be made for soils of extremely weak shear strength and/or site conditions of extreme groundwater concentration. On natural slopes steeper than 70 percent, a thorough geotechnical investigation should be made and an engineered or mechanically-stabilized design may be required for road construction. In addition, when outslipping of the road surface is used to direct the road runoff toward the slope it must be considered as a potential source of groundwater contributing to sidecast-fill-slope failures.

Land Management - Quarry Development

The stability problems associated with quarry development are not so much related to excavation into the relatively hard quarry rock (although this should be addressed in the development of a long-term rehabilitation plan) as they are in the quarry waste embankment constructed on the adjacent natural slopes. Often gentle slopes adjacent to quarry sites are formed by material of very-low shear strength which flanks the hard rock (see Figure 5). Loading by construction of waste embankments causes failure of this weak subsurface material. Although these embankments have relatively small lateral extent as compared to road embankments they are often much larger in vertical height and extensive localized watershed damage can result. Appendix C contains a stability analysis which demonstrates the impact of quarry-waste embankment construction on these weak subsoils. A prudent design practice would be to investigate the subsurface of the "footprint" area where these embankments are to be located for the existence of weak substrata and to prepare this area and design for stability prior to embankment construction.

Land Management - Timber Harvest

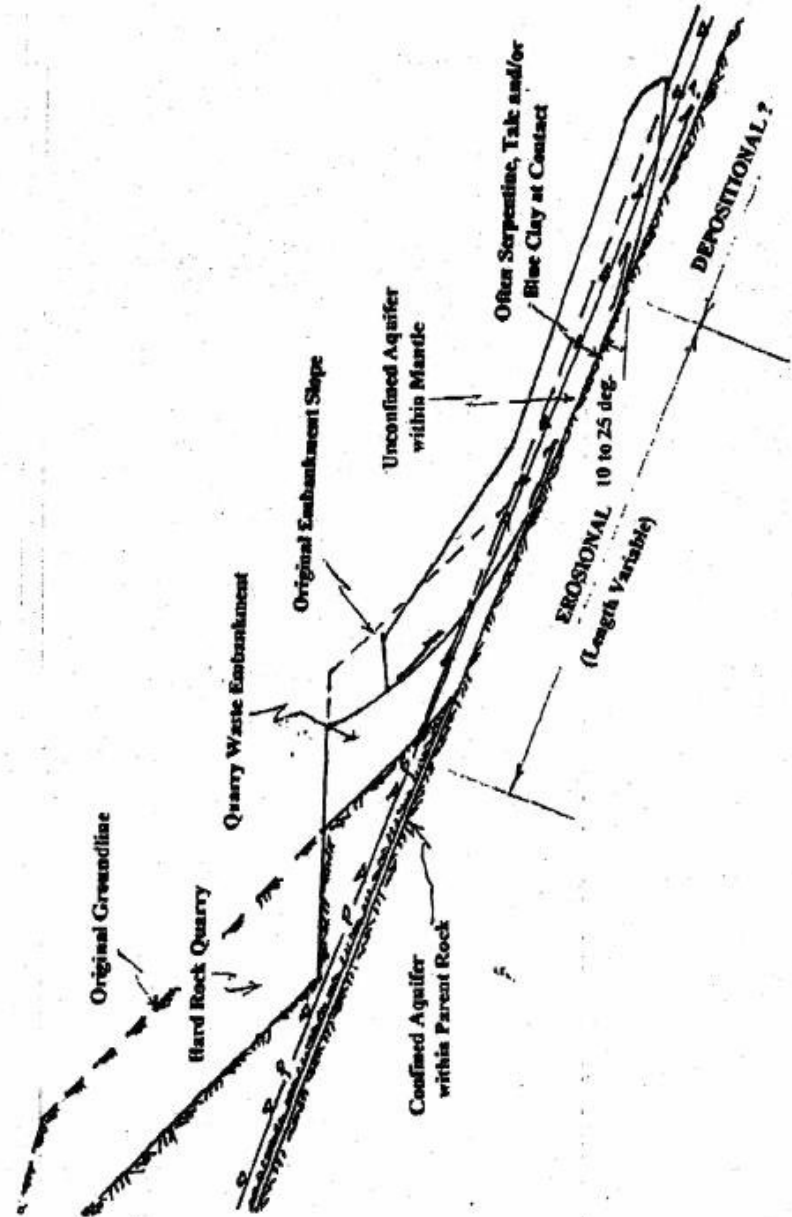
Figure 2 illustrates the typical conditions for a failure resulting from timber harvest. Theoretically, three things are usually assumed to happen when trees are removed from a slope:

- * a reduction in the surcharge loading of the ground surface,
- * a reduction in the root strength of the rooted zone in the soil mantle,
- * an increase in the groundwater infiltration from rainfall or snowmelt due to the loss of tree evapotranspiration and canopy protection.

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Figure 5. Typical landslide conditions for the Franciscan parent rock formation using a quarry-waste-embankment failure to illustrate.



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All three of these can be analyzed in a stability analysis. It can be demonstrated through stability analysis that the reduction in surcharge loading to be expected as a result of tree removal has very little effect on the stability of the slope. This leaves the affects that tree removal has on root strength and groundwater infiltration as the primary concerns in relation to tree removal. There is much theory developed on both of these impacts but very little practical research and supporting data has been documented to quantify the assumptions made. This is unfortunate since unsupported theories have a way of becoming laws in peoples minds if never challenged or tested in an unbiased scientific manner.

The quantification of root strength is compounded since it is very difficult to measure. It is a unique soil-structure interaction problem where not only the soil and root strength properties must be considered, but also the local stress conditions of the soil (active, at-rest, or passive), the degree of soil confinement, and the mode of root failure (shear, tension, or pull-out). Enough field observations have been made to determine that all of these are important factors to consider. In order to properly evaluate, an engineering design (not unlike the design of horizontal reinforcement in mechanically-stabilized embankments or the design of a retaining wall) would have to be made. Roots are considered to add a cohesive strength to the soil mantle which may also be a misnomer since they may also have a frictional contribution which requires a certain overburden pressure to mobilize. What we do know about it has been determined from back analysis of existing landslides considering root strength as a form of cohesive strength and combining it with other forms of cohesive strength such as apparent cohesion from capillary soil moisture and true soil cohesion which the plastic (clayey) soils exhibit. From these back analyses, ranges of total cohesion (of all forms) have been calculated which indicate that the range of quantitative cohesive values which can be linked directly to the effect of roots is relatively small. That is not to say that it is unimportant to consider. Appendix C contains the results of the stability analysis for cutting unit landslides that are tree-removal related. It shows that on extremely steep slopes and shallow soils, a reduction in total cohesive strength of as little as 25 psf can decrease the factor-of-safety-against-failure by 20 percent or more.

The effects of tree removal on groundwater rise in a soil column has also had very little verification with actual measurements. Other than for the results of a few site-specific studies, there are currently no practical universally-applicable methods available to predict with any accuracy the impact of tree removal on this important and most dynamic variable. However, unlike root strength, groundwater rise in response to precipitation can be measured and quantified. Unfortunately in practice, it is seldom done, mostly because long-term continuous monitoring is time consuming and expensive. This type of monitoring is sorely needed and it needs to be done on as many sites as economically feasible. Local site-specific data is the only means to substantiate or refute the controversial assumptions that are currently based on unproven theories. To be of value, long-term monitoring data should be gathered before-and-after tree removal (on the same site) and related to several precipitation events of comparable magnitude. A stability analysis example was used in this report (see Appendix C) to simulate the effects that groundwater rise (which might result from tree removal) would have on the stability of a steep slope. The same cutting-unit landslide conditions that were analyzed for the effects of root strength reduction were analyzed for groundwater rise in response to precipitation. It shows that on the same slope, a similar decrease in the factor-of-safety-against-failure of about 20 percent can occur as result of an increase in groundwater level of about one foot.

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The results of analysis of landslides in cutting units are inherently less conclusive than those for roads but a few observations are warranted. The most prominent conclusion is that the effects of tree removal on the stability of slopes can be analyzed in a realistic manner in respect to the reduction of tree root strength and groundwater rise. However, at this time, there are no practical means to accurately estimate realistic relative values to quantify these two variables. As a result, back analysis must be used for quantification. The results do show that relatively minor changes in root strength and groundwater rise can have a major impact on the stability of steep natural slopes.

Some other considerations need to be factored into the stability analysis of tree removal. Since the roots of redwood trees don't necessarily die when the tree is cut, the reduction in root strength may be minimal and confined to the understory brush. The management implications for root strength reduction is probably more in the site preparation for reforestation and not in the harvest to be sure that burning is not so hot that it actually does kill the roots (which you don't want to do anyway). The evapotranspiration also continues from the live roots in the development of new growth. This may be at a lesser rate immediately after the tree is removed and some potential increase in groundwater level should be anticipated until regeneration reaches a certain point in the development of the new tree. Just how much this is and for what duration can not be predicted at this time. Currently, probably the best way to assess the risk/consequences of tree removal is to survey the condition of recently-harvested cutting units with similar site and soil conditions as the planned cutting unit and base judgment on what can be observed within and cumulatively downslope of the recently-harvested units (what can be related directly to tree removal).

Land Management - Reactivation of Dormant Deep-Seated Landslides

Deep-seated rotational landslide features are prevalent and have been mapped on all of the watersheds surveyed. There is much concern on the effects that management activities (primarily tree removal) might have on reactivating these massive landslide masses. Some of these features may be caused by other factors other than mass-wasting, but regardless of their origin, they must be treated as potentially unstable landslides and investigated accordingly. The question should not be of their existence but of their management implications. The potential for reactivation of dormant deep-seated massive landslides by management activities can be demonstrated through stability analysis. In the previous paragraphs, the potential for creating shallow translational landslides as a result of road construction or tree removal was discussed. If the potential exists for the reactivation of a much larger deep-seated rotational landslide, it should be evaluated and put in perspective to the potential for developing shallow translational slides which are obviously management-related and are quantifiable.

A relative stability analysis of a dormant deep-seated rotational feature is included in Appendix C. A tree removal example similar to the one described earlier is used to compare the potential for creating a shallow translational landslide within the rooted zone soil mantle to the potential for reactivating a much larger deep-seated feature. In that example, a small reduction in total cohesion of the rooted zone and a small increase in groundwater height within the perched unconfined aquifer of this soil mantle was used to simulate the removal of the trees (same as the

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tree-removal analysis above). A second confined aquifer below the mantle was used to control the deep-seated failure in this example. An initial piezometric groundwater level for this deeper confined aquifer was established to simulate the same preharvest stability condition for the deep-seated failure as for the shallow translational failure at the base of the rooted zone (both having the same factor-of-safety-against-failure for the preharvest condition). To simulate the postharvest conditions, a decrease in total cohesion of 25 psf and a 1 ft. groundwater rise in the shallow aquifer caused about a 20 percent reduction in the factor of safety which would cause the translational failure. To have the same reduction in factor of safety for the deep-seated failure required these conditions in the mantle and an additional increase in groundwater level of 10 ft. in the deeper confined aquifer.

The results are summarized in Appendix C. Some conclusions based on this example are as follows:

* Beginning with about the same level of stability, the likelihood of a translational failure along the drainage barrier at the base of the soil mantle through a small decrease in root strength or increase in groundwater level in the perched aquifer within the mantle is very great. However, these near-surface changes in the mantle had relatively no effect on the deep-seated failure due to the relatively small portion of the deep-seated failure surface which lies within it.

* It would require a 10 ft. rise in the piezometric groundwater surface of a deeper confined aquifer to have the same unstabilizing affect on the deep-seated failure as the 1 ft. of groundwater rise in the upper unconfined aquifer does on the shallow translational failure within the soil mantle. Both failure modes are possible, but the potential for the shallow translational failure is much greater. The analysis becomes more complicated when you factor in the different characteristics of the two aquifers (the anticipated response time to precipitation infiltration, the relative seepage velocity, and drainout time). The perched aquifer within the soil mantle is probably the more permeable of the two and the first to be recharged by infiltration from the storm event. As such, it is the most dynamic and should have the most rapid response time, the higher seepage velocity, and the more rapid drainout time. The deeper aquifer within the parent rock probably receives its recharge from a location farther from the site and is probably less permeable. This should result in slower response time, slower seepage velocities, and much slower drainout time for the deeper aquifer. What that means is that for the two aquifers, the groundwater level is likely to peak at different times and react differently to storm intensity, storm duration, and antecedent rainfall. Fruit for thought, but about the only conclusion you can come to in comparing the two potential failures is that the high-intensity rainstorm of short duration is more likely to activate the shallow translational landslide and the reactivation of the deep-seated rotational landslide is more likely to occur as a result of less-intense storms of longer duration and antecedent conditions.

Certainly, the results of this relative stability analysis cannot be universally applied to all site conditions. Analysis of different site conditions may well lead to different conclusions and care must be taken to assign realistic parametric values to simulate the management activity. Given that, what has been demonstrated by this example is that a relative stability analysis such as this is possible to put things in perspective for the basis of a risk vs consequences management decision concerning the potential for reactivation of a deep-seated landslide.

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Geotechnical - Parent Rock Units and Soil Textural Class

It was determined through the stability analysis of the landslides in this survey that the shear strength of the soils in the failure mass could be predicted by a geotechnical specialist using a general identification of the parent rock units and a field classification of the texture and composition of the residual soils resulting from the degradation of the parent rock. The following description of the parent rock units is intended to help in the interpretation of geologic maps as a starting point for that identification process. Only four broadly-defined rock units are described to include the several geologic formation which exist on Pacific Lumber property. As summarized in Appendix B, these units are further grouped into five categories based on the residual-soil-and/or-sheared-rock textural class identifiable in the field which best categorizes the range of shear strengths to expect.

A total of 130 soil samples were recovered from 109 of the landslides summarized in Appendix B. The sample depths in the exposed scarps, soil textural class, and estimated soil shear strength Group Number, Sn, were documented in the field. The samples were submitted to the SocPac soils laboratory for the determination of natural moisture content, Unified Soil Class determination, determination of Atterberg limits, and grain size analysis by sieve analysis and hydrometer. Appendix D summarizes the field sample data and the results of the laboratory analysis. Appendix D also contains the results of regression analyses between some index soil properties from the laboratory data and the field-estimated Sn which was estimated in the field. These index properties may be useful in predicting Sn from laboratory data. However, the user is cautioned that there is significant "scatter" in the data and these prediction equations should not be used alone.

The definition of the following rock units are based on origin, rock type, age and stratigraphic position with respect to adjacent rock units. The rock units are broadly defined and generally consistent with existing regional geologic mapping. For geotechnical purposes, regional mapping that delineates 13 geologic formations was simplified to four rock units. Two rock units are defined for the Franciscan Complex and two rock units for the Wildcat Group.

Rock Unit F1 (RUF1). Rock Unit F1 (RUF1) contains the melange sub-units of the Franciscan Complex (co1 and co2 sub-units of McLaughlin et al., 2000). RUF1 is characterized by dark gray, medium to light brown, and green-gray, fine to medium grained sandstone and dark gray argillite. Minor amounts of conglomerate, chert, basalt and limestone are found within RUF1. The more resistant lithologies are moderately- to well-indurated and generally highly-to-pervasively sheared. Pervasive shearing within argillites reduces the rock mass to essentially a scaly clay. The sizes of individual outcrops of resistant lithologies (knockers) within melange can vary greatly from boulder to landform size. Materials within RUF1 range in hardness from soft, remoldable clays to hard, rebound to dent quality fine-to-medium-grained sandstone. Material exposed near the surface are generally highly weathered. Mass attitudes generally have a strong northwest to west-northwest fabric, but can be locally pervasive and be orientated somewhat randomly. Natural separations occur between the soft argillite and hard rock lithologies and along contacts between different lithologies within knockers. The penetratively deformed argillites have a fabric of indurated, lens-shaped rock clasts,

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commonly within a gray to blue-gray clay matrix. Fractures within competent materials are commonly coated with purple-black manganese oxide and/or orange/red-black iron oxide. Cementation by secondary calcite is common in places where extensive fracturing and faulting of the rock has allowed circulation of mineral-rich fluids. Dissolution of the calcite cement in surface and ground water can create zones of weakness.

The hard rock from RUF1 is often quarry-quality and developed as such. The residual soils can be expected to have shear strengths within the M clay (melange blue-gray clay often containing identifiable talc and/or serpentine), silt/clay, or sandy textural classes as categorized in Appendix B. As summarized in Appendix B, failures in the M clay textural class soils in this survey were found to occur on prefailure natural slopes ranging from 15 to 31 deg. (25 to 60 percent) with an average slope of 22 deg. (40 percent). Failures in the silt/clay textural class were found to occur on prefailure natural slopes ranging from 18 to 41 deg. (30 to 85 percent) with a 31 deg. (60 percent) average slope. For the sandy textural class, failures were found to occur on prefailure natural slopes ranging from 30 to 43 deg. (60 to 95 percent) with a 36 deg. (75 percent) average slope. The typical depth of failure for all classes was the depth of the rooted zone ranging from 1 to 10 ft with about a 5 or 6 ft. average.

Rock Unit F2 (RUF2). Rock Unit F2 (RUF2) consists of relatively intact rock and generally is correlative to the co3 and co 4 sub-units of McLaughlin et al. (2000). We also incorporate rocks of the Yager terrane within RUF2. Rocks of the Yager terrane are nearly indistinguishable from rocks of the Coastal terrane. The Yager terrane is coeval with the Coastal terrane, but was deposited along channels within the continental slope (McLaughlin et al., 2000). We interpret the fine-grained, micaceous sandstone to be characteristic of the sandstone within the Yager. RUF2 contains dark gray, medium to light brown, and green-gray, fine-to-medium-grained sandstone and dark gray argillite. Minor amounts of conglomerate, chert, basalt and limestone are found within RUF2. There are three typical types of deposits within RUF2. Relatively intact sequences of turbidites (submarine basin to shelf slope deposits) and olistostromal (submarine landslide) deposits. While not specifically mapped in the I.ERW and ERDW, olistostromes may account for much of the apparently randomly-oriented rock masses. Turbidite sequences contain alternating layers of sandstone and argillite, and where relatively continuous rock bodies exist, are correlative to the co 3 and co 4 units of McLaughlin et al. (2000). Distinctly-bedded sequences generally contain tight-to-open folds, flexural slip faults and ramp faulting of more competent sandstone beds along less competent argillite layers. Locally overturned bedding is common. Submarine slope and basin deposits are similar to the turbidite sequences but lack the distinct bedforms of turbidite flows and commonly contain more massive outcrops of sandstone or argillite. Materials within RUF2 range from friable to pit quality. Generally rock material is partly decomposed to stained state but locally can approach completely decomposed in highly fractured, sheared or folded rock masses exposed near the surface. Mass attitudes generally have a strong northwest to west-northwest fabric, but can be locally pervasive and be orientated somewhat randomly. Natural separation occurs along bedding planes within the sandstones and argillites of turbidite sequences, along numerous fractures and along structural weaknesses formed during folding. Fractures are commonly coated with purple-black manganese oxide and/or orange/red-black iron oxide. Cementation by secondary calcite is common in

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places where extensive fracturing and faulting of the rock has allowed circulation of mineral-rich fluids. Dissolution of the calcite cement in surface and ground water can create zones of weakness.

Some quarry-quality rock is available in this rock unit, but is generally of lesser quality than the hard rock of RUF1 since it tends to slack and degrade with time. Residual soils are generally of a coarser texture with more gravel content than RUF1. Shear strengths within the sandy, gravelly, or sheared rock textural classes are summarized in Appendix B. As summarized in Appendix B, failures in the sandy textural class soils in this survey were found to occur on prefailure natural slopes ranging from 30 to 43 deg. (60 to 95 percent) with a 36 deg. (75 percent) average slope. Failures in the gravelly textural class were found to occur on prefailure natural slopes ranging from 30 to 47 deg. (30 to 105 percent) with a 39 deg. (80 percent) average slope. Failures in the sheared rock textural class were generally a compound failure with the sheared rock as a subsoil (second unit) underlying a gravelly soil mantle and were found to occur on natural slopes ranging from 33 to 47 deg. (65 to 95 percent) with a 39 deg. (80 percent) average slope. The typical depth of failures for the sandy and gravelly textural classes (failures confined to the rooted zone) were similar to RUF1 ranging from about 2 to 12 ft with a 5 ft. average depth. On steeper slopes, where failures extended into the sheared-rock textural class subsoil, the total depth (including the mantle depth) ranged from 6 to 22 ft. with an 11 ft. average.

Rock Unit W1 (RUW1). Rock Unit W1 (RUW1) contains the fine-grained members of the Wildcat Group. Specifically, it contains the Rio Dell, Eel River and Pullen Formations and lithologies mapped as undifferentiated. RUW1 contains light-brown to light-gray siltstone to fine sandy siltstone and light-to-dark gray mudstone. Sediments within RUW1 are generally weakly indurated and are in a stained to partially-decomposed state. Lithologies within RUW1 typically consist of interbedded siltstones and mudstones. The bedding planes form latent planes of separation between different lithologies. Separation can also occur along fractures that can locally be common and closely spaced. Most of the formations of the Wildcat Group strike northwest and dip to the north, however, local differences can occur along folds or shear zones.

Residual soil derived from this rock unit should have shear strength in the silt/clay textural class as summarized in Appendix B. Failures in the silt/clay textural class were found to occur on prefailure natural slopes ranging from 18 to 41 deg. (30 to 85 percent) with a 31 deg. (60 percent) average slope. The typical depth of failures for the silt/clay textural class (failures confined to the rooted zone) was similar to the RUF1 and RUF2 rooted zone failures ranging from about 2 to 10 ft with a 5 ft. average depth.

Rock Unit W2 (RUW2). Rock Unit W2 (RUW2) is comprised of the sandy units of the Wildcat Group, The Scotia Bluffs Sandstone and tentatively the Carlotta Formation. RUW2 is characterized by light brown (weathered) to light gray (fresh) fine to medium sandstone and light brown, sandy, pebble to cobble conglomerate. Sandstones of the Wildcat Group are compact, weakly indurated and are generally moldable to crater quality. Bedding within the Wildcat Group is often massive but locally may contain calcium-carbonate-cemented fossil shell stringers and thin muddy interbeds.

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Weathering is generally visually fresh-to-stained state. Natural separations occur along fracture planes or less commonly along interbeds. Most of the formations of the Wildcat Group strike northwest and dip to the north, however, local differences can occur along folds or shear zones.

Residual soil derived from this rock unit should have shear strength in the sandy textural class as summarized in Appendix B. Failures in the sandy textural class were found to occur on prefailure natural slopes ranging from 30 to 43 deg. (60 to 95 percent) with a 36 deg. (75 percent) average slope. The typical depth of failures for the sandy textural class (failures confined to the rooted zone) was similar to the RUF1, RUF2, and RUW1 rooted zone failures ranging from about 2 to 12 ft with a 6 ft. average depth.

Geotechnical - Shear Strength Parameters from Landslide and Road Cut-Slope Surveys

Appendix B summarizes the shear strength values derived from back analysis of the failure conditions for the various landslides. The unit weight, Gamma, in a moist and saturated state, and the effective angle of internal friction, Phi, of the soil were estimated first in this back analysis. This estimate was based on the Unified Soil Classification and relative density of the in-situ soils. The source references for this correlation are documented in USDA (1994, Section 4). An expanded version of Fig. 4B3 from that publication is included in Appendix F (Fig. F3) and is the core analysis programmed into the spreadsheet for field penetrometer data reduction. A limited amount of direct shear testing was performed in 1999 on soils from the Freshwater Watershed Study which have shear strength in the silt/clay textural class, together with penetrometer data from that study to validate the expansion of this core analysis to include CL clayey soils of high sand content and low plasticity. Appendix E summarizes the soil shear strength Group Numbers, Sn, which correspond to the textural classes defined in the landslide survey in Appendix B. The acid test on how applicable Gamma and Phi estimated by this approach were to the solution of practical slope stability problems was made in the analysis of the various landslides. If applicable, Gamma and Phi estimated by this method had to model the conditions at failure (factor-of-safety-against-failure, F.O.S. \leq 1.00) using a realistic relationship between the groundwater level, dw, (which was not measured but was definitely a contributing factor) and total cohesion, C, also at failure. Using the same method to estimate Gamma and Phi for the study of stability of existing cut slopes yielded values of total cohesion which were low (C averaging between 50 and 100 psf). The cut slopes selected were marginally stable and showed no evidence of failure as a result of high groundwater.

Groundwater was obviously a factor in all of the landslides studied as was evident by the mode of failure, but unfortunately, no critical groundwater information at the time of failure was available and realistic estimations of the aquifer conditions were necessary. To account for groundwater, the rationale used in the back-calculation was to use a median values for Gamma and Phi from the textural class as the first assumption and adjust these values (as well as the soil

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shear strength Group Number, S_n , at a loose-to-medium-dense relative density) to establish a failure condition where:

- * the total cohesion was less than 100 psf (usually between 50 and 100 psf based on the cut slope survey) and
- * the depth of groundwater, d_w , (height of the phreatic surface above the confining surface) about in the middle of the soil column (with the soil depth in the mantle = d , d_w/d ratio is about 0.50).

As summarized in Appendix B for each textural class, very little adjustment of Gamma and Phi was necessary in a given textural class to achieve this relationship. At some point in the future, we may have better tools to measure and estimate groundwater. For now, using an average d_w/d ratio of about 0.50 leaves latitude to adjust in either direction and refine the estimates for Gamma and Phi accordingly.

As summarized in Appendix B, the computer program DLISA (Level I stability analysis, see USDA, 1994, Section 5) was used to analyze the translational section of every landslide. This was most useful to establish the relationship between C and d_w . If minor adjustments in Gamma and Phi were warranted for a given landslide, it usually could be detected rapidly with this analysis. The same adjustment to be made using the more-detail XSTABL (Level III stability analysis, see USDA, 1994, Section 5) computer program requires considerable more effort. XSTABL was used primarily on landslides with complex geometry such as road cut and fill slopes. There was general agreement between DLISA and XSTABL results for long translational failure (which more closely resemble an "infinite slope" without significant end conditions). Where there were variations in the two results, the results of XSTABL were considered to be the most accurate and were used as summarized in Appendix B.

The existing road cut slope survey results helped define values of total cohesion, C . A field method to allow one person to take these measurements and a data reduction spreadsheet were developed as a result of this study. These are described and include in Appendix F. This spreadsheet uses the critical height stability analysis developed by Chen and Giger (Level II stability analysis, see USDA, 1994, Section 5). Cut slopes that were selected for this study were of extreme height and/or slope (i.e., near the "critical" condition). This was important because the vertical height in this simple stability number solution is the "critical height", H . H can be visualized as the maximum vertical height that a road cut slope, Beta, can be expected to stand under the conditions analyzed. In addition to H and Beta, included as variables in the analysis are Gamma, Phi, and the ground slope above the cut, Alpha. The solution is for a stability number, N , from which total cohesion, C , is calculated by the spreadsheet. The results of this cut slope study are summarized at the end of Appendix B. The average C for the 195 cut slopes surveyed was about 100 psf. Unfortunately, there are no current field or laboratory methods to measure cohesion values this small and it is necessary to rely solely on back analysis to determine workable values.

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Also bear in mind these factors about cohesive strength in selecting values for stability analysis:

Cohesion acts on the entire length of the failure surface. It may be appropriate to use different values for small rotational failure surfaces than for a long translational failure surface and for different soil units depending on the length of the failure surface in the various materials that the failure is expected to pass through.

Total cohesion includes root cohesion as well as all soil cohesion. This also depends on the relationship between the length of the failure surface in the root zone and the total length of the failure surface and should be considered in selecting the cohesion value for a given analysis.

Total Cohesion includes root cohesion in the third dimension. Most stability analysis procedure are two-dimensional (plane strain) taking into account only the conditions that are illustrated in a two-dimensional cross section. For translational slides such as the ones analyzed in the landslide study which have limited lateral extent (narrow in relationship to their length), some consideration should be given to the root strength which is mobilized on the entire perimeter of the slide and not just the rooted depth at the head scarp and toe. See also the root strength discussion in the timber harvest paragraphs on the significance of the soil stress conditions that probably exist at various locations around the perimeter and the mode of failure of the root.

Soil Cohesion (and in some degree root cohesion) may be affected by saturation. The capillary tension that tends to hold soil particles together (apparent cohesion) and the dry strength of fine-grained soils are both directly affected by seasonal groundwater fluctuations.

True Soil Cohesion can be reduced and/or destroyed through repeated shearing. Fine-grained soils which have true soil cohesive strength can loose all or part of that strength through repeated failures as the shear strength approaches a residual state (i.e., the residual value for true soil cohesion is probably zero).

Geotechnical - Field Tests & Reduction of Penetrometer Data

Williamson Drive Probe

In the watershed studies being conducted at the same time as these landslide and cut slope surveys were being made, it was necessary to determine the depth of the soil mantle, d , as one of the physical site characteristics. The overall depths as determined in the watershed studies agreed well with the mantle depths from the landslide survey. The tool used to determine these depths in the watershed study was the Williamson Drive Probe (WDP). This method was devised by Doug Williamson, an USFS engineering geologist, and is used by the U.S. Forest Service throughout the Northwest. This method is standardized and documented in USDA, 1994, Section 4. It is most useful at remote locations where the equipment can be hand carried to the site. However, because of its

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light weight the amount of energy available limits its applicability to soils of loose-to-medium dense relative density. This did not prove to be a problem on Pacific Lumber property where soils in the mantle usually were within this relative-density category.

Unfortunately, the Forest Service has made relatively few studies which link the penetration resistance of the WDP to soil shear strength. The Standard Penetration Test (SPT) penetration resistance has been widely used throughout the industry and much reference material is available which does correlate the SPT blows per foot, N, to corresponding values for Gamma and Phi for various soil types which derive most of their strength from friction (generally referred to as cohesionless which is a misnomer). In order to use any of these empirical correlations to estimate Gamma and Phi from N, it is necessary to correct N to a standard overburden pressure of one ton per square foot and to determine its relative density. Dr. USDA, 1994, Figure 4B2 is used in Appendix F (Figure F2) to correct N and estimate Dr. Gamma and Phi can then be estimated from Dr and the soil texture. Two of the better of these references for this purpose are the US Navy, 1986, NAVFAC DM 7.01 and an ASTM publication (ASTM, 1972). These and other reference material were used in construction of the USDA, 1994 correlation data in Figure 4B3. Based on data from these watershed, landslide, and cut slope surveys, this chart was expanded to include finer-grained soils of lower frictional strength (Phi < 25 deg.) for which relative density is not likely to be applicable. This is the core analysis for the Williamson Drive Probe Data Reduction Spreadsheet, FIELDDP__WB3 (Appendix F, Figures F2 & F3).

In order to use the WDP as a basic tool for estimating Gamma and Phi, it was first necessary to develop an empirical correlation to the SPT. This was done at several sites in the Freshwater and Lower El watersheds by conducting both test at the same location and making a regression analysis of the results to correlate the blows per foot by both methods. The SPT (ASTM D1586) tests were made using a portable tripod and small motorized cathead. The results are shown in Figure F1 in Appendix F. Similar correlation tests have also been made by the Willamette N.F., Eugene, OR, geotechnical group using large truck-mounted cathead soil sampling equipment. A regression analysis of the correlative results of their tests has also been made but is not included in the data for Figure F1. The Willamette data yielded similar results, but with apparently more energy in the SPT probably due to the more efficient truck-mounted equipment. The regression equation developed from the Pacific Lumber shown in Figure F1 is the one programmed in the spreadsheet. Appendix F details the spreadsheet and documents the algorithms used in programming the cells.

Other Field Tests

In an effort to find a better tool for estimating the shear strength of fine-grained soils Hart-Crowder tested two other field-test instruments, the Torvane and a light field penetrometer. At 35 sites in the Freshwater Watershed, Torvane, penetrometer, and WDP tests were run. At 10 of these sites, SPT tests were also conducted. An attempt was made to correlate the results of the Torvane and penetrometer tests to the WDP; SPT; to particle size (percent sand, fines, silt, clay); and to the Plasticity Index. Data plots were

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widely scattered and showed no obvious correlation on which to base a regression analysis. It appears unadvisable to use these light field instruments alone to estimate the shear strength of these fine-grained soils. The problem may be caused by the varying content of fine sand which would affect the Torvane and field penetrometer more than the WDP and SPT tests.

Geotechnical - Field Method for Road Cut-Slope Measurement

A total of 195 existing cut slopes were measured as part of this study to determine their height and slope. This data was most useful in estimating the amount of total cohesion that would have to be mobilized in the soil to allow the cut slope to be stable at a slope steeper than the angle of internal friction. To avoid the necessity of climbing to the top of these very steep slopes, a technique was developed to enable these measurements to be made from the road surface. This method is an adaptation of the technique used by foresters to determine the height of trees. One person can rapidly determine the height and slope of a cut slope using this technique. The data-reduction spreadsheet (CSCOH.WB3) in Appendix F uses the field measurements made from the road surface in conjunction with the soil unit weight and angle of internal friction to arrive at an estimated value for the mobilized total cohesion. Refer to Figure 6, the field technique for one individual requires the use of an H.I. mark (eye height) on a shovel handle and measurement of four angles and the width of the road between two measurement stations on a cross-sectional profile. One of these measurement stations is at the toe of the cut (where the H.I. indicator is located) and the other is usually at the outside road shoulder. The angle to a fixed focal point at the top of the cut slope is measured from each of these measurement stations and is the basis for the determination of the cut height and slope.

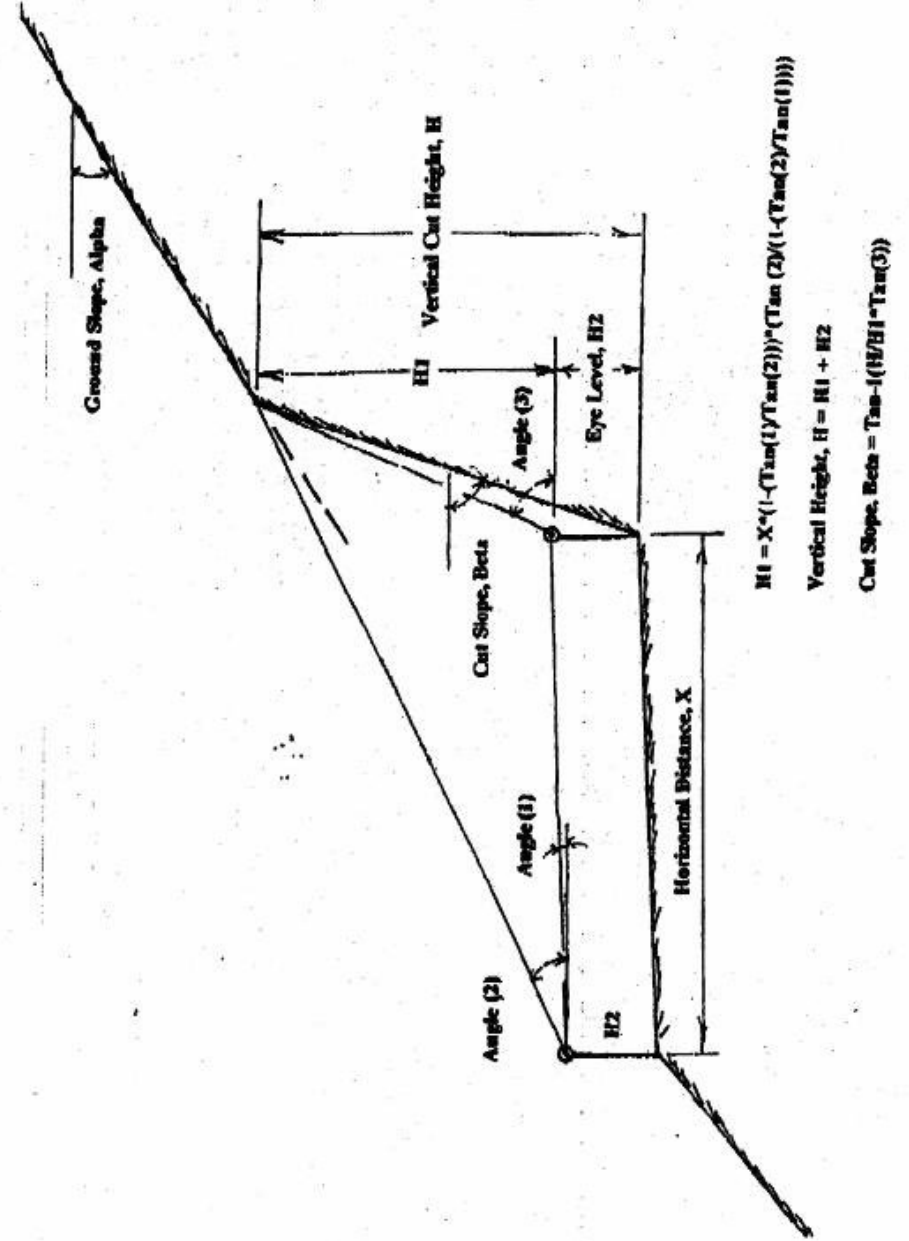
Geotechnical - Suggestions for Estimating S_u & Soil Shear Strength Parametric Values.

In order to estimate the soil unit weight and angle of internal friction using techniques described in this report, it is necessary to estimate the Soil Group Number, S_u . This is used in reduction of the WDP or SPT penetrometer data to correlate the relative density of the soil to the appropriate range of shear strength (Figure F3, Appendix F). It was determined in this study that, except for the M-Clay textural class (which are affected by the existence of low-shear-strength talc and/or serpentine) most of the soils on Pacific Lumber property derive their shear strength largely from frictional strength and not cohesive strength. This is true even for soils in the Silt/Clay textural class which would ordinarily be thought of as "cohesive" soils. The typical Unified Class for these soils is a CL, clay of low plasticity. The amount of frictional strength developed by these CL soils is relatively high (usually in the low 30's) which is probably due to the high percentage of fine sand in the soil. Figure 7 shows the average gradations for the five textural classes according to grain-size distribution (D60, D30, & D10 sizes) and by the percentage of sand, gravel, and fines (% passing No. 4 and 200 sieves). Note the difference in the relative relationship between the textural classes caused by the amount of the sand fraction. These high Phi values for CL soils (and other soils of similar sand content) required that these soils be treated as "cohesionless" and subject to relative density, D_r , data-reduction analysis. Figure F3 was modified accordingly for this project for Phi >25 deg.

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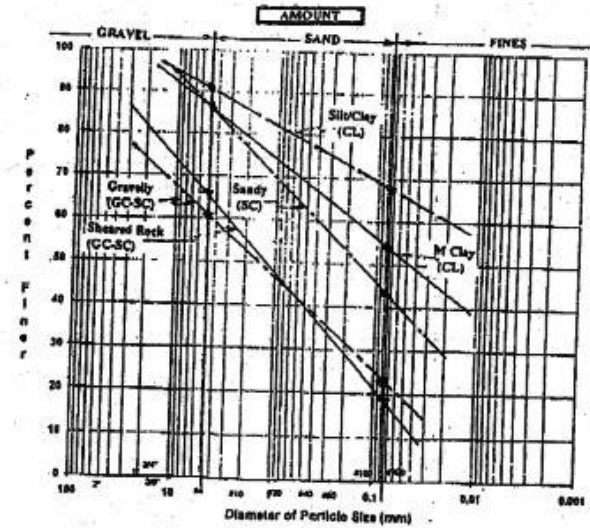
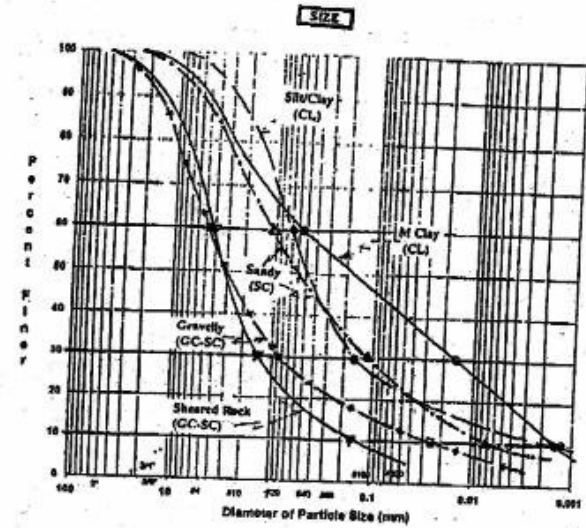
Figure 6. Definition of terms used in the field measurements and data-reduction equations to determine the vertical height and slope of simple road cuts.



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Figure 7. Average particle-size distributions for the five soil/rock textural classes in the landslide survey according to size (D60, D30, and D10) and percent gravel, sand, and fines (% passing the No. 4 and 200 sieves).



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The results of the laboratory analysis of the soil samples recovered from the landslides in this survey are summarized in Appendix D. The Sn as estimated at the time of sampling are also shown in Appendix D. These estimates were based largely on a field identification of the soil textural class, the Unified Class, and the parent rock unit. A regression analysis was made to correlate Sn to such index properties as % Fines and D30 for prediction purposes. The R² values from these regressions were low (in the 0.60 range) and were best for either a logarithmic or power function. The correlation based on group averages is strong, but there is significant "scatter" in the data. Therefore, it is unadvisable to depend too strongly on these laboratory index properties alone for predicting Sn. Used in conjunction with the Unified Class (as used in Figure F3, Appendix F), the textural class (Appendix E), and the parent rock unit, a good starting estimate can be made. Even then, these should only be a starting point for the estimation process. The acid test can only be in the field observations and application to known field conditions which duplicate those at the site in question as closely as possible.

General Conclusions - From a Geotechnical Perspective

Some general conclusions to be drawn from the results of these surveys are in order. These are made from a geotechnical perspective with the goal of providing geotechnical input into the management of landslide-prone lands. They are not listed in any particular order of importance.

- * Landslides are numerous on Pacific Lumber property and whether the lands are managed or not, the risk of landsliding will be there regardless. With that in mind, land-management decisions should not be made on risk alone, but on an evaluation of risk vs consequences as a result of land-management activities. Two primary consequences are obvious (there are undoubtedly more): future loss in productivity and irreversible watershed damage. If the land is not managed in an effort to landslide risk only (without regard to the degree of the consequences of failure), future productivity is already lost which should leave irreversible watershed damage as the primary concern.
- * Landslides that do occur as a result of land-management activities are most likely to be caused by road construction and not timber harvest. The primary culprit is the sidecast fill slope when it comes to watershed damage. With proper prescriptions for road construction, many of these road-related landslides can be prevented.
- * All management-related landslides can be quantified and analyzed using soil-mechanics-based stability analysis methods. These stability analyses provide a more-rational basis for the decision-making process in the prevention or mitigation of landslides.
- * Geotechnical field techniques tested in these surveys and in the watershed analysis studies for estimating and determining parametric values have been proven to be efficient, reliable, and cost-effective for use on Pacific Lumber property.
- * A sound geotechnical database has been established by these surveys and the watershed analysis studies which should be invaluable to future geotechnical investigators in analyzing landsliding potential to aid future land-management decisions at all levels.

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NO. 112 P. 1

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Response to Comment G9-1

As demonstrated in the environmental analysis conducted in accordance with NEPA, implementation of the Operating Conservation Program would not result in significant impacts that cannot be mitigated. See response to Comment G6-42.

Regarding Footnote Number 1, comment noted.

Response to Comment G9-2

Preparation of HCPs for different actions and different covered activities must take into consideration the unique aspects and conditions of the species for which an applicant is seeking coverage, the specific activities for which the applicant is seeking coverage, and the unique physical features of the landscape to be affected by issuance of ITPs. In other words, each HCP must be developed in a way that addresses the specific impacts and identifies measures that would, to the maximum extent practicable, minimize and mitigate the impacts of incidental take given the particular biology, habitat and other characteristics of the HCP planning area. This approach is affirmed by the Services' guidance on preparing HCPs - the HCP Handbook (Habitat Conservation Planning and Incidental Take Permit Processing Handbook. November 4, 1996. U.S. Department of the Interior, Fish and Wildlife Service; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service). Chapter 3 of the HCP Handbook states:

"Mitigation programs under HCPs and Section 10 permits are as varied as the projects they address. Consequently, this handbook does not establish specific 'rules' for developing mitigation

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DATE, 2002

Via Facsimile and U.S. Mail

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Re: Comments Regarding Simpson Resource Company Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances and Draft Environmental Impact Statement

Dear Ms. Brickey and Mr. Bond:

On behalf of the Environmental Protection Information Center ("EPIC"), we submit these comments regarding the Simpson Resource Company ("Simpson") Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances ("HCP/CCAA"). The Fish and Wildlife Service and National Marine Fisheries Service (collectively, "Agencies") may not approve the HCP/CCAA as currently designed, because it and its associated Draft Environmental Impact Statement ("DEIS") violate both the Endangered Species Act ("ESA") and the National Environmental Policy Act ("NEPA").¹

G9-1

G9-2

I. Fundamental Flaws Affecting Both ESA and NEPA Compliance.

Fundamental flaws in the HCP/CCAA result in multiple legal violations. The most striking omission consists of deliberately ignoring the Pacific Lumber HCP ("PL HCP") and its associated documentation.² Pacific Lumber owns land in the same area as Simpson, with the same kinds of habitat and the same rare species. Pacific Lumber received an HCP that covers the same activities for which Simpson seeks coverage. Yet the Simpson HCP/CCAA wholly fails to make comparisons to the PL HCP in order to understand the Simpson HCP/CCAA's

¹ Unless specified otherwise, any reference to the Simpson HCP/CCAA in this letter refers to all the documents furnished by the Agencies: the draft HCP/CCAA, the DEIS, and the draft Implementation Agreement.

² EPIC incorporates by reference the PL HCP and associated documentation. The same FWS and NMFS offices considering the Simpson HCP/CCAA were the ones that approved and currently manage the PL HCP, and they should have all the PL HCP documents referenced herein. If the offices lack any of these documents, EPIC will provide them upon request.

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programs that would limit the creative potential inherent in any good HCP effort. On the other hand, the standards used in developing HCPs must be adequate and consistent regardless of which Service office happens to work with a permit applicant. Mitigation programs should be based on sound biological rationale; they should also be practicable and commensurate with the impacts they address.”

The ESA requires the Services to compare the Plan and EIS against standards provided in the ESA and NEPA - not against measures provided in other HCPs.

The EIS does, however, address the Pacific Lumber Company's HCP in the context of cumulative impacts analysis (see EIS Section 4.1.2 and Master Response 3), which is appropriate given that the Pacific Lumber Company's HCP meets the NEPA criteria of “other past, present, and reasonably foreseeable future actions” (40 CFR 1508.7). Also see Master Response 6.2 regarding consideration of the Pacific Lumber Company HCP as an alternative and Master Response 10, generally regarding alternatives.

Regarding Footnote Number 2, comment noted.

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Response to Comment G9-3

As drafted, under the No Action Alternative, unauthorized take of the covered species would be prohibited. The EIS states that under the No Action Alternative, NMFS and USFWS would not issue Green Diamond an ITP or an ESP (EIS Section 2.1). In addition, the EIS states that this would result in Green Diamond remaining subject to the ESA's prohibitions on unauthorized take of listed species. See also AHCP/CCAA Section 8.1 and Master Response 2.

Regarding comparisons with the Pacific Lumber Company HCP, see Master Response 6. Regarding Footnote Number 3, comment noted.

Regarding Footnote Number 4, the Services considered whether their conclusions would change if they applied the standards reflected in the NMFS letter to the California Department of Forestry and Fire Protection (CDF) (cited in Footnote 4 of the commenter's letter), which the commenter appears to cite as an example of what was necessary in a particular THP to comply with the ESA take prohibition. The Plan and the issuance of the associated Permits allows for incidental take of the Covered Species. Implementation of the Plan measures do not avoid take.

For all these reasons, the Services determined that there is no reason to adopt a different no action alternative and no significant benefit in adding even another action alternative such as that referenced by the commenter. The Services are satisfied that the description, analysis and comparison of alternatives serve the purposes of NEPA and the ESA.

effects, or to verify that the Simpson proposal meets applicable legal standards.

Rather than being a model for the Simpson HCP/CCAA, the PL HCP has numerous flaws and legal inadequacies. These failings require the Agencies to closely compare the Simpson and PL projects in order to avoid similar failings. Still worse, the Agencies used different methods of measuring mitigation in the two HCPs that make it exceedingly difficult to provide comparison comments. Worst of all, however, EPIC finds that to the extent the two projects can be compared, the Simpson HCP/CCAA often fails to meet even the inadequate standards found in the PL HCP. The failure to compare the two projects, including the various mitigation proposals, as well as comparing the two project's overall effects on covered species, results in the legal violations detailed below.

G9-2

G9-3

The Agencies make a similarly-fundamental mistake by proposing a No Action Alternative ("NAA") that permits "taking" of species covered by the HCP, which can only be permitted by the Proposed Action and the various action alternatives. If the preceding sentence sounds confusing and arbitrary, the fault lies in the design of the NAA. The failure to cross-reference the PL HCP may have resulted in this mistake. The NEPA No Action Alternative discussed in the Pacific Lumber HCP ("PL NAA") does not contain the same flaw, and at least attempts to be designed so that no "taking" of covered species may occur.³ Final Environmental Impact Statement ("FEIS") for the PL HCP at 2-22 to 2-27. The Simpson NAA is eerily silent on the issue of whether taking in violation of the ESA will occur. However, one notes that the permissible activities in the PL NAA are fundamentally more restricted than in the Simpson NAA, indicating that the activities allowed in the Simpson NAA cause take and accordingly would be prohibited under the PL HCP. In just one striking example, the PL NAA has a no-logging, riparian buffer zone with a width of 340 feet on fish-bearing streams, while on similar streams the Simpson NAA has a buffer zone width of only 150 feet, and permits selective logging within that zone. PL FEIS at 2-24; Simpson DEIS at 2-10.

Given the evidence of take allowed in the NAA, EPIC respectfully requests answers to the following questions:

- Do the Agencies acknowledge that the activities described in the Simpson NAA will have the effect of causing "take" of listed species? For example, will the 80,000 cubic yards of road-related sediment released in a single year take even a single individual of the listed species? Will any of the other mechanisms for causing take described in the HCP/CCAA and DEIS actually occur under the NAA?
- Do the Agencies generally expect Simpson to comply with legal requirements, or do they anticipate that Simpson may not comply when it may be difficult to prove non-compliance? Are they anticipating that Simpson will violate the law and cause take under the NAA, but will not violate the conditions placed upon it in the Proposed Action?

³ EPIC cites to the NAA in the PL HCP only for the purpose of showing deficiencies in the Simpson NAA in violation of legal standards. EPIC states no opinion in this letter regarding whether the NEPA No Action Alternative in the PL HCP fully complies with all legal standards.

Response to Comment G9-4

See Master Response 1 regarding baseline, Master Response 2 regarding the No Action Alternative including, no take, Master Response 10 regarding alternatives and Master Response 6 regarding the relationship between this Plan and the Pacific Lumber Company HCP and other HCPs.

To provide clarification, the Final EIS has been revised (see Section 3.1) to clarify the definition of the existing condition.

Regarding Footnote Number 5, see Master Response 1.

Regarding the assertion that the No Action Alternative improperly permits take, see Master Response 2. For all the reasons discussed in Master Responses 1 and 2 and responses to Comments G4-2, G4-24, and G9-7, among others, the Services believe that the No Action Alternative is properly described and that the conclusions that flow from the comparison of the No Action Alternative with the Proposed Action are valid. The Services are satisfied that the description, analysis and comparison of alternatives are consistent with the requirements of NEPA and the ESA.

Response to Comment G9-5

The AHCP/CCAA (Section 1.1.4.1) and EIS (Section 1.5.1) also include a detailed summary of the ESA Section 9 and 10 provisions that relate to the approval of an ITP. The Services are aware of these requirements and related policies as well as the guidance provided in the Services' HCP Handbook. As described in Master Response 8, the Plan meets the ESA Section 10 approval criteria for ITPs and ESPs.

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If the Agencies anticipate that take will occur under the NAA, do they also anticipate that the Agencies will not take steps to enforce compliance with the ESA? Do Agencies also anticipate that environmental groups will not take steps to enforce compliance?

G9-3

As the above questions suggest, EPIC emphatically believes that the NAA must be constructed so as to not permit any take, and that its current format results in multiple legal flaws.⁴

G9-4

Along with ignoring the PL HCP and using an improper No Action Alternative, the Simpson HCP/CCAA incorrectly determines the Proposed Action to be beneficial on the basis of comparison against either existing conditions or to the NAA. The proper baseline for comparing the positive or negative effect of the project is with a NAA that does not permit take of covered species, such as that attempted in the PL HCP.⁵ Comparison to present, highly-degraded environmental conditions does not determine the actual effects that the project will have on the environment over the course of the next 50 years. Comparison to the improper NAA used in the HCP/CCAA also does not demonstrate the effects of the action, because the NAA allows take of covered species, which would not be allowed under a legally-adequate NAA. Failing to properly measure the Proposed Action's effects causes violations of both the ESA and NEPA as discussed below.

G9-5

The remainder of this letter discusses general ESA violations, general NEPA violations, and problems in specific portions of the HCP/CCAA relevant to both laws.

II. General Endangered Species Act Violations.

A. The Endangered Species Act Places Strict Limits on the HCP/CCAA.

The ESA requires the Agencies to determine whether a given species qualifies for protection as endangered or threatened, and confers significant protection on species so listed.

⁴ EPIC submits for the record the attached letter from Patrick J. Rutten, NMFS Santa Rosa Field Office, to William E. Snyder, California Department of Forestry, dated 10/31/01. In particular, the letter states that absent an ITP, "the standard for harvest planning and approval in California is no take." The letter also describes "no-take" conditions for the closely related central California salmonids that are much more restrictive than those described in the Simpson NAA, despite the fact central California suffers less from erosion and sedimentation problems.

⁵ In what amounts to the same thing, the Agencies could alternatively use the present conditions as the baseline, but recognize that included in present conditions are certain environmental trends and legal regimes. Present-day trees continue to grow back from overharvest, and present legal restrictions placed by the ESA prevents actions that cause take, until and unless the proposed action takes place. The analysis would determine how the project changes the environment in the future with respect to those existing baseline conditions, trends, and legal regimes.

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Section 9 of the ESA makes it unlawful for any person subject to the jurisdiction of the United States to "take" any member of any endangered species. 16 U.S.C. § 1538(a)(1). Section 4(d) allows the Agencies to extend the same protection to species listed as threatened. *Id.* § 1533(d). The ESA defines "take" as "to harass, harm, pursue, hunt, wound, kill, trap, capture, or collect." *Id.* § 1532(19). "Harm" is further defined by regulation to include killing or injuring a protected species through "significant habitat modification or degradation" that impairs "essential behavioral patterns, including breeding, feeding, or sheltering." 50 C.F.R. § 17.3.

Section 9's broad prohibition on take is limited by several exceptions identified in Section 10. Section 10 allows the Secretary to issue an incidental take permit ("ITP"), which authorizes its holder to take some members of protected species when the taking is incidental to carrying out an otherwise lawful activity. 16 U.S.C. § 1539(a). The permittee under an ITP is not liable for any taking that falls within the scope of the permit.

To obtain an ITP, an applicant must develop and submit a habitat conservation plan ("HCP"), which specifies (1) the likely impact from the proposed takings; (2) the steps the applicant will take to minimize and mitigate such impacts and the funding available for such mitigation; (3) alternative actions considered, and the reasons for not selecting them; and (4) such other measures as the Secretary may require as necessary or appropriate for the purposes of the plan. 16 U.S.C. § 1539(a)(2)(A). Upon submission of a permit application and related conservation plan, "the Secretary shall issue the permit," if he finds, after opportunity for public comment, that

- (i) the taking will be incidental;
- (ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- (iii) the applicant will ensure that adequate funding for the plan will be provided;
- (iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
- (v) other measures required by the Secretary will be met.

16 U.S.C. § 1539(a)(2)(B) (emphasis added). Courts will reverse any decision by an Agency to approve an HCP that fails to meet these standards. *See, e.g., National Wildlife Fed'n v. Babbitt*, 128 F. Supp. 2d 1274, 1291-93 (reversing approval of an HCP for failure to show mitigation to the "maximum extent practicable").

The Agencies have published the detailed Habitat Conservation Planning Handbook for the express purpose of establishing "clear standards that ensure consistent implementation of the section 10 program nationwide." HCP Handbook at 1-1. Comparison to the Handbook standards therefore indicates whether the Agencies have complied with their statutory duties.

In addition to the HCP process, Section 10 of the ESA also allows the Agencies to issue Enhancement of Survival Permits ("ESP") that cover take of species not yet listed under the ESA, should those species become listed in the future. 50 C.F.R. § 17.32(d). To obtain an ESP,

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Response to Comment G9-6

To the contrary, as explained below, the Plan meets the requirements of the ESA and is consistent with the guidance suggested by the Services' HCP Handbook. ESA Section 10(a)(2)(A) specifically states:

"No permit may be issued by the Secretary authorizing any taking referred to in paragraph (1)(B) unless the applicant therefor submits to the Secretary a conservation plan that specifies:

"(i) the impact which will likely result from such taking;

(ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;

(iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and

(iv) such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan."

The table below shows where in the Plan each of these requirements has been addressed.

(i) Chapter 5: Assessment of Potential Impacts to covered species and their Habitats that May Result in Take, and

Chapter 7: Assessment of the Conservation Strategy's Effectiveness in Fulfilling the Plan's Purpose

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an applicant must enter into a Candidate Conservation Agreement with Assurances ("CCAA"). The Agencies may not approve a CCAA unless they determine that the benefits of the conservation measures implemented by a property owner under a Candidate Conservation Agreement with assurances, when combined with those benefits that would be achieved if it is assumed that conservation measures were also to be implemented on other necessary properties, would preclude or remove any need to list the covered species. Announcement of Final Policy for Candidate Conservation Agreements with Assurances, 64 Fed. Reg. 32,726 (1999). "Other necessary properties" are other properties on which conservation measures would have to be implemented in order to preclude or remove any need to list the covered species. *Id.* In other words, even a CCAA that provides benefits to a covered species cannot be approved unless the benefits, if applied universally, suffice to avoid the need for listing.

B. Omitted Information and Documents Required by the ESA Make It Impossible for the Agencies to Legally Approve the HCP/CCAA.

1. The Agencies Failed to Provide Adequate Section 10 and Section 7 Analysis of HCP/CCAA.

In violation of the Agencies' own directives, NMFS and FWS failed to provide information to allow the public to determine whether the HCP/CCAA meet ESA Section 10 standards. The materials that the Agencies have made available concerning the HCP/CCAA consist only of the Draft HCP/CCAA, the Draft Implementation Agreement, and DEIS. None of these documents analyze whether HCP/CCAA meets the standards discussed above for permission under Section 10 take listed species. In the "Providing HCP Documents to the Public" section of the HCP Handbook, a clear standard states that "[t]he Services should provide information that documents compliance with the requirements of section 10(a)(2) of the ESA." HCP Handbook at 6-22. The information provided in the documents does not adequately substitute for a proper Section 10 analysis. EPIC points in particular to a lack of analysis of whether the HCP mitigates take to the maximum extent practicable, and to the absence of a draft Incidental Take Permit, as two of many missing analyses required by the ESA. The Agencies' failure to provide this analysis would also make approval of the HCP/CCAA an arbitrary and capricious action, in violation of the Administrative Procedures Act.⁶

In addition to the missing Section 10 analysis, the Agencies failed to include analysis from a draft Biological Opinion required under Section 7 of the ESA. Section 7 requires each federal agency to "insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical habitat]." 16 U.S.C. § 1536(a)(2).

⁶ The similar failure to provide analysis of whether the project meets the CCAA standards also prohibits approval. The identical public notice and comment provision in the Endangered Species Act applies to both Incidental Take Permits and Enhancement of Survival Permits, so there is no reason to provide less disclosure of Section 10 analysis for a CCAA than there is for an HCP.

(ii) Chapter 6: Conservation Program

(iii) Chapter 8: Alternatives Considered

(iv) No other measures have been determined by the Secretary to be necessary or appropriate for the Plan

The ESA does not require the Services to circulate a draft ITP or draft ESA Section 7 biological opinion with the release of an HCP and EIS for public review. The Plan and Permits address ESA Section 10(a) requirements. The ESA Section 7 process is separate, and is being addressed separately. The Services believe that the Operating Conservation Program is based on a sound biological rationale. See responses to Comments G10-58 and G10-51, among others. Regarding Footnote Number 6, see response to Comment G9-3.

Regarding the comment on harm to covered species, see responses to Comments G9-7 through G9-44.

Response to Comment G9-7

As discussed in EIS Chapter 2, the Services evaluated five alternatives in detail, including the Proposed Action and the No Action Alternative. EIS Section 2.6 provided the basis for considering, but not evaluating in detail, three other alternatives. The alternatives evaluated in the EIS were selected on the basis of CEQ regulations (40 CFR 1502.14), which require that agencies shall:

- “(a) Rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include the alternative of no action.
- (e) Identify the agency’s preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
- (f) Include appropriate mitigation measures not already included in the proposed action or alternatives.”

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To comply with § 7(a)(2), an agency considering action that may affect a protected species is required to engage in a consultation process with either NMFS or FWS, depending on the species affected. When the action agency is the Service (NMFS or FWS) itself, as when the Service is considering whether to issue an ITP, it must engage in internal consultation under § 7, and may issue the permit only upon a finding that it “is not likely to jeopardize the continued existence of” a protected species, or result in the destruction or adverse modification of critical habitat. *Id.*; 50 C.F.R. § 402.01(b). Formal consultation typically culminates in the issuance of a biological opinion by the Service, which addresses whether jeopardy is likely to occur for any protected species, and if so, whether “reasonable and prudent alternatives” exist to avoid jeopardy. Generally, the no jeopardy finding required by ESA § 7(a)(2) is identical to the survival finding required under § 10(a)(2)(B)(iv).

The HCP Handbook states “[i]t is now Service policy to begin integrating the section 7 and section 10 processes from the beginning of the HCP development phase; and to regard them as concurrent and related, not independent and sequential, processes.” HCP Handbook at 3-16 (all underlined in original). Despite this policy, the Agencies have failed to release a draft Biological Opinion. They have violated their own policy expressed in the HCP Handbook, and they fail to provide any proof that the HCP/CCAA avoids jeopardizing covered species, as required by both Section 7 and the similar provision in Section 10(a)(2)(B)(iv). As EPIC demonstrates below, the HCP/CCAA actually harms, rather than benefits, covered species, so the action of approving the HCP/CCAA could very well jeopardize the species.

G9-6

G9-7

2. The Agencies Failed to Include an Alternative That Is More Restrictive than the Proposed Action Alternative.

To ensure that an HCP minimizes and mitigates take to the maximum extent practicable, the Agencies must scrutinize both the proposed HCP and potential alternatives that would provide greater mitigation and minimization of the take. 16 U.S.C. § 1539(a)(2)(A)(iii) (HCP application must describe alternatives the applicant considered and reasons they are not being utilized); *National Wildlife Federation v. Babbitt*, 128 F. Supp.2d 1274, 1292 (E.D. Cal. 2000) (“the most reasonable reading of the statutory phrase ‘maximum extent practicable’ nonetheless requires the Services to consider an alternative involving greater mitigation”). Only then can the Services make the statutorily-mandated finding with confidence. The HCP Handbook also verifies that a more protective alternative than the one proposed must be considered. HCP Handbook at 3-35. The absence of a more restrictive alternative also means that the Agencies have not provided information to the public documenting compliance with Section 10(a)(2) of the ESA, as required by the HCP Handbook. *Id.* at 6-22.

None of the alternatives in the DEIS involve greater mitigation than does the Proposed Action.⁷ The DEIS itself finds that the No Action Alternative (“NAA”) as described by the

⁷ The HCP/CCAA itself only has four and a half pages of alternatives analysis, which is plainly inadequate for a reasoned Section 10 analysis. HCP/CCAA at 8-1 to 8-5. EPIC assumes the Agencies rely on the more detailed analysis in the DEIS for ESA Section 10 conclusions.

The EIS complies with this directive by:

- Identifying and evaluating a reasonable range of alternatives (EIS Sections 2.1 through 2.5)
- Identifying and providing the basis for alternatives considered but eliminated (EIS Section 2.6)
- Including appropriate mitigation measures (EIS Chapter 4)

The comment is correct that the No Action Alternative would result in less removal of sediment than would occur under the Proposed Action. Neither NEPA nor the ESA, however, requires a NEPA No Action Alternative to provide greater mitigation than a proposed action. The EIS compares the No Action Alternative and the Proposed Action relative to sediment removal for the purposes of the assessment of hydrology and water quality (EIS Section 4.3.3.3) and states: “Under the Proposed Action, sediment production and delivery that could result in increased sediment loading, sedimentation, and turbidity levels would be reduced compared with both existing conditions and conditions anticipated to occur over time under the No Action Alternative.” This is an appropriate conclusion, given that the No Action Alternative does not include issuance of ESA Section 10 permits and, therefore, would not result in implementation of the conservation measures for sediment reduction in the Plan’s Operating Conservation Plan. Please see EIS Section 2.2 and AHCP/CCAA Sections 6.2 and 6.3. The range of alternatives also is discussed in Master Response 10 and their measures compared in EIS Table 2.7-1. Based on the analysis provided in the Plan and EIS, the Services believe that alternatives presented in the Plan and EIS meet the criteria required by the ESA and the guidance suggested in the HCP Handbook.

Regarding Footnotes Numbers 7 and 8, see the response to this comment and the response to Comment G9-13.

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Response to Comment G9-8

See Master Response 2 regarding the No Action Alternative, and Master Response 10 regarding analysis of alternatives in the Plan and EIS. Regarding the CFPRs, see Master Response 7. Regarding the quote in the comment from page 1-11 of the EIS, this text discusses the application of the CFPRs as part of the No Action Alternative. This is appropriate given the fact that the CFPRs would continue to apply under the No Action Alternative.

The Section of the HCP Handbook cited in the Comment (page 3-35) states a "no action" alternative means that "no Permit would be issued and take would be avoided or that the project would not be constructed or implemented." The No Action Alternative in the EIS (EIS Section 2.1) complies with this definition because under the No Action Alternative, permits would not be issued to Green Diamond for the covered species in the Plan and Green Diamond would be subject to the ESA Section 9 take prohibition. In addition, "NEPA's Forty Most Asked Questions," (see Question 3A) states that there are two distinct interpretations of "no action" that must be considered, depending on the nature of the proposal being evaluated. The first situation described in that document (see quote below) is applicable to Green Diamond because Green Diamond will continue to conduct timber operations, regardless of whether an ITP or ESP is issued.

"The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity."

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Agencies provides less protection to covered species than the Proposed Action, in part because the NAA offers less mitigation for reducing sediment. DEIS at 4-48. Alternative A, covering listed salmonid species only, has the same mitigation as the Proposed Action, not greater mitigation. *Id.* at 2-29. Alternative B, offering simplified prescriptions, fails to include many of the mitigations found in the Proposed Action, and the Agencies themselves conclude that Alternative B provides less sediment reduction mitigation. *Id.* at 4-62.⁹ Alternative C covers more species, but provides less mitigation for the species covered by the Proposed Action. *Id.* at 4-62. Accordingly, none of the alternatives meet the standard required by the HCP Handbook and by *National Wildlife Federation*.

3. The Simpson No Action Alternative Fails to Meet ESA Standards.

As mentioned earlier, the No Action Alternative in the Simpson HCP/CCAA fails to prevent take of covered species, in violation of what Agency guidelines require. The HCP Handbook defines the no-action alternative as not engaging in the activity or modifying it to avoid take. HCP Handbook at 3-35. Complying with existing state laws or continuing business as usual may not be an appropriate point of comparison. Since it is generally presumed that people will act to comply with the law, the no-action alternative should assess what is necessary to avoid running afoul of the ESA's take prohibition.

The California Forest Practice Rules, which form the basis of the Simpson NAA, do not prevent take. The DEIS acknowledges this point. "NMFS continues to find that the CFPRs do not ensure the achievement of properly functioning habitat for conservation of the anadromous salmonids throughout their range in California, although forest practices operations conducted pursuant to this process in a particular area, land ownership, or region under this process may achieve such conditions." DEIS at 1-11. NMFS official liaison to the State of California has stated that the CFPRs are inadequate to protect and conserve salmonids, even with interim changes adopted by the Board of Forestry. Declaration of Joseph Blum, June 2, 2000 (attached).⁹ Nowhere in the HCP/CCAA do the Agencies find that the Simpson NAA ensures the achievement of properly functioning habitat. Even if the NAA would eventually achieve functioning habitat decades from now, the massive sediment release and other mechanisms of take will still happen beforehand, therefore violating the Agency requirement for a NAA.¹⁰

⁹ The DEIS does note, however, that Alternative B would develop and maintain the highest level of canopy closure and Large Woody Debris ("LWD"). *Id.* at ES-11; 4-62. Mitigating to the maximum extent practicable therefore requires incorporating into the Proposed Action those components of Alternative B that promote canopy closure and LWD.

⁹ EPIC submits for the record the attached declaration of NMFS' official liaison to the State of California.

¹⁰ Any release of road-related sediment constitutes a take. But even excluding what limited release comes from "legacy" roads that have not been used since the covered species were listed, there remains significant release of sediment due to use, especially wet-season use, and that

This definition of the No Action is appropriately applied in the EIS.

Regarding Footnote Number 9, the declaration in Attachment B does not address the site-specific application of the CFPRs together with the prescriptions imposed pursuant to Green Diamond's NSO HCP and the prescriptions that would apply following Plan approval and issuance of the Permits. Therefore, because it relates to only one aspect of a mosaic of regulations and requirements, the declaration is not germane to the Services' consideration of this application.

Regarding Footnote Number 10, the Services do not agree that any release of sediment constitutes a take. Harm is contained in the definition of "take" in the ESA (63 FR 24148). NMFS interprets the term "harm" as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering (November 8, 1999, 64 FR 60727). See Section 4.4.3.3 of the EIS for an analysis of the impacts from sediment in the context of the Operating Conservation Program of the Plan.

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Response to Comment G9-9

See Master Response 9. Further, the Handbook recognizes that in certain circumstances, determining the level of take may not be possible. Page 3-14 of the Handbook states that the ability to calculate the level of take "depends on the ability of the HCP participants to determine, to the extent possible, the number of individual animals of a covered species occupying the project or land use area or the number of habitat acres to be affected." The distribution of species in the Plan Area and the spatial and temporal variation of this distribution precludes the ability to determine the number of individuals of the covered species that would be affected by implementing the Plan. In addition, activities unrelated to and outside the Plan Area could affect the covered species. It is not possible, however, to control or enumerate the impacts from these unknown or out-of-area activities. In addition, the Plan's Operating Conservation Program minimizes and mitigates impacts of the taking of the ITP species. See AHCP/CCAA Section 7.1 and the response to Comment G9-13.

Regarding Footnote Number 11, the Services have reviewed and do rely on the analysis provided in the Plan and EIS. Neither the ESA nor NEPA require recirculation of this information.

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4. The Agencies Failed to Provide Information Quantifying the Level of Take in Terms of Individuals or in Terms of Habitat Affected.

The HCP Handbook explains that "[f]our subtasks must be completed to determine the likely effects of a project or activity on federally listed . . . species." HCP Handbook at 3-10. The fourth task is "quantifying anticipated take levels." *Id.* This involves three steps: (1) deciding how incidental take will be calculated; (2) identifying the level of take from the proposed activity; and (3) setting the level of take authorized by the incidental take permit. *Id.* at 3-14.

The Handbook allows for incidental take to be expressed in terms of the habitat acres or units affected where the specific number of individuals is unknown or indeterminable. *Id.* The Handbook envisions that take will be assumed for all individuals in a specific area, and that the Services will compare the expected take levels with species distribution in order to make the statutorily mandated findings (i.e., "the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild").

The HCP/CCAA does not even attempt to quantify take in terms of individuals, and it also fails to properly quantify take of covered species either in terms of habitat affected. First, the closest that the Agencies come to a description of the impact is in the Section 7 of the applicant's HCP/CCAA, where Simpson provides a series of one paragraph generalizations of how the company's activities may affect covered species.¹¹ These qualitative descriptions suggest HOW species may be affected, but they fail to meet the legal requirement of describing HOW MUCH of an effect will occur. *See, e.g.*, HCP/CCAA at 7-18 to 7-19 (listing how covered activities may adversely affect the microclimate used by covered species, without quantifying the effect). Failing to quantify the impact according to area and severity of effect renders these descriptions inadequate. The closest any description comes to properly quantifying take is the admission that between 80,000 and 3,000 cubic yards of road-related sediment will be flushed annually into streams used by covered species. HCP/CCAA at 7-11 to 7-13; DEIS at 4-15 to 4-16. Even this, however, describes the sediment alone, but not the severity of this impact on the habitat.

The failure to quantify take traces directly back to the refusal to consider a No Action Alternative showing what the Simpson lands would be like if no permit were issued AND no take were allowed to occur over the course of the 50 years that the proposed permit were run. By comparing the Proposed Action to a legally-adequate NAA, the HCP/CCAA would be able to quantify take of covered species in terms of habitat impaired by the covered actions but not

release indisputably constitutes take.

¹¹ Because the agencies have provided such limited information regarding this HCP/CCAA, EPIC assumes for purposes of these comments that the Agencies adopt the applicant's entire analysis in the HCP/CCAA. If the Agencies do not adopt the materials in their entirety, then the Agencies must recirculate the materials as revised to show what they plan to adopt.

Response to Comment G9-10

See Master Response 1 regarding baseline; and the response to Comments G9-6 through G9-8 and G9-11 through G9-44 and Master Responses 2 and 10 regarding the No Action Alternative. See Master Response 8 regarding ESA Section 10 Permit issuance criteria; and the response to Comment G9-2 and Master Response 6 regarding the relationship between this Plan and other HCPs such as the Pacific Lumber Company HCP. The Plan and EIS address ESA Section 10(a) Permit issuance. The ESA Section 7 process is separate, and is being addressed separately.

Response to Comment G9-11

See Master Response 6 and responses to Comments G9-2 and G9-10 regarding the relationship between this Plan and other HCPs, such as the Pacific Lumber Company HCP, and Master Response 8 describing how the Plan meets the ESA Section 10 approval criteria.

Chapter 3 of the Services' HCP Handbook states that mitigation programs under HCPs and Section 10 permits are as varied as the projects they address." Accordingly, it would not be appropriate for Green Diamond to develop its Plan on the basis of the Pacific Lumber Company HCP, or any other HCP.

Green Diamond and the Pacific Lumber Company incorporated different conservation measures in their respective HCPs. However, as suggested in the comment, the Services evaluate each conservation program as a whole, rather than on a measure-by-measure basis, to determine whether it meets the ESA Permit

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affected under the NAA. The NAA as written, however, allows take of covered species without a permit. Comparing the Proposed Action to the NAA does not reveal the level of take, because both alternatives allow take.

EPIC emphasizes that the ESA requires the Agencies to quantify the permissible take in large part because that level of take becomes a condition for permit compliance, since the failure to limit take would defeat the assurances that HCPs provide for species' survival and recovery. EPIC requests confirmation from the Agencies that they view any take in excess of a quantified level as not covered by a permit. The HCP/CCAA notes that Simpson mitigation measures will be designed around taking certain actions rather than achieving certain biological parameters. EPIC requests confirmation that this design emphasis, however useful it may be for monitoring permittee compliance, does not purport to lift the ESA's strict requirement that take be limited to a quantified level. Simpson accordingly should be allowed to cause take only from the identified activities in the permit, and only up to the level of take identified in the permit. Among other things, this restriction means that activities that the HCP/CCAA describes as not causing take, such as the loss of Large Woody Debris ("LWD") from the harvest of standing trees (HCP/CCAA at 7-14), are not protected by the permit if those activities are shown to actually cause take.

G9-9

C. The HCP/CCAA Fails to Meet ESA Substantive Standards.

For numerous reasons, the Simpson HCP/CCAA fails to satisfy ESA Section 10 and Section 7 requirements for approval, or at least fails to provide information that would satisfy those standards. For example, the proper baseline for measuring whether the HCP/CCAA has positive or negative impacts on covered species is by comparison to a No Action Alternative that does not allow take. Such a NAA might be like the one in the PL HCP, which offers substantial protections not found in the Simpson HCP/CCAA Proposed Action. *Cf.* FEIS for the PL HCP at 2-22 to 2-27; Simpson DEIS at 2-17 to 2-29. Rather than validating the conclusion in the HCP/CCAA that the Proposed Action is beneficial, this comparison shows it to be harmful. Such harm may "appreciably reduce the likelihood of the survival and recovery of the species in the wild," which Section 10 and Section 7 prohibit. Other important examples follow.

G9-10

1. The Simpson Proposed Action Fails to Mitigate Take to the Maximum Extent Practicable.

The PL HCP uses many types of mitigation that exceed those found in the Proposed Action for the Simpson HCP/CCAA. As mentioned previously, the PL HCP mitigation measures are inadequate, but the Simpson Proposed Action fails to meet even those deficient mitigation levels. The Agencies should be intimately familiar with the differences, as the same field offices from both Agencies are involved with the PL HCP and the Simpson HCP/CCAA. EPIC points out some of those mitigations below in a non-exclusive list:

G9-11

- Simpson HCP/CCAA allows harvest on certain types of mass wasting areas while the Pacific Lumber ("PL") HCP prohibits harvest until further analysis occurs. *Cf.* DEIS at

issuance criteria discussed in Master Response 8. As defined in EIS Section 1.2, the Services are responding to Green Diamond's applications for incidental take authorization pursuant to a Plan that provides protection and conservation to listed, proposed, and unlisted species and their habitats consistent with the requirements of Section 10(a)(1)(A) and Section 10(a)(1)(B) of the ESA. The Services' approval of the Plan and issuance of the Permits are the NEPA actions analyzed in the EIS. As suggested in the comment, the Services are not required to place each HCP side by side to determine whether they are consistent or how they "balance out," as stated in the footnote number 12 to this comment. The Services must evaluate the Plan independently and make a determination whether it meets the Permit approval criteria discussed in Master Response 8.

For the reasons discussed above, the Services believe that approval of the Proposed Action would be consistent with both the ESA and NEPA, and would be neither arbitrary nor capricious.

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4-12 to 4-14; PL HCP § 6.3.3.7.

- PL HCP restricts wet-weather road use, Simpson does not. PL HCP § 6.3.3.6.
- Simpson HCP/CCAA permits Simpson to eliminate mass-wasting protections without giving federal agencies ("Agencies") a veto over their elimination. PL HCP reserves veto power to the agencies. *C.f.* DEIS at 4-13; PL HCP § 6.3.3.7. This mitigation costs nothing, and is eminently practicable.
- The HCP/CCAA's adaptive management process fails to include the "peer review" provision required in the PL HCP. "Peer review" would not be impracticable, and is unlikely to be expensive.

EPIC notes that the riparian buffer zones in the two HCPs utilize very different mitigation standards. These differences are unnecessarily difficult to compare, but it appears that the PL HCP uses stricter mitigation standards than the Simpson HCP/CCAA. For example, the PL HCP uses a 100-foot no-cut buffer with an additional 70 feet of partial harvest area. FEIS for the PL HCP at 2-31. The Proposed Action in the Simpson HCP/CCAA allows partial harvest even in the inner-most 50 to 70 feet, and a more-intensive partial harvest out to a distance of 150 feet, compared to the total of 170 feet in the PL HCP. DEIS at 2-23. Examining the totality of riparian protections shows the PL HCP to be superior to the Simpson Proposed Action.

Failing to meet previously-established mitigation standards violates both Agency policy and established caselaw. In *Sierra Club v. Babbitt*, 15 F. Supp. 2d 1274, 1281-82 (S.D. Ala. 1998), the court struck down a FWS HCP that used inconsistent mitigation relative to previous HCPs. The court approvingly quoted the HCP Handbook as stating that "mitigation measures required by individual FWS or NMFS offices should be as consistent as possible for the same species", and that consistency is "essential". *Id.* (citing HCP Handbook at 3-23 to 3-24). The Handbook goes on further and states that consistency is to be accomplished by (1) establishing good communication between offices, and (2) establishing "specific standards". *Id.* Moreover, "the Service should not apply inconsistent mitigation policies for the same species, unless differences are based on biological or other good reasons and are clearly explained." Courts prohibit the application of "inconsistent mitigation policies for the same species in the same geographic area, unless differences are based on biological or other good reasons and are clearly explained." *Sierra Club*, 15 F. Supp. 2d at 1282. EPIC "can find no evidence that the [agency] paid any attention to its own guidelines." *Id.*

Besides being inconsistent by reducing the mitigation levels in the Simpson HCP/CCAA from those in the PL HCP, the Simpson HCP/CCAA appears designed to make it very difficult to compare it to the PL HCP. For example, in the partial harvest area of riparian buffer zones, the PL HCP uses a basal-area retention figure, while the Simpson Proposed Action uses a canopy cover retention measure. The Agencies failed to place each mitigation measure from the two proposals side by side and provide their own determination as to whether the Simpson

Response to Comment G9-12

See Master Response 19 regarding the No Surprises Assurances.

Adaptive management is an effective tool that land owners apply to monitor the effectiveness of the HCP conservation measures and to allow for adjustment based on new scientific data on covered species.

Adaptive management is not intended to address unforeseen circumstances. Further, neither NEPA nor the ESA require the lead agency to demonstrate the effectiveness of adaptive management in the context of unforeseen circumstances.

The commenter states that the "HCP allows decreased mitigation through adaptive management." The Services believe that any adaptive management changes to the Plan will not reduce the effectiveness of the Operating Conservation Program, and that the criteria for utilizing the AMRA is biologically appropriate. Upon issuance of the Permits, Green Diamond would be obligated to adhere to the Permit provisions, and the Services do not anticipate that mitigation measures would be "relaxed."

Regarding Footnote Number 13, see Master Response 15 regarding the AMRA.

Response to Comment G9-13

The ESA requires that ESP applicants meet ESP application criteria, and that ITP applicants meet the ITP application criteria. These criteria can be found in EIS section 1.3. See generally

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G9-11

HCP/CCAA mitigates to a level consistent with the PL HCP. This failure violates their ESA responsibilities, and approval of the Proposed Action would be arbitrary and capricious.¹²

2. The "No Surprises" and Adaptive Management Provisions Limit the Effectiveness of the HCP in Protecting Listed Species.

The "No Surprises" and adaptive management provisions violate the ESA requirement to minimize and mitigate take to the maximum extent practicable. Examples of problems created by the two policies include the following:

G9-12

- The DEIS does not show how adaptive management can be used to benefit listed species when the HCP/CCAA has "No Surprises" provisions that prohibit additional commitments by the permittee. DEIS at 4-54 to 4-56. Adaptive management can therefore be used only to reduce protections.¹³
- The HCP allows decreased mitigation through adaptive management. DEIS at 4-54. No mitigation is precluded from being reduced or eliminated. The DEIS does not provide objective criteria to be used for determining whether a conservation measure can be "relaxed" without risk to species.

G9-13

3. Problems Specific to the Enhancement of Survival Permit.

A major problem with the "CCAA" portion of the Simpson HCP/CCAA is that it does nothing to actually help the covered species that is not already present in the "HCP" portion. Alternative A (no unlisted species covered by permit) is the same as the Proposed Action except for eliminating monitoring of unlisted species. DEIS at 4-56. The FWS decision to grant an ESP is separate from the NMFS decision to grant an ITP. NMFS' approval of the ITP means granting the ESP would do nothing to help the covered amphibians, so it would be arbitrary and capricious for FWS to give up its power to protect covered amphibians in the future.

In any event, the ESP must do more than provide a benefit to covered species in order to

¹² It would be inadequate for the Agencies to point to mitigations in the Simpson HCP that are more stringent than those in the PL HCP, if there are any, as support for an argument that the more stringent mitigations "balance out" the less stringent ones relative to the PL HCP. Mitigation to the "maximum extent practicable" would require using the most stringent measures to protect covered species. If the Agencies believe that they can achieve better mitigation in some respects than they did in the PL HCP, they are legally obligated to require that greater mitigation.

¹³ Reliance upon the Adaptive Management Reserve Account is misplaced. The account only allows an addition 1,550 acres to be protected out of 416,000 acres owned by Simpson, rendering the account virtually meaningless with respect to the vast majority of the Simpson acreage. HCP/CCAA at 6-170 to 6-172; DEIS at 3-1.

Master Response 8. The commenter correctly notes that each of the Services' decisions to issue the Permit(s) within their respective jurisdictions is distinct. In fact, the Plan separately considers ESP and ITP issues when appropriate (see, e.g., AHCP/CCAA Sections 1.4.1 and 7.1) and, also when appropriate, considers them together. The Services, based on analysis provided in the Plan and EIS, believe, with the distinction between ESP and ITP standards in mind, that the Plan satisfies the requirements for issuance of an ESP. By issuing the ESP, the USFWS is not, as the comment suggests, surrendering any authority to protect the currently unlisted covered species in the event that they become listed in the future. Instead, USFWS is formalizing an agreement with a private property owner to provide early conservation benefits for species that are not currently listed under the ESA.

Response to Comment G9-14

See Master Response 1 regarding baseline conditions, Master Response 2 regarding the No Action Alternative, including no take, Master Response 10 regarding the No Action Alternative and other alternatives, Master Response 6 regarding the relationship between this Plan and other HCPs, including the Pacific Lumber Company HCP, and Master Response 7 regarding the CFPRs. Further, the Services emphasize that Plan approval and issuance of the Permits would not excuse Green Diamond the obligation to comply with other applicable laws. Instead, the Plan would supplement other applicable requirements. Regarding the regulatory and management context for the Plan, see AHCP/CCAA Section 1.4 and EIS Sections 1.5 and 1.6.

As discussed in response to Comments C5-4, G4-24 and G9-7, among others, the EIS evaluates a reasonable range of alternatives. The Pacific Lumber Company HCP is not an alternative to the Proposed Action in the Green Diamond EIS. The Pacific Lumber Company HCP does however, meet the criteria for consideration in the EIS as a cumulative action and was included in the cumulative effects analysis (see EIS Section 4 and Master Response 3). The Services must consider individual applications for incidental take coverage on their own merit and should not adopt a template format that ignores the circumstances of the different HCP documents. Therefore, the Services cannot require Green Diamond to use the Pacific Lumber Company HCP as a template for the Plan.

Regarding Footnote Number 14 in this comment, see Master Response 6 and the response to Comment G9-2, among others, that discuss evaluation of the Pacific Lumber Company HCP in

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meet the CCAA standard of avoiding listing. A marginal benefit over existing trends could still lead to listing for a species whose condition is deteriorating. The ESP would then have the negative result of "locking in" inadequate measures that prevent species recovery. The FWS makes no finding that the ESP would avoid listing of covered amphibians in the future.

G9-13

II. General National Environmental Policy Act Violations.

NEPA was created to "promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation." 42 U.S.C. § 4321. To accomplish this goal, federal agencies proposing actions that may have a significant effect on the environment must prepare an Environmental Impact Statement before undertaking or allowing the action. *National Parks & Conservation Ass'n ("NPCA") v. Babbitt*, 241 F.3d 722, 730 (9th Cir. 2001); *Salmon River Concerned Citizens v. Robertson*, 32 F.3d 1346, 1356 (9th Cir. 1994). The purpose of an EIS is two-fold: "It ensures that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts; it also guarantees that the relevant information will be made available to the larger [public] audience that may also play a role in both the decisionmaking process and the implementation of that decision." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989); *Idaho Sporting Congress*, 137 F.3d at 1149; *Columbia Basin Land Protection Ass'n v. Schlesinger*, 453 F.2d 585 (9th Cir. 1981) ("the preparation of an EIS ensures that other officials, Congress, and the public can evaluate the environmental consequences independently").

An EIS does not satisfy NEPA unless "its form, content, and preparation substantially (1) provide decision-makers with an environmental disclosure sufficiently detailed to aid in the substantive decision whether to proceed with the project in light of its environmental consequences, and (2) make available to the public, information of the proposed project's environmental impact and encourage public participation in the development of that information." *Trout Unlimited v. Morton*, 509 F.2d 1276, 1283 (9th Cir. 1974).

G9-14

A. The DEIS Provides an Inadequate Range of Alternatives, an Inadequate No Action Alternative, and an Inadequate Baseline.

NEPA requires that an EIS include a "detailed statement" of "alternatives to the proposed action." 42 U.S.C. § 4332(2)(C). The alternatives section is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. In order to fulfill its intended role of "sharply defining the issue and providing a clear basis for choice among options by the decisionmaker and the public," an EIS must "[r]igorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a) (emphasis added); see also *Muckleshoot Indian Tribe*, 177 F.3d at 812-13 (9th Cir. 1999) (holding that an EIS failed to consider an adequate range of alternatives for a land exchange). The Ninth Circuit has held that "[t]he existence of a viable but unexamined alternative renders an environmental impact statement inadequate." *Resources Ltd.*

the context of cumulative effects.

On the basis of the response above and in accordance with CEQ requirements, the EIS does evaluate the No Action Alternative in the level of detail commensurate with the other action alternatives.

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Response to Comment G9-15

See Master Response 1 regarding baseline, Master Responses 3 and 13 and the response to Comment G9-7, among others, regarding the No Action Alternative and other alternatives. See also Master Response 3 regarding cumulative effects. The Services believe that the No Action Alternative (EIS Section 2.1) and the description of existing baseline conditions (EIS Section 3) are appropriate and in accordance with NEPA guidelines.

Response to Comment G9-16

The Plan does not use the term "canopy closure retention," rather the text is written in the form of the amount of overstory canopy closure. The definition of "canopy closure" is found in AHCP/CCAA Section 10.2, the definitions section. The definition in the Plan is more specific than the definition of "canopy" found in the CFPRs. The Plan states that certain levels of overstory canopy will be "retained," which means the condition will exist after harvesting. Canopy closure refers to the overstory canopy retention of the post harvest stand.

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v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1994) (quoting *Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519 (9th Cir. 1992)).

As described earlier, the HCP/CCAA ignores the PL HCP as an alternative method for minimizing and mitigating take of covered species, despite the nearly identical situations in the Simpson and Pacific Lumber lands.¹⁴ The DEIS should accordingly discuss the PL HCP, or at least its mitigations targeting aquatic species, as an action alternative to Simpson Proposed Action. There can be no question that the PL HCP is a "viable alternative." Preferably, the Agencies will examine the PL HCP and require the Simpson HCP/CCAA to fix the defects in the PL HCP, rather than approve a Proposed Action that is actually worse than the PL HCP.

No Action Alternatives must be considered, as much as any other viable alternative. As previously mentioned, the simplistic application of California Forest Practice Rules does not meet the HCP Handbook requirement for a No Action Alternative. Absent the action of granting the ITP, Simpson would be required to not take listed species. To meet this requirement, Simpson would have to change its silvicultural activities at least as much as required in the PL HCP No Action Alternative, if not more. Accordingly, NEPA requires a proper NAA, not the one used in the DEIS.

The Ninth Circuit has made it clear that impacts to the physical environment in the future can be considered adverse, even if those impacts will not degrade the environment compared to the status quo. *Cf., Native Ecosystems Council v. Dombeck*, 304 F.3d 886, 897 n.3 (9th Cir. 2002). The baseline for measuring project significance is against the future physical environment, under an appropriate No Action Alternative. The DEIS measure effects against a present-day, degraded baseline that would improve without the project, and against an inappropriate No Action Alternative that permits illegal take. DEIS at ES-5 to ES-7. Neither version provides an appropriate means for assessing the Proposed Action's impacts.

III. Comments on Specific Portions of the HCP/CCAA.

The following comments raise issues relevant to both the ESA and NEPA:

- G9-15 • Because the Proposed Action does have adverse impacts compared to an appropriate future baseline under an appropriate No Action Alternative, the DEIS analysis of cumulative impacts must be completely reworked to assess the possibility that the adverse impacts will have additional, cumulative significance.
- G9-16 • Simpson HCP/CCAA does not clarify if various requirements for 70 to 85 percent "canopy closure retention" means percentage of canopy cover prior to logging, or

¹⁴ The HCP/CCAA does mention the PL HCP with reference to cumulative impacts, but it does not examine the PL HCP or its mitigations for possible application on Simpson lands. See, e.g., DEIS at 4-64.

Response to Comment G9-17

See Master Response 1 regarding baseline, and Master Responses 2 and 10 regarding the No Action Alternative and other alternatives.

To the Service's knowledge, no additional impact to old growth habitat will occur under the Proposed Action compared to the No Action Alternative. None of the covered species are considered to be dependant on old growth habitat conditions. All existing Federal and State laws that provide ancillary protections of old growth habitat conditions will remain in effect regardless of Permit issuance.

Regarding visual impacts mentioned in Footnote Number 15, as noted in EIS Section 4.8, no additional analysis of visual impacts is necessary because issuance of the Permits is not expected to result in different to visual resources conditions than would result under the No Action Alternative.

Response to Comment G9-18

Stream temperatures are only partially dependant on riparian management zone width. In general, surface water temperatures are related to local air temperatures and influenced by groundwater. The primary factors affecting air temperature are elevation, aspect, latitude, humidity, wind, and sunlight. Stream temperatures also are affected by stream gradient, stream flow, and water source (groundwater, snowmelt, or rain). The EIS, on pages 4-25 and 4-46, acknowledges that the inner zone width along Class I streams is slightly less under the Proposed Action (50-70 feet)

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G9-16

percentage of the sky that must remain covered by canopy after logging. If the former, the standards will allow significant decreases in canopy cover. For purposes of this letter, EPIC assumes that all references to canopy retention in the HCP/CCAA refer to percentage of sky that is covered by canopy after logging.

G9-17

- The DEIS wholly fails to discuss the effects of the HCP/CCAA on old-growth forests. This omission is striking because compared to present conditions, old-growth would certainly decrease. Compared to a future baseline of a No Action Alternative that does not allow take, as attempted in the NAA for the PL HCP, the Proposed Action will also certainly result in a decrease in old-growth that must be analyzed.¹⁵

G9-18

- The inner Riparian Management Zone for Class I streams in the Proposed Action is smaller than the (deficient) No Action Alternative. This should result in higher water temperatures, but the DEIS concludes the opposite. DEIS at 4-25 to 4-26; 4-46 to 4-47.

G9-19

- The HCP/CCAA contains no analysis of temperature effects on Class III streams. As compared to wide, no-cut buffers found in the No Action Alternative for the PL HCP, the Proposed Action would result in adverse temperature effects on Class III streams that must be analyzed.

G9-20

- The HCP places no limit on the steepness of slopes where skid trails can exist, or skidding machines operate, creating unacceptable sediment impacts that have not been analyzed. DEIS at 4-26 to 4-30.

G9-21

- DEIS repeatedly asserts that medium and late seral types develop faster under the Proposed Action than in the No Action Alternative, or that riparian zones are better under the Proposed Action than under the NAA. DEIS at 4-65. Aside from Steep Slope Management Zones, where is the difference between the alternatives? The SMZs cover only 8,850 acres. HCP/CCAA at 6-171. In any event, the large no-cut buffer zones in an adequate NAA would clearly provide more development of medium and late seral types than the Proposed Action.

G9-22

- DEIS at 4-109 states riparian zone widths on Class I and II streams are enhanced in the Proposed Action. This is not true for Class I streams.

G9-23

- DEIS claims Large Woody Debris contribution is better in the Proposed Action than in the NAA, but provides no reasons to support the claim.

G9-24

- Salvage of downed trees is allowed in the outer riparian zones where the trees are not currently intercepting sediment or stabilizing slopes. DEIS at 2-24. This ignores the possibility that either the logs could move or the banks could erode back to the point

¹⁵ Similarly, visual conditions will decrease compared to a present baseline and compared to an adequate NAA. The DEIS fails to compare the Proposed Action to either baseline.

than occurs under the No Action Alternative (75 feet). However, the effects on microclimate and stream temperatures are not expected to result in significant adverse impacts. Support for this conclusion also is provided in subsequent pages of the EIS and in AHCP/CCAA Appendix C-5.2, where experimental data suggest that the riparian management measures under the Plan would not result in significant impacts on water temperature. (See Master Response 18 regarding riparian widths. See also responses to Comments G10-24 and G10-51, for example, regarding the selection of different or additional conservation measures.)

Response to Comment G9-19

Class III streams are intermittent in nature, do not provide aquatic habitat, and could affect covered species through altered water temperatures only when water is present. Water is likely to be present in Class III streams only during the spring, fall and winter months due to rainfall; water is generally absent in these streams during the summer months when adverse temperature effects would be expected to be an issue. When flowing, Class III streams can contribute to and affect stream temperatures in Class I and Class II streams. This would occur, however, only at times of the year when temperatures are generally suitable for the covered species. In addition, monitoring in Class II streams has shown that summer water temperatures are generally good, and the covered species that should be most sensitive to water temperature, headwater amphibians, are well distributed throughout the Plan Area.

See Master Response 6 regarding the relationship between the Plan and other HCPs, including the Pacific Lumber Company HCP and Master Response 8 regarding the Section 10(a) approval criteria. See also responses to Comments G10-24 and G10-51, for example, regarding the selection of different or additional conservation measures.

Response to Comment G9-20

The AHCP/CCAA Section 6.2.2.1 provides prescriptions applicable to operations in SSS areas generally, and the prescriptions in

AHCP/CCAA Section 6.2.4.5.2 specifically relate to tractor (tractor operations are limited to slopes < 50%), skidder and forwarder operations in SSSs. The SSS measures in combination with other measures in the Operating Conservation Program that, as a whole, has been analyzed in the EIS. Accordingly, the EIS does address and analyze such potential impacts.

Response to Comment G9-21

See Master Response 2 regarding the No Action Alternative. Beneficial effects to wildlife species associated with late-seral habitat types are anticipated to be greater under the Proposed Action than under the No Action Alternative as a result of various Plan measures designed primarily to protect riparian areas (see AHCP/CCAA Section 6.2.1). These beneficial effects would result primarily from implementation of increased RMZ widths for Class II streams, wider EEZs for Class III streams, and higher inner- and outer-zone tree and canopy retention standards for RMZs under the Proposed Action compared to the No Action Alternative. See also Master Response 18 regarding riparian widths.

Response to Comment G9-22

Comment noted. Text in EIS Section 4.8.3 has been revised to delete references to *enhanced* riparian management zone (RMZ) widths for Class I streams under the Proposed Action.

Response to Comment G9-23

EIS Section 4.4.3.2 (LWD Recruitment) states that: “the overstory canopy closure requirements and tree retention standards under the Proposed Action are equal to or more protective than what is included in the No Action Alternative. This would help to increase the potential for LWD recruitment so that in-channel LWD loading and size is likely to increase in the future.”

Support for this conclusion is provided in the EIS and is based primarily on the following:

- Retention of all trees within the inner zone of RMZs along

Class I streams and portions of Class II streams that are judged likely to recruit LWD to the stream channel.

- Retention of trees in SMZs, such that if a landslide does occur, it has the potential to deliver LWD to the adjacent stream
- Limitation to a single commercial harvest entry into the RMZ during the term of the Permits, except when cable corridors are necessary through an RMZ to conduct intermediate treatments..

Only a small proportion of the trees within RMZs would be harvested under the Proposed Action, and those that remain would continue to grow and age following removal of adjacent upland timber stands. Trees in the RMZs would be increasing in age throughout the term of the proposed Plan, such that by the end of the term over one-third of the RMZ stands would be greater than 100 years old and the remainder would be between 51 and 100 years. Based on modeling conducted of future LWD recruitment under the Proposed Action, it is anticipated that 99 percent and 88 percent of the total potential recruitment for managed and site potential tree height would be provided along Class I watercourses, respectively, for site index 100. Along Class II watercourses, 95 percent and 73 percent of LWD recruitment would be attained for managed and site potential tree height, respectively, at site index 100.

Response to Comment G9-24

As noted in Section 2.2.3.1 of the EIS, the Services would not expect that downed logs in the outer zone would move through the inner zone to be functional LWD, particularly since the inner zone would contain a substantial number of trees post-harvest that would intercept any such movement. The RMZ width for Class I streams is measured from the first line of perennial vegetation or from the outer CMZ or outer floodplain edge (if greater than 150 feet), encompassing the area in which the stream channel is likely to erode or move. Because of this, the Services would not expect the banks to erode an additional 50 to 70 feet (the inner zone) to the point where the logs in the outer zone provide stability.

Response to Comment G9-25

A comparative summary of the potential environmental impacts associated with each alternative, including bank stability, can be found in EIS Table ES-2 and EIS Table 2.7-1. Bank stability for each of the action alternatives is expected to be relatively unchanged in comparison to the No Action Alternative. The analysis of environmental impacts compares current conditions with those expected to occur over time under the No Action Alternative and action alternatives, including the Proposed Action, with the No Action Alternative.

Response to Comment G9-26

As stated in IA paragraph 11.5, the Plan, the Permits and the IA would "cease to be effective as to Green Diamond for lands removed from the Plan Area in accordance with Paragraph 11 upon Green Diamond's sale, transfer or other deletion...." Accordingly, if the Permits have not been relinquished, no deed restriction would encumber the transfer of title to the property.

Response to Comment G9-27

As discussed in IA paragraph 4.1, under the Plan and Permits, authorized take of covered species may occur incidental to timber harvest operations as well as other ongoing and continuous covered activities (see AHCP/CCAA Section 1.3.4 and AHCP/CCAA Section 2.0), particularly where those covered activities involve disturbance of Class I and II watercourses. However, there is no information available to determine that take will actually result from any specific timber operation or other covered activity. For these reasons, the Services believe that providing copies of all maps submitted in support of Green

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where the logs provide stability.

G9-25

• DEIS states that bank stability will increase under the Proposed Action. DEIS at 4-48. The DEIS presumably compares stability to present baseline, but it does not state whether stability will increase compared to other alternatives.

G9-26

• Implementation Agreement section 6.3.1 places deed restrictions if land is sold, but only if the permit has been relinquished. The document is silent about the effect of transferring land if the permit has not been relinquished.

G9-27

• Section 4.1 of the Implementation Agreement ("IA") provides inadequate notice of take to the Agencies. Simpson should give notice to the Agencies of any mass wasting event affected by a road or in an area where logging had taken place.

G9-28

• The land transfer provision in Section 11.3 of the IA defeats the central purpose of the HCP, which is that some habitat will be guaranteed to be over-protected as mitigation for effects that may happen as a result of logging. Section 11.3 allows Simpson to sell up to 15% of land "protected" by the HCP, after which the transferred land will not be subject to the HCP's restrictions. It would accordingly make economic sense for Simpson to sell the overprotected land. The land buyer could seek permits to log that land and would have to mitigate only for impacts it causes, not for the land that Simpson retained. The "overprotection" that mitigates other effects in other areas would then be lost.

G9-29

• The HCP/CCAA Alternative C (expanded species coverage) cannot be selected because the Agencies failed to protect marbled murrelets and other species to the maximum extent practicable, and they failed to analyze cumulative impacts. The DEIS discusses habitat set-asides for murrelets, without any figures on how much is set aside. DEIS at 2-42. This makes it impossible to compare the Simpson and PL HCPs. The Simpson HCP also fails to include other murrelet mitigations found in the PL HCP, such as restrictions on work and noise near occupied habitat. The HCP submitted by Simpson did not even survey for the presence of murrelets and other species not covered by the Proposed Action, so approval of Alternative C would be done without any idea of the scope of the impact. The DEIS also fails to analyze cumulative impacts from reducing murrelet habitat in Alternative C, in conjunction with impacts to murrelets acknowledged in the PL HCP. DEIS at 4-104 to 4-105.

G9-30

• The fundamental flaws such as inadequate baseline, inadequate No Action Alternative, and failure to compare to either the PL HCP or to an alternative that requires more mitigation, apply to all the action alternatives, not just to the Proposed Action.

G9-31

• The only public hearing for the Simpson HCP/CCAA was held over a month in advance of the date for receipt of written comments. This served only to limit the usefulness of the hearing, as substantive comments could not be presented that far in advance. Agencies should schedule a new public hearing to take testimony now that the public has

Diamond's applications for Streambed Alteration Agreements pursuant to CDFG Code Section 1603, which include information on covered activities that may cause disturbance of Class I and II watercourses, along with the notices of THPs provided pursuant to AHCP/CCAA Section 6.2 provide adequate notice to the Services of potential for such impacts. Further, these provisions satisfy the regulatory notice requirement [50 CFR Section 17.32 (d)(3)(ii)].

Response to Comment G9-28

The Services took into account the Plan's provisions relating to adding or removing lands from the Plan Area and concluded that the sale of up to 15 percent of Plan Area lands would not result in loss of improvements elsewhere within the Plan Area and that, even if the Plan Area were reduced by 15 percent over the life of the Plan, it would still meet the Section 10(a) approval criteria, which have been discussed in Master Response 8.

Response to Comment G9-29

Opposition to Alternative C (Expanded Geographic and Species Coverage) is noted. See Master Response 6 regarding the relationship between this Plan and other HCPs, including the Pacific Lumber Company HCP. Marbled murrelets are not a covered species; as indicated, coverage for the marbled murrelet is not being sought pursuant to this ESA Section 10 Permit application. However, under Alternative C, marbled murrelets would be covered species and, therefore, incidental take coverage for murrelets would be provided. Cumulative effects associated with the Proposed Alternative are discussed in Master Response 3. The commenter suggests that the Green Diamond AHCP/CCAA should include additional "murrelet mitigations" contained in the Pacific Lumber Company's HCP. The Services emphasize that preparation of HCPs for different actions and different covered activities must take into consideration the unique aspects and conditions of the species for which an applicant is seeking coverage, the specific activities for which the applicant is seeking coverage, and the unique physical features of the landscape to be

affected by issuance of incidental take permits (ITPs). In other words, each HCP must be developed in a way that addresses the specific impacts and identifies measures that will, to the maximum extent practicable, minimize and mitigate the impacts of incidental take given the particular biology, habitat and other characteristics of the HCP planning area. This approach is affirmed in the HCP Handbook. Because of this unique approach that must be tailored to individual HCPs, the Services do not agree that Green Diamond's Plan should be based on information in the Pacific Lumber Company HCP to understand the approach to the Green Diamond Plan. In addition, neither should the Pacific Lumber Company HCP necessarily be the model for the development of Green Diamond's AHCP/CCAA, or necessarily any of the action alternatives, as suggested by the comment. For these reasons, the Services believe that Alternative C provides a valid comparison point among the alternatives in relation to the marbled murrelet.

See also response to Comment G9-2 above and Master Response 6.

Response to Comment G9-30

See Master Response 1 regarding baseline, Master Responses 2 and 10 regarding the No Action Alternative and other alternatives, and Master Response 6 regarding the relationship between this Plan and other HCPs, including the Pacific Lumber Company HCP and responses to Comments G4-1, G4-2, G4-3, G4-4, G4-5, G4-24, G4-25, G9-2, and G9-29.

Response to Comment G9-31

The ESA and NEPA both provide opportunities for the public to be involved in the ESA Section 10(a) Permit process and to submit written data, views or arguments with respect to an application (16 USCA Section 1539[c]; 40 CFR Section 1506.6). Here, interested parties have had the opportunity to participate in the process both orally and in writing. The Services published Notice of Availability of the DEIS on August 16, 2002, public hearings were held in Eureka, California, on September 4, 2002, and written public comments were accepted until November 14, 2002. Approximately 1,006 comments were received. As

acknowledged in the comment, there has been sufficient time for the public to review and comment upon the materials provided. Therefore, the Services do not believe that an additional hearing is required or that one would be helpful to their consideration of the issues raised in the application.

Response to Comment G9-32

The relationship of the Pacific Lumber Company's conservation strategy and the Operating Conservation Program (AHCP/CCAA Section 6.2) has been addressed in Master Response 6. The Services do not address criticisms aimed at Pacific Lumber Company's HCP in these Permit actions.

Response to Comment G9-33

As discussed in Master Response 8 and the response to Comment G6-42, the Plan meets ESA requirements for ITP issuance. Thus, the Plan will "avoid appreciably reducing the likelihood of recovery of the covered species" (see AHCP/CCAA Sections 5.7, 7.1 and 7.4 regarding avoidance of "jeopardy").

Response to Comment G9-34

Range of Reasonable Alternatives

As discussed in Master Response 10, the Services believe that the analysis of alternatives satisfies NEPA requirements regarding the number and range of alternatives considered. NEPA does not require consideration of every possible alternative among an infinite range of alternatives - the selection of the range is bounded by the concept of reason. NEPA requires only those alternatives to be discussed in the EIS that would achieve the purpose and need of the project.

In satisfaction of ESA requirements, Green Diamond considered and analyzed four alternatives to the Proposed Action, which is set forth in the Operating Conservation Program (AHCP/CCAA

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had sufficient time to review and comment on the materials.

IV. Final Comments.

The following miscellaneous comments pertain to multiple sections of the HCP/CCAA:

G9-32

• The HCP/CCAA fails to discuss scientific opposition to the PL HCP. Given that the Simpson Proposed Action provides less mitigation than the PL HCP, all criticisms of the PL HCP carry even more force against the Simpson HCP/CCAA, and must be addressed.

G9-33

• At no point does the HCP/CCAA explain how the Proposed Action will avoid appreciably reducing the likelihood of recovery of the covered species. The HCP/CCAA therefore fails to meet ESA standards for ITP issuance, and fails to meet NEPA standards for accurately assessing a proposal's potential impacts on the environment.

G9-34

• The range of alternatives is artificially constrained in the HCP/CCAA, thereby fundamentally blurring the lens by which the project is viewed and skewing the entire subsequent analysis. The HCP/CCAA assigns Simpson's current management as the NAA, and then chooses three alternatives that are extremely similar, with none being more protective than the alternative that Simpson prefers. This distorts the impacts of the proposed action and does not allow the decision-maker to reach an objective conclusion that is based on the best available information. The status-quo in and around the project area is a heavily degraded environment, as evidenced by the § 303(d) designations under the Clean Water Act, the imperiled plight of anadromous fish species, and numerous other indicators of poor ecological health. The HCP/CCAA sets up a "straw man" by asserting that the proposed action will improve conditions relative to the current ecologically damaged conditions. For example, because the HCP/CCAA fails to include a genuine range of reasonable alternatives, it renders as meaningless NEPA's requirement that the FEIS/ROD identify an environmentally superior alternative.

G9-35

• Reasonable alternatives that must be evaluated include operating under the standards of the Northwest Forest Plan, adhering to standards that would avoid "take" of listed species, and protecting all ancient forests and residual old growth forests remaining on Simpson's holdings. EPIC requested that these and other reasonable alternatives be considered as part of our scoping comments on the HCP/CCAA. Because the HCP/CCAA fails to include a range of reasonable alternatives and due to other deficiencies discussed herein, NMFS and FWS must recirculate the HCP/CCAA and associated documentation if Simpson wishes to proceed with the proposed action.

G9-36

• The HCP/CCAA does not adequately address associated cumulative impacts, as it fails to sufficiently analyze the effects the proposed action would have when combined with other activities impacting the environment. The watersheds in the project area are already seriously degraded, with most being listed as "impaired" under the § 303(d) of the Clean Water Act due to high volumes of temperature and/or sediment pollution. The

Section 6.2): To satisfy the requirements of NEPA, the Services also analyzed these alternatives and a “no action” alternative. A “Listed ITP Species Only” alternative is discussed in AHCP/CCAA Section 8.2 and EIS Section 2.3; a “Simplified Prescriptions Strategy” alternative is discussed in AHCP/CCAA Section 8.3 and EIS Section 2.4; and an “Expanded Plan Area/Species List” alternative is discussed in AHCP/CCAA Section 8.4 and EIS Section 2.5. The “No Permits / No Plan,” or no action alternative, is discussed in AHCP/CCAA Section 8.1 and EIS Section 2.1. The Services believe that these alternatives meet the criteria and guidance of the CEQ and the HCP Handbook, based on the Services’ Purpose and Need, as stated in EIS section 1.2. Also, see response to Comment G9-7.

The No Action Alternative and Baseline Conditions

Regarding baseline conditions and the characterization of the No Action Alternative, see Master Responses 1 and 2, respectively. As stated in EIS Chapter 2.1, under the No Action Alternative, the Services would not issue the requested ITP or ESP and Green Diamond would not implement the Plan. This means that existing “No Action” activities would continue, pursuant to all over applicable State and Federal laws and regulations, including the ESA’s prohibition on unauthorized take of listed species (Regarding the regulatory and management context for the Plan, see AHCP/CCAA Section 1.4 and EIS Sections 1.5 and 1.6). The most meaningful points of comparison are with the project (Permit issuance and Plan implementation - the “Proposed Action”) and without the project (no Permits, no Plan - the “No Action Alternative”). The EIS evaluates the No Action Alternative relative to current conditions, and evaluates the Proposed Action (Plan implementation) relative to conditions expected to occur over time under the No Action Alternative, which was developed in consideration of NEPA guidance provided in “NEPA’s Forty Most Asked Questions.”

Response to Comment G9-35

For the reasons discussed in response to Comments G9-7, G9-34 and Master Response 10, among others, the Services believe that a

reasonable range of alternatives has been included in the Plan and the EIS.

See also EIS Section 2.6.1.2, discussing the Services’ belief that Federal management issues contained in the NWFP are not directly pertinent to privately owned lands or the uses of those private lands, based on economic operational considerations, management objectives, and the wide range and number of listed and unlisted species considered in the design of the NWFP standards for which Green Diamond is not seeking authorization for incidental take. However, all pertinent available information was considered, including the NWFP, in developing the other action alternatives in the EIS. See also EIS Section 1.2 (“Purpose and Need”).

Because we believe the Plan and EIS, including the range of alternatives, satisfy ESA Section 10(a) Permit issuance criteria discussed in AHCP/CCAA Section 1.4.1, EIS Section 1.3 and Master Response 8, no significant new information relevant to environmental concerns and bearing on the Proposed Action or its impacts has been added and no significant changes in the analysis have been made. Therefore, recirculation is not required.

Response to Comment G9-36

Baseline Conditions

Regarding consideration of existing conditions, including water quality conditions in the Plan Area (which also are discussed in AHCP/CCAA Section 4.3.6 and Table 4 3), and the September 2002 die-off of fish in the Klamath River, see Master Response 1. Plan approval and issuance of the Permits would provide a layer of regulation in addition to otherwise applicable laws. In other words, such actions would not excuse Green Diamond from its obligation to comply with any applicable water quality or other law governing Humboldt Bay. To the extent that covered activities in the Plan Area could affect Humboldt Bay and are regulated, such regulation would continue following Plan approval and issuance of the Permits just as it would if no application

had been made under ESA Section 10(a). See also responses to Comments C4-14, G2-8, R1-27, S5-1, S5-41 and S5-48, among others.

Herbicide Use

Regarding herbicide use, see Master Response 4. Herbicide use is not a covered activity (AHCP/CCAA Section 1.3.4 and 2) and Green Diamond did not apply for ITP/ESP coverage relating to herbicide applications.

Fire Suppression

Fire suppression is not a covered activity (AHCP/CCAA Section 1.3.4 and 2) and Green Diamond did not apply for ITP coverage relating to fire suppression. In order to reduce confusion, the first sentence of AHCP/CCAA Section 6.3.9.1.2, Fire - Supplemental Prescriptions, has been modified as follows:

“Fire suppression is not a covered activity. If during the term of the Plan, a fire less than 10,000 acres occurs in the Plan Area, However, Green Diamond might may take all measures reasonably necessary to extinguish the a fire less than 10,000 acres, including measures that deviate from the Section 6.2 conservation measures, if one occurs during the term of the Plan.”

Fire suppression would remain the same under the Proposed Action as under the No Action Alternative, except that under the No Action (no Permits/no Plan) scenario Green Diamond would remain subject to the ESA Section 9 take prohibition. Further, the cumulative impacts evaluation for the Plan and EIS did not identify the potential for cumulative impacts to result from the combination of Plan implementation and fire suppression. The Services believe that the Plan and EIS adequately and properly consider fire suppression in their evaluation of the impacts of taking and potential cumulative effects on the covered species and the environment.

Rock Pits

Rock pit quarrying is a covered activity and Green Diamond did apply for incidental take coverage for it. This activity would remain the same under the Proposed Action as under the No Action Alternative, except that under the No Action (no Permits/no Plan) scenario Simpson would remain subject to the ESA Section 9 take prohibition and with Plan implementation and issuance of the Permits, Green Diamond would be authorized to take the covered species incidental to otherwise lawful activities. The effects associated with implementation of Plan conservation measures that relate to these and other activities are discussed in Chapter 4 of the EIS.

Cumulative Effects

Regarding cumulative impacts and the geographic scope of analysis, see Master Response 3 and the response to Comments G10-5 and J1-1, among others; see also EIS Section 1.4 (Action Area). Cumulative impacts are assessed in Section 4 of the EIS. Section 4.1.2 presents the CEQ regulations for assessing cumulative impacts and provides the framework for applying that analysis to the Plan. Specifically, Sections 4.1.2.2 and 4.1.2.3 of the EIS establishes criteria for identifying those past, present, and reasonably foreseeable future actions that have the potential to combine with the incremental effects of the Proposed Action. These criteria include actions that have an application pending before an agency with permit authority and those that are of a similar character, could affect similar resources, or are located in geographic proximity to the Proposed Action. The EIS also establishes the geographic extent of the cumulative impact area to be the Action Area (see Section 1.4 of the EIS and Master Response 3).

The past and present actions are addressed in the context of the No Action Alternative and the Proposed Action, respectively. The future actions include the continued implementation of the following:

- CFPRs on non-Green Diamond commercial timberland
- Conservation measures contained in the Pacific Lumber Company's HCP on Pacific Lumber Company lands
- Aquatic and riparian resource guidelines contained in the NWFP on Federal lands
- Management within State and Federal parks
- Private land agriculture and grazing

Using this approach to assessing cumulative impacts, a cumulative impact assessment was conducted for each of the resource areas evaluated in the EIS. These analyses are conducted within each of the resource areas in EIS Sections 4.2 through 4.12.

The scope of the analysis, including cumulative impacts, is the Assessment Area, the 11 HPAs plus the additional 25,677 acres of rain-on-snow for Alternative C. The CEQ guidelines state that cumulative effects analyses should be limited to the effects that can be evaluated meaningfully by the decision makers. The guidelines further state that the area to use in defining the cumulative impacts geographical boundary should extend to the point at which the resource is no longer affected significantly (CEQ, 1997). Water diversion projects on the upper Klamath River are outside the 11-HPA Assessment Area.

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Response to Comment G9-37

Issuance of the Permits would not change Green Diamond's existing obligation to comply with otherwise applicable laws (see AHCP/CCAA Section 1.4 and the response to Comment T1-1 and the other responses cited therein), including any applicable provision of the Wild and Scenic Rivers Act. The EIS, however, does address the Wild and Scenic Rivers Act. In EIS Section 3.8, the text states: "The Primary Assessment Area is in the vicinity of the Eel, Klamath, and Smith rivers, portions of which are designated Federal Wild and Scenic Rivers." The Operating Conservation Program (AHCP/CCAA Section 6.2) would not result in visual and recreational impacts to wild and scenic rivers because, as discussed in EIS Section 4.8.3, "the potential for impacts to visual resources is expected to be comparable to the conditions described above for the No Action Alternative." This same finding is made for recreational impacts (see EIS Section 4.9.3).

Response to Comment G9-38

The EIS discusses the air quality impacts associated with implementing the Plan and other alternatives as an element of NEPA review (see EIS Section 4.7). Normal site preparation activities such as broadcast burning occur as part of the ongoing timber management practices described under the No Action Alternative; these actions are taken pursuant to existing local, State, and Federal regulations and the NSO HCP (see especially EIS Section 2.1.1.2). No element of the Plan would change Green Diamond's use of broadcast burning. The commenter does not describe what "other activities associated with logging" should be

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proposed action would cause additional temperature and sediment pollution, and because these watersheds are already impaired, any further pollution is significant. The HCP/CCAA does not adequately take these existing degraded conditions into account, nor does it consider the impacts from activities that are occurring outside of Simpson's holdings. For example, inadequate flows caused by water diversions in the Klamath River have caused massive fish kills in recent weeks, with an estimated 30,000 chinook salmon perishing from related adverse impacts. Such water diversions are not addressed in the cumulative impact analysis, but the related impacts will obviously combine with those from the proposed action. Likewise, the cumulative impact analysis fails to address the cumulative and/or synergistic effects of other activities that occur on Simpson's holdings, such as widespread herbicide spraying, fire suppression activities, and rock pit activities. The HCP/CCAA also fails to adequately address the cumulative effects of Simpson's logging on Humboldt Bay.

G9-37

The HCP/CCAA contains a wholly inadequate analysis of how the proposed action will comport with the Wild and Scenic Rivers Act. Indeed, the HCP/CCAA fails altogether to make a determination that the proposed action will be consistent with and will enhance the values for which the Wild and Scenic Rivers were designated. For example, the maintenance and enhancement of scenic values from inside the Wild and Scenic River corridors is not adequately addressed.

G9-38

The HCP/CCAA does not adequately consider or discuss air quality impacts caused by slash burning and other activities associated with logging.

G9-39

The HCP/CCAA fails to adequately assess the effects of the proposed action on uncovered species, including the northern goshawk, Townsend's big-eared bat, marbled murrelet, southern torrent salamander, and willow flycatcher. For example, the Klamath River is considered a critically important flyway for the willow flycatcher, but impacts that would result from the HCP/CCAA are virtually ignored.

G9-40

The HCP/CCAA would violate the Clean Water Act because it would contribute to sediment and temperature impacts in watersheds listed as "impaired" under § 303(d) and because implementation of the action requires permitting under § 402 of the Clean Water Act, which is never discussed.

G9-41

The HCP/CCAA contains only a cursory analysis of other "covered activities" such as fire suppression and site preparation.

G9-42

The HCP/CCAA mentions that approximately 270,000 acres may be added by Simpson to the HCP in the future, yet there is no adequate discussion or analysis of where these areas are located, what attributes exist on them now or what effects the proposed action would have on these lands.

G9-43

The HCP/CCAA fails to adequately discuss or analyze with specificity where road

evaluated. Where the Proposed Action or other action alternatives propose changes in “other activities associated with logging” relative to the No Action Alternative, such as road management, the air quality impacts of those changes are evaluated in EIS Section 4.7.

Response to Comment G9-39

EIS Section 4.6, Terrestrial Habitat/Wildlife Species of Concern, evaluates the potential impacts to terrestrial habitat and wildlife species as a result of implementing the Proposed Action and the alternatives, including the No Action Alternative. The assessment, although focused on wildlife species of concern (as defined in the EIS), also addresses impacts to other wildlife species and relies on widely accepted associations between habitat type and wildlife use. EIS Section 4.6.1 discusses the methodology used in the assessment. EIS Table 4.6-1 presents: (1) a list of all the wildlife species (listed and unlisted) known or likely to occur within the Primary Assessment Area; and (2) a summary of potential impacts associated with the No Action and other alternatives. For all species and all alternatives, either no impacts would occur or the impacts would be minor and, in general, beneficial.

As noted in EIS Table 4.6-1, potential impacts to the northern goshawk, Townsend's western big-eared bat, and little willow flycatcher under the Proposed Action are the same as the No Action Alternative, where changes in associated habitats and populations are anticipated to be negligible over time. On the other hand, enhanced late-seral forest, riparian, an aquatic conditions resulting from implementation of the operating Conservation Program under the Proposed Action would likely provide greater benefits to the southern torrent salamander compared to the No Action Alternative.

Response to Comment G9-40

As mentioned above, Plan approval and issuance of the Permits would not change Green Diamond’s existing legal obligation to comply with all applicable laws (see AHCP/CCAA Section 1.4, and the response to Comment G9-37). Because implementation of the Operating Conservation Program (AHCP/CCAA Section 6.2) would add an additional layer of regulation and would not excuse Green Diamond

from compliance with any law, including Federal and State water quality laws, the Services do not expect that the Plan would, as is suggested in the comment, violate the CWA. See Master Response 1 specifically regarding the relationship among baseline, legacy and pristine conditions. See also AHCP/CCAA Section 4.3.6, regarding watersheds listed as “impaired” on the 303(d) list under the CWA. Further, based on analysis provided in the Plan and EIS, the Services expect that water quality conditions would improve as a result of implementation of the Operating Conservation Program in the Plan Area.

The Services expect that implementation of the Plan conservation measures under the Proposed Action would reduce the potential for effects on water quality in Primary Assessment Area streams. Under the Proposed Action, sediment production and delivery that could result in increased sediment loading, sedimentation, and turbidity in Primary Assessment Area streams would be reduced compared with both existing conditions and conditions anticipated to occur over time under the No Action Alternative. See AHCP/CCAA Sections 6.2.2 (slope stability measures), 6.2.3 (road management measures), and 6.2.4 (harvest-related ground disturbance measures). The Proposed Action’s canopy closure requirements and tree retention standards are more protective than those that would be implemented under the No Action Alternative. Canopy closure, while expected to slightly decrease immediately following harvesting, is likely to increase from current conditions in all stands as they regrow subsequent to timber harvesting. The overall increase in canopy closure is anticipated to result in slight decreases in water temperatures in Primary Assessment Area streams. The reduction in sediment production and delivery and slight decrease in water temperatures anticipated with implementation of the Plan would not contribute to sediment and temperature impacts in watersheds listed as impaired. To the contrary, water quality conditions in these watersheds are expected to improve. See also response to Comment G6-42.

Implementation of the Plan does not require permitting under Section 402 of the CWA, which applies to point-source discharges requiring an NPDES permit. However, the applicant will be required to comply with

all applicable provisions of water quality laws, including the Porter-Cologne Act and CWA- and TMDL-related requirements (see generally the response to Comment S5-59, and the responses to Comments R1-27, S1-51, S5-1, S5-41, S5-48 S5-64, and S5-72 regarding water quality laws).

Response to Comment G9-41

The Services evaluated the cumulative impacts of forest management activities covered by the permits as they would be conducted under the Proposed Action and the alternatives, including the No Action Alternative. Covered activities are described in AHCP/CCAA Section 2. The potential impacts of take on the covered species that are associated with the covered activities are evaluated at length in the Plan and EIS. See EIS Chapter 4 (Environmental Consequences). Accordingly, the Services believe that the discussion of covered activities, including site preparation, is adequate. Fire suppression is not a covered activity. See response to Comment G4-3.

Response to Comment G9-42

As discussed in EIS Section 4.1.1 and AHCP/CCAA Section 1.3.2, the physical scope of the area where incidental take will be authorized under the Permits and the Plan will be implemented - called the "Primary Assessment Area" in the EIS and "Eligible Plan Area" in the Plan - includes 683,674 acres of commercial timberlands within those portions of the 11 HPAs where Green Diamond operates or could operate during the term of the Permits. The HPAs are described in detail in EIS Section 3.1 and throughout EIS Chapter 3, as well as in Plan Section 4. As explained in IA Paragraph 11.2, based upon the analysis of the HPAs provided in the Plan (Sections 4, 5 and 7) and EIS, it is presumed that all commercial timberlands within each HPA where incidental take would be authorized and Plan implementation would occur share similar relevant characteristics. Therefore, adding such lands to the Plan Area during the term of the Permits will not likely result in adverse effects on the covered species different from those analyzed in connection with the original Plan. If Green Diamond proposes to add lands to the Plan Area,

the Services may object, or rebut the presumption, in accordance with the procedures set forth in IA Paragraph 11.2.

Response to Comment G9-43

It is not possible to discuss or analyze the location of each future new road or rock pit with any specificity in the Plan. However, wherever such are constructed, they will meet the new road construction standards set forth in AHCP/CCAA Section 6.2.3.5. Regarding the location of rock pits, AHCP/CCAA Section 6.2.3.14 indicates that new rock quarries will not be established within a Class I or II RMZ and that the Company will not use any portion of an existing rock pit that is within 150 feet of a Class I watercourse, 100 feet of a Class II-2 watercourse, or 70 feet of a Class II-1 watercourse.

The comment does not explain why the specific location of any new roads or rock quarries is relevant or why the approach laid out in the Plan, i.e., prescribing measures that will apply to construction of roads and rock pits in addition to all existing laws and regulations that already limit their allowable locations.

In AHCP/CCAA Section 2.2.6, regarding rock pit construction and use, it indicates that rock production may occur by crushing or blasting, among other methods. Sound impacts are not expected to be significant. As discussed in EIS Section 3.1, because no differences in noise effects are expected as a result of issuing the proposed permits, noise issues did not warrant further analysis in the EIS.

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Response to Comment G9-44

For the reasons stated in the responses to comments in this letter and others, in Master Response 3 regarding cumulative effects and Master Response 8 regarding the ESA Section 10 Permit issuance criteria, and based on analysis presented in the Plan and EIS, the Services believe the Plan and EIS support Plan approval and issuance of the Permits. In addition, the Services have not made substantial changes in the Proposed Action that are relevant to environmental concerns, and no significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Action or its impacts has arisen since the publication of the Draft EIS. Therefore, recirculation is neither appropriate nor necessary.

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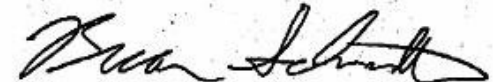
construction and rock pit activities will occur. The HCP/CCAA fails to contain a discussion of whether these rock pits will use explosives and the resulting impacts to the environment from sounds associated with blasting.

V. Conclusion.

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For all the reasons described above, the Agencies may not approve the HCP/CCAA as currently designed. If Simpson maintains its interest in receiving an ITP and ESP, the HCP/CCAA and associated documentation must be revised and recirculated.

Sincerely,



BRIAN A. SCHMIDT

BAS:lfj

pc: Cynthia Elkins
Environmental Protection Information Center
P. O. Box 397
Garberville, CA 95542

Attachments

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Response to Comment G9-45

See response to Comment G9-3.

Attachment A

G9-45.

Letter from Patrick J. Egan, NISPM Santa Rosa Field Office, to William H. Snyder, California Department of Forestry, dated 10/31/01.

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NOV. 19. 2002 5:50PM STANFORD OWEN HOUSE LINK

NO. 112 P. 21 82

Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

July 31, 2001 151422SWR01SR488:CAA/JMA

Mr. William E. Snyder
Division Chief, Forest Practice
California Department of Forestry and Fire Protection
135 Ridgway Avenue
Santa Rosa, California 95401

Dear Mr. Snyder:

The National Marine Fisheries Service (NMFS) has received and reviewed the proposed Timber Harvest Plan (THP) 1-01-170 SCR submitted to the California Department of Forestry and Fire Protection (CDF) by Roger and Michelle Burch, timberland owners. The proposed harvest plan lies within the ranges of the following species which have been listed as threatened under the federal Endangered Species Act (ESA): Central California Coast (CCC) Evolutionarily Significant Unit (ESU) coho salmon (*Oncorhynchus kisutch*) listed as threatened on October 31, 1996 (61 FR 56138) and CCC ESU steelhead trout (*Oncorhynchus mykiss*) listed as threatened on August 18, 1997 (62 FR 43937).

The cover letter to the NMFS attached to the THP requests that the NMFS provide CDF a written determination with supporting explanation as to whether this THP would result in either a 'taking' or 'finding of jeopardy' with respect to listed salmonids. Since CDF's approval of the proposed THP is not a federal action, 'jeopardy' is not the standard for THP reviews. CDF, the plan submitter and the timberland owner bear the responsibility of ensuring forest practice activities are not resulting in 'take' of listed salmonids and are being approved and implemented in compliance with the ESA and other applicable laws.

The cover letter also states, "... CDF will ensure the THP includes feasible measures to either avoid impacts to Coho Salmon and its habitat or to ensure impacts are reduced to a level of insignificance." Nowhere in the Federal ESA sections dealing with take of a listed species do the concepts "feasible measures" or "impacts...reduced to a level of insignificance" appear. Timber harvest activities have been identified under the definition of "harm" (64 FR 6072) as an action that may result in a take of a listed species under the ESA. Take of coho salmon is prohibited pursuant to section 4(d) of the ESA concurrent with the listing (61 FR 56138). Take of steelhead trout is prohibited pursuant to section 4(d) of the ESA (65 FR 42422). Absent an ESA section 4(d) limitation on the take prohibitions dealing with forestry activities in California or an ESA section 10(a)(1)(B) permit, the standard for timber harvest planning and approval in

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California is no lake.

To evaluate the potential impairment of salmonid behavior patterns (e.g. spawning, rearing, migrating and sheltering), NMFS staff participated in a field review on July 10, 2001 of the Lompico THP (4-D1-170-SCR). NMFS has determined the proposed THP operations if implemented, without additional modifications, is likely to impair essential behavior patterns as defined by the "Harm" rule (November 8, 1999, 64 FR 6072). NMFS is herein providing written documentation of THP revisions that NMFS finds necessary for this plan to avoid, to the maximum extent practicable, the unauthorized taking of federally listed anadromous salmonids. The measures presented herein were tailored to avoid adverse effects to federally listed salmonids per operations associated with this harvest plan and based, as much as feasible, on site specific conditions and the availability of information provided in the planning document. These recommendations are the best that can be provided by the NMFS without a comprehensive watershed assessment addressing cumulative impacts to threatened salmonids and their habitats.

NMFS' recommendations are guided by the Salmonid Conservation Measures for a Short-Term Habitat Conservation Plan (Short Term HCP Guidelines) and Salmonid Guidelines for Forestry Practices in California (Salmonid Guidelines) presented to the California Board of Forestry in December of 1999 (See Attachments).

The plan submitter and timberland owner may propose alternative measures that demonstrate to the NMFS that adverse effects to CCC ESU coho salmon (if present) and CCC ESU steelhead trout in Lompico Creek will not occur if operations proceed differently than those recommended by the NMFS. In addition, NMFS's recommended revisions need not preclude future timber harvest opportunities by the landowner for the areas currently suggested by the NMFS for no harvest. A state conservation standard for anadromous salmonids could be developed and, if accepted by the NMFS, would allow the plan submitter to amend the harvest plan to meet such standards and minimize ESA liability. Also, the landowner could obtain an approved Habitat Conservation Plan per section 10(a)(1)(A) of the ESA.

Summary of Proposed Operations

- Silviculture: 204 Acres Selection
- Equipment: Tractors, skidders, and helicopter
- Erosion Hazard: Moderate, High, and Extreme
- Unstable Areas: Yes
- Winter Operations: Yes
- Class I Zones: 150 foot (slope distance) watercourse and lake protection zone (WLPZ)

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Class I Canopy: 85% postharvest overstory canopy for first 75 feet from the transition line
WLPZ 65% postharvest overstory canopy (25% conifer) in the remaining

Class II Zones: Slopes < 30% 50 foot WLPZ
 Slopes 30-50% 75 foot WLPZ
 Slopes >50% 75 foot WLPZ (25 feet reduction for helicopter)

Class II Canopy: 70% postharvest overstory canopy in the first 25 feet of WLPZ
WLPZ 65% postharvest overstory canopy within the remainder of the
 50% overstory canopy on Class II's dry by June 1
 25% conifer overstory remaining postharvest

Class III Zones: Slopes < 30% 25 foot equipment limitation zone (ELZ)
 Slopes 30-50% 50 foot ELZ

Class III Canopy: No described canopy retention standards

Instream Activity: No

Acres in THPs approved in the Zayante Watershed within last 10 years:
 Approximately 1324

Total acres in Zayante Watershed Assessment Area: Approximately 10,749

Acres in THPs approved in Newell Creek Watershed within last 10 years:
 Approximately 1162

Total acres in Newell Creek Watershed Assessment Area: Approximately 6,224

Impaired Waterbody [Section 303(d) of the Clean Water Act]: Yes; Sediment Impaired

Setting

Lompico and Zayante Creeks are tributaries to the San Lorenzo River that drain an area of 138 square miles, discharging to Monterey Bay at the City of Santa Cruz, Santa Cruz County, California. The San Lorenzo River is the primary municipal water source of the greater Santa Cruz area, with approximately 85,000 customers (County of Santa Cruz 2000). Approximately 75,000 people live within the watershed and obtain water supply from smaller streams and groundwater basins within the watershed (County of Santa Cruz 2000).

Watersheds within the San Lorenzo River are convoluted and incised with many ridges

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and deep ravines. Slow downward soil movement and landslides are the natural erosional processes chiefly responsible for forming the topography of this area. Numerous faults cross the San Lorenzo Valley and pose a potential geologic hazard and contribute overall to sediment loading in the Santa Cruz Mountains (Balance Hydrologics, Inc. 1998). Redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) are the dominant overstory species within the less urbanized portions of Zayante and Lompico Creeks.

Summary of Field Outing

On July 10, 2001 NMFS staff participated in the preharvest inspection for the proposed plan. Much of the plan area was reviewed in the field to include the main haul route, the proposed

helicopter landing and service area, all of the fishbearing stream within harvest boundaries and more than half of the Class II and III watercourses.

A number of flagged WLPZs were measured to evaluate consistency between ground operations and those proposed in the THP document. At random, a Class I and Class II watercourse and lake protection zone (WLPZ) buffer zone were measured using a loggers tape. The Class I measured 150 feet; the Class II measured 72 feet (3 feet short of meeting the standards identified in the THP of 75 feet). All watercourses reviewed had been appropriately classified by the forester and his technicians. The stand of timber consists mainly of medium to densely stocked second growth redwoods near the watercourses to mixed redwood and Douglas-fir along the midslope and ridge areas. All harvest trees within the Class I WLPZ were marked and facilitated the assessment of the expected postharvest canopy conditions. There were very few trees marked for harvest within the flagged Class I WLPZ. Trees within the Class II WLPZs and along Class IIIs were not marked prior to the preharvest inspection and thus made review and assessment of postharvest conditions more problematic. Inner gorge zones, unstable slopes and exposed bedrock occur across the ownership.

The RPF indicated, due to current existing overstory canopy levels along the Class I portion of Lompico Creek, a no-harvest zone of approximately 75 feet (slope distance) would be implemented for this THP. This prescription was not described in the THP due to the RPF concluding, post THP submission, that adequate pre-harvest canopy conditions did not exist.

Historical Impacts and Existing Conditions for Threatened Coho Salmon

CCC ESU coho salmon are believed to have become extirpated from the San Lorenzo River watershed during the drought of the late 1980s through the early 1990s. When rainfall events did occur during this period, it was often during the later portion of the winter. Since the upstream migration of spawning coho salmon in coastal California runs between November and January, it is likely the prolonged drought was the proximate cause in the species' extirpation. The ultimate reason likely resulting in extirpation of the species within the San Lorenzo River watershed, including Zayante Creek, is likely due to impacts from anthropogenic habitat alterations. The population of

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CCC ESU coho salmon experienced a spiraling decline (Table 1) as human impacts to the watershed became more pronounced. These impacts created instream habitat conditions unfavorable to the species' persistence within the watershed.

Overall, coho salmon (if present) in Lompico or Zayante Creeks are susceptible to any activity within the upper watershed, including effects associated with urbanization, timber harvest, private road construction and maintenance, septic tank failure, summer dam construction, and legal and illegal water diversions.

Table 1: Estimates of CCC ESU coho salmon spawning runs in the San Lorenzo River (State Water Resources Control Board (SWRCB) 1982)

Year	Number Estimated by:	Estimated # of Adults
1953-54	SWRCB Staff	2,367 - 4,7391
1954-55	SWRCB Staff	7,056 - 14,113
1964	Johnson	5,000 - 10,000
1965	Calif. Fish & Wildlife Plan	2,000
1970-71	SWRCB Staff	2,270 - 4,540
1971-72	SWRCB Staff	1,509 - 3,018
1972-73	SWRCB Staff	1,296 - 2,593
1976-77	CDF&G Count	174
1977-78	County of Santa Cruz	600
1978-79	CDF&G Count	100
1978-79	SWRCB Staff	0
1979-80	CDF&G Count	77
1980-81	CDF&G Count*	(20)
1981-82	Kelly, CDF&G Game	"Just a few"
1981-82	Smith	Small non-sustaining population in Bean and Fall Creeks

*None of the California Department of Fish and Game counts are complete, however, the 1980-1 count was extremely brief.

Systematic juvenile salmonid surveys by Alvey (1999, 2000) within the San Lorenzo River and its tributaries have occurred since 1994. These surveys occurred on 33 sample sites and have failed to detect the presence of juvenile coho salmon.

A population should be large enough to have a high probability of surviving

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environmental variation of the patterns and magnitudes observed in the past and expected in the future. Droughts, pinniped predation, cycles in ocean conditions, and upslope mass wasting events are considered normal aspects of the background environment to which the species has evolved adaptation strategies to persist. Due to the rate of anthropogenic-induced inputs into, and subsequent modifications of, coho salmon freshwater habitats, these habitats are destroyed faster than they are naturally created within the watershed. This has led to the extirpation of the species within the action area, the watershed, and most streams south of San Francisco Bay.

Historical Impacts and Existing Conditions for Threatened Steelhead

Steelhead trout populations in the CCC ESU have suffered a significant decline from historic levels. The extent of these declines are commensurate to the declines documented within the San Lorenzo River watershed (Table 2).

Table 2: Estimates of CCC ESU steelhead trout spawning runs in the San Lorenzo River (SWRCB 1982; Alley 2000). Estimates from Alley (2000), for 1996 through 2001, were based on juvenile population surveys and extrapolated as future adult spawning production. Prior estimates were derived from the given year's actual adult steelhead trout spawning effort.

Year	Number Estimated by:	Estimated # of Adults
1953-4	SWRCB	9,475 - 18,950
1954-5	SWRCB	28,225 - 56,450
1964	Johnson	20,000
1965	Calif. Fish & Wildlife Plan	23,000
1970-1	SWRCB	9,080 - 18,160
1971-2	SWRCB	6,035 - 12,070
1972-3	SWRCB	5,185 - 10,370
1976-77	CDF&G Count	1,614
1977-78	County of Santa Cruz	3,000
1978-79	CDF&G Count	625
1978-79	SWRCB	633
1979-80	CDF&G Count	496
1980-81	CDF&G Count*	(261)
1981-82	Kelly, CDF&G	"good run"
1996-97	Alley	1,078
1997-98	Alley	1,784
1998-99	Alley	1,541
1999-2000	Alley	1,308

2000-01	Alley	2,468
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*None of the California Department of Fish and Game counts are complete, however, the 1980-1 count was extremely brief.

Factors Affecting Declining Anadromous Salmonids

A variety of factors, both anthropogenic and natural, have played a role in the decline of coho salmon and steelhead trout in Zayante and Lompico Creeks. Natural events, such as floods, droughts, and ocean productivity cycles, have adversely affected steelhead trout and coho salmon populations throughout their evolutionary history and yet both species persisted. However, the adverse effects of natural factors and the pervasive anthropogenic destruction and degradations of essential freshwater habitats have dramatically reduced the resiliency of both species. The following is a summary of factors affecting spawning and rearing habitats in the action area.

Human Population Growth and Urbanization

Human population growth, with its attendant increased demand for resources may be the "most clear and present danger" to native fishes in California (Thelander 1994). Effects associated with urbanization included wet and dry season runoff, impaired water quality, and increased sedimentation that are typically associated with lower fish species diversity and abundance (Weaver and Garman 1994). The negative impacts of urbanization are apparent throughout Zayante and Lompico Creeks (CDF&G 1996) resulting in decreased habitat quality throughout the two watersheds.

Water Diversion

Since the mid-1800s, the majority of watersheds in California have been transformed from their natural conditions by the construction of water diversion and storage facilities. Depletion and storage of natural flows have drastically altered natural hydrological cycles in many California rivers and streams, including those inhabited by CCC ESU coho salmon and CCC ESU steelhead trout.

Demands on upstream and downstream resources likely occur and may reduce the quantity of surface discharge and essential features of critical habitat for rearing and emigrating coho salmon. Ground water within the Lompico Aquifer in the San Lorenzo Valley is overdrafted by as much as 450% (Al Haynes, personnel communication 2001) and ground water levels have dropped as low as 90 feet below historic levels (Donise Duffy & Associates, Inc. 1999).

While amounts of water diverted, directly or through groundwater drafting, from Lompico and Zayante are unknown, it is likely flows are reduced to some extent as indicated by the domestic water diversion operated by the Lompico Water District. Any such increased water demand for domestic or agricultural uses that decreases stream flows will negatively affect salmonids. Alteration of streamflows negatively affect salmonids for a variety of reasons: migration delays resulting from insufficient flows or habitat barriers; loss of usable habitats due to dewatering and blockage; stranding of fish resulting from rapid flow fluctuations; entrainment of juveniles into unscreened or poorly

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screened diversions; and increased lethal and sublethal effects resulting from increased water temperatures (Bergren and Filardo 1993; Chapman and Bjornn 1988; NMFS 1996). In addition, reduced flows degrade or diminish fish habitats via increased deposition of fine sediments in spawning gravels, decreased recruitment of new spawning gravels, and encroachment of riparian and non-endemic vegetation into spawning and rearing areas.

Conclusions

Lompico Creek has been severely degraded due to anthropogenic activities within the watershed. Instream conditions within the Lompico Creek watershed were evaluated by CDF&G (1998) and are considered heavily impaired due to: (1) sedimentation from illegal grading of private roads, home sites and the lack of vegetation around home sites; (2) degraded water quality from septic systems and storm water runoff; (3) lack of stream flows due to water diversions (riparian and appropriative) during critical summer flows, and (4) timber harvest practices which add sediment to the creek. A stream inventory conducted by CDF&G in August 1997 concluded that: instream temperatures were above optimal levels for juvenile salmonids; complex high quality instream woody debris was lacking; areas should be treated to reduce the potential of fine sediment introduction to the stream; trash should be removed from creek; dams should be removed and exotic plants should be removed from the riparian zone.

In light of the aforementioned issues, the NMFS proposes the following recommendations to THP 1-01-170 SCR to ensure operations minimize the likelihood of unauthorized take of CCC ESU coho salmon (if present) and CCC ESU steelhead trout in the Lompico Creek watershed:

Class I and Class II Watercourses

To protect the functions and processes of the riparian zone an Aquatic Protection Zone (APZ) shall be established and measured from the outer edge of the bankfull channel (at the 20-year return interval) out to a site potential tree height for this zone: 150 feet. This distance is measured horizontally. Within the APZ the following restrictions apply:

'Other than road related activities, no timber management operations shall be allowed within the APZ or adjacent bankfull channel.

'All ground-based equipment shall be excluded from this zone (EEZ).

'No salvage or sanitation logging, exemption harvest, or emergency timber operations

IFS.

'No burning or mechanical site preparation.

'Full suspension when yarding across the APZ.

'No yarding of felled tallhold trees or cable corridor trees within the APZ.

'Retain trees within the APZ damaged during timber operations.

'Directionally fall trees and yard away from the APZ.

'For ground-based yarding used on slopes >50% adjacent to the APZ, and roads within 100 feet of an APZ, the EEZ will be increased by 100 feet.

Class III Watercourses

For all Class III watercourses within the THP boundary there shall be a 50 foot Aquatic Management Zone (AMZ) for slopes <30% and a 100 foot AMZ for slopes >30%, as measured horizontally from the outer edge of the channel. Within the AMZ the following restrictions apply:

'Other than road related activities, no timber management operations within 30 feet of the outer edge AMZ or adjacent bankfull channel.

'The AMZ shall be an EEZ for ground-based equipment.

'The outer zone of the AMZ shall have 65% overstory canopy remaining post-harvest with at least 25% conifer canopy remaining post-harvest.

'Conifer tree size distributions will be left representative of the pre-harvest stand.

'No salvage or sanitation logging, exemption harvest, or emergency timber operations unless reviewed by NMFS.

'No burning or mechanical site preparation.

'Full suspension when yarding across the APZ without harvesting or yarding trees within the AMZ.

'Trees damaged or fallen for cable access, during timber operations, shall be retained within the AMZ.

'Directionally fall trees and yard away from Class III watercourses.

'For ground-based yarding used on slopes >50% adjacent to the AMZ, and roads within 100 feet of an AMZ, the EEZ will be increased by 100 feet.

Within all APZ's and AMZ's the following shall apply:

'No timber harvest activities other than falling and emergency road work during the winter period (November 15 - April 1).

'No operations within 48 hours after 1/4" of precipitation between April 1 and May 1.

'No timber operations within 24 hours after 1/4" of precipitation between May 1 and October 15.

'Between May 1 and October 15 erosion control facilities shall be installed on all used skid trails and logging roads prior to the end of the day if the National Weather Service forecasts a 30% or more chance of rain within 24 hours.

'Roads and skid trails shall be outsloped wherever appropriate and feasible. Excess fill, perched material, outside berms and inside ditches shall be removed wherever appropriate and feasible.

'Visits to the plan area during the winter period shall be conducted at least three times with visits made to check for properly functioning drainage structures on truck roads, landings and skid trails. Site visits shall be documented by the person conducting the visit with the inclusion of name, time, date, location, structure, function status and if additional erosion control measures where necessary.

Additional Information

Plan approval, even for those harvest plans reviewed by NMFS, does not constitute authorization for the incidental taking of federally listed species pursuant to the ESA of 1973 (16 U.S.C. 1531 et seq.).

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The NMFS reserves the right to conduct an inspection of active operations and/or post-harvest conditions under escort by the CDF inspector. Thank you for your cooperation in this matter. You may reach me at 707-575-6059 if there are any questions.

Sincerely,

Patrick J. Ruffen, Supervisor
Protected Resources Division
Santa Rosa Field Office
Enclosure

cc: Irma Lagomarsino, NMFS
Jim Lecky, NMFS

References Cited

Alley, D. W. May 1999. Comparisons of juvenile steelhead densities, population estimates and habitat conditions for the San Lorenzo River, Santa Cruz County, California, 1994-98; with predicted adult returns. Prepared for City of Santa Cruz Water Dept., Santa Cruz County Environmental Planning and the San Lorenzo Valley Water District. Project# 150-02.

Alley, D. W. June 2000. Comparisons of juvenile steelhead densities, population estimates and habitat conditions for the San Lorenzo River, Santa Cruz County, California, 1995-99; with an index of adult returns. Prepared for the City of Santa Cruz Water Dept., Santa Cruz County Environmental Planning and the San Lorenzo Valley Water District. Project# 150-03.

Balance Hydrologics, Inc. 1998. An assessment of streambed conditions and erosion control efforts in the San Lorenzo River watershed, Santa Cruz County, California. Rep. Prepared for Environmental Health Dept., Santa Cruz Co., California. July 13, 1998.

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Response to Comment G9-46

See response to Comment G9-3.

G9-46

Attachment B

Declaration of Joseph Blum, NDMS Liaison to the State of California

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Attorneys for Plaintiffs

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

ENVIRONMENTAL PROTECTION INFORMATION CENTER, et al,)	Case No:00-0713-SC
)	DECLARATION OF JOSEPH BLUM
Plaintiffs,)	
)	Date: June 2, 2000
v.)	Time: 10:00 a.m.
ANDREA TUTTLE, et al,)	Courtroom: 1
)	
Defendants.)	
_____)	
-)	

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I, Joseph Blum, declare the following:

1. I am the Liaison to the State of California, National Marine Fisheries Service (NMFS), Southwest Region (SWR) and have held this position since 1998. Previously, I was the NMFS National Salmon Coordinator (1996-1998); Executive Director of the American Factory Trawler Association (1992-1996); Director of the Washington State Department of Fisheries (1986-1992); Deputy Regional Director, Pacific Region, United States Fish and Wildlife Service (FWS)(1984-1986); Assistant Regional Director - Environment, Pacific Region, FWS (1982-1984); Area Manager, Washington/Oregon, Pacific Region FWS (1976-1982); Project Leader Oil Shale/Non-energy Minerals, Headquarters, FWS (1974-1976); Endangered Species/Marine Mammal Division Chief, Headquarters, NMFS (1973-1974); and from 1964-1973 I served in several biological and administrative positions for the Alaska Department of Fish and Game, beginning as a field biologist and ending as Deputy Commissioner for Sport Fish and Game. I earned a Bachelor of Science Degree in Biology from the University of Santa Clara in 1963. I am responsible, among other things, for coordination between NMFS/SWR and State of California Agencies, Boards and Commissions that have responsibility for anadromous salmonids and other marine species, with particular emphasis on implementation of the Endangered Species Act. In this capacity, I am involved in issues pertaining to salmonid species protected under the ESA and the California Forest Practice Rules.

2. The NMFS has listed 10 species (evolutionarily significant units) of salmonids in California as threatened or endangered under the ESA since 1990. (55 FR 46,515; 61 FR 56,138; 62 FR 24,588; 62 FR 43,937; 63 FR 13,347; 64 FR 50,393; 65 FR 36,074.) These 10 species include 2 species of coho salmon, 3 species of chinook salmon, and 5 species of steelhead from the Oregon border to Malibu Creek in the Los Angeles area. Forestry activities over the years have been one of the primary factors of decline for the majority of these species. (61 FR 56,138; 62 FR 24,588; 62 FR 43,937; 64 FR 50,393; 65 FR 36,074.)

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3. In general, forestry activities harm salmonids by causing sedimentation of the streams which destroys salmon and steelhead eggs and impairs the ability of adults and juveniles to survive, reducing stream complexity when trees in or near the streams are harvested, reducing large woody debris from the riparian areas as well as the streambed itself, causing increased stream temperatures due to inadequate canopy cover, blocking fish passage through poorly designed, constructed and maintained stream crossings, reducing stream-flow through removing water for dust abatement on roads, and impairing water quality by adding toxic chemicals from vehicles or vegetation control. Salmonids are often impacted by forestry activities on streams which do not support runs of listed salmonids because many of these streams drain into streams with listed salmonids. Moreover, intermittent or seasonal streams also are important to properly functioning aquatic systems and forestry activities often destroy the ability of these streams to reduce siltation by removing trees that stabilize the associated hillslopes and by reducing the natural production of large woody debris. Although the California Forest Practice Rules purport to mandate protection of sensitive resources such as anadromous salmonids, the Rules, their implementation and enforcement do not accomplish this objective.

4. NMFS recently reviewed the California Forest Practice Rules during its reconsideration and reversal of its 1998 decision that the Northern California ESU of steelhead did not warrant listing under the ESA. (65 FR 36,074 - Northern California ESU of steelhead listed as threatened on June 7, 2000.) NMFS' review included the Board of Forestry's interim revisions to the California Forest Practice Rules which become effective July 1, 2000 (and are due to expire on December 31, 2000). NMFS concluded that the California Forest Practice Rules with the recently adopted interim changes are inadequate to protect anadromous salmonids or provide for properly functioning habitat conditions. (65 FR 36,074, 36,084-36,085.) Specifically, the California Forest Practice Rules with the interim changes lack critical elements necessary to avoid, minimize and/or mitigate adverse site-specific and cumulative watershed impacts on salmonid populations.

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5. NMFS has many responsibilities as a regulatory agency charged with administering the ESA, but it is not responsible for nor does it have the staff resources to participate in state regulatory processes to ensure they are in compliance with the ESA. However, in an effort to work with the State to protect salmonids, NMFS agreed to review some of the timber harvest plans submitted to the California Department of Forestry and Fire Protection (CDF) to ensure the plans were designed to avoid take of listed salmonids. Since 1997, CDF has sent over 1000 timber harvest plans to NMFS for review. NMFS' staff do not have time to review even a small fraction of the timber harvest plans provided by the CDF and have probably reviewed only 1% of those received. NMFS' reviews consist of reviewing the timber harvest plan application, participating in on-site field inspections (pre-harvest inspections) of the proposed plan, and attending meetings with the applicant and/or the CDF following the site inspection to discuss findings and options to protect salmonids. Every timber harvest plan that NMFS has reviewed has been found to have disparities between what was written in the timber harvest plan and what NMFS staff found to be occurring on the ground during pre-harvest inspections. The disparities generally involved the width of buffer areas along streams, sometimes the plan called for wider buffers than what was actually done on the ground and sometimes the buffer width in the field was wider than described in the plan. These discrepancies are only discovered if a timber harvest plan is reviewed and a site inspection occurs. The Board of Forestry and CDF have received testimony from the state agencies charged with reviewing timber harvest plans and those agencies report varying degrees of review far below 100%; the California Department of Fish and Game, for example, currently reviews only 14% of the timber harvest plans provided to them. For every timber harvest plan which NMFS has reviewed, NMFS has suggested modifications, sometimes substantial modifications, that should be made to the timber harvest plan to avoid take of listed salmonids and adverse modification of their critical habitat. Most of NMFS' suggested modifications have been incorporated by CDF into timber harvest plans. In two instances, however, Sulfur Creek and THP520 (prior to Pacific Lumber Company acquisition), NMFS informed CDF that the timber

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harvest plan was likely to harm listed coho and CDF issued the timber harvest plan anyway without requiring any modifications to address NMFS' concerns.

6. NMFS is aware of examples where timber harvest plans which have been approved by CDF as in compliance with the California Forest Practice Rules have likely resulted in take of listed salmonids or adverse modification of their critical habitat. 99% of the timber harvest plans submitted to the CDF are never reviewed by NMFS. Considering the fact that every timber harvest plan NMFS has reviewed would likely have resulted in take of listed salmonids or adverse modification of critical habitat without NMFS' suggested modifications, it is likely that many of the remaining 99% which NMFS has not reviewed may result in take or adverse modification of critical habitat.

7. In my official capacity as NMFS' representative, I have testified before the Board of Forestry and/or its Interim Committee, on no less than 10 occasions and explained that the California Forest Practice Rules are inadequate to protect and conserve salmonids. I have explained that timber activities under timber harvest plans approved under the California Forest Practice Rules are resulting in the destruction of salmonid habitat and are harming listed salmonids. I have presented the Board of Forestry with guidelines for forestry that, if followed, would reduce the likelihood of harming salmonids and I have provided the Board of Forestry and CDF with approximately 100 scientific citations documenting risks to salmonids associated with timber harvesting and related activities. Numerous times, before the Board of Forestry's Interim Committee and before the Board of Forestry itself, I have recommended that the Board of Forestry adopt the NMFS' Short-Term HCP Guidelines as interim rules while the Board of Forestry promulgates permanent rules that incorporate adequate salmonid protection. Further, in my official capacity, I have explained to the Board of Forestry and officials at CDF on numerous occasions that the state may be liable under the ESA for promulgating a regulatory scheme which they are fully aware results in take of listed salmonids and adverse modification of critical habitat. The only action the Board of Forestry has taken to address these issues is the adoption of the inadequate interim changes to the California Forest Practice Rules.

Declaration of Joseph Blum

Letter - G9

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Pursuant to 28 U.S.C. § 1746, I declare under the penalty of perjury that this information is true and correct.

Executed this ___th day of June, 2000, in Sacramento, California

Joseph Blum
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Sacramento, CA 95814
(916)498-6696

Declaration of Joseph Blum

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Letter - G10. Signatory - Pacific Rivers
Council.



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restore the rest*

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19 November 2002

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Nat'l Marine Fisheries SVC
Arcata, CA

Re: Comments on Simpson Resource Company's Habitat Conservation Plan and Candidate Conservation Agreement/Incidental Take and Enhancement of Survival permits for Timberlands in Del Norte and Humboldt Counties, California.

Dear Mr. Bond and Ms. Brickey:

Pacific Rivers Council (PRC) is attaching a critical scientific review of the Services' proposed approval of Simpson Resource Company's Habitat Conservation Plan and Incidental Take and Enhancement of Survival permits. With this letter, these documents are submitted on behalf of twelve local, regional and national organizations: Pacific Rivers Council, Defenders of Wildlife, Northcoast Environmental Center, Pacific Coast Federation of Fishermen's Associations, the Institute for Fisheries Resources, Friends of the River, Redwood Chapter Sierra Club, Smith River Project, Humboldt Watershed Council, Friends of the Eel River and Friends of Del Norte County.

The attached review reflects the input of highly qualified experts on amphibian biology, aquatic ecology, geomorphology and conservation biology. Based on the findings of the review panel, the undersigned groups are obliged to object to issuance of the proposed HCP/CCA and associated permits. We do not find that the Services have demonstrated a sound scientific basis for the proposal and for the Services' requisite determination that the Plan meets the applicable legal standards, most notably including those under Sections 10 and 7 of the Endangered Species Act or satisfying the intent of the current California Forest Practice Rules.

Response to Comment G10-2

See Master Response 3 regarding cumulative effects.

Response to Comment G10-3

Concerns regarding the consideration of existing baseline conditions in the Plan Area have been addressed in Master Response 1.

Response to Comment G10-4

The Services have identified types of impacts and their severity, using information derived from cited scientific literature and the studies summarized in the Plan and its appendices. See response to Comment G4-15 and Master Response 9, regarding quantification of take. Further, the Handbook recognizes that in certain circumstances, determining the level of take may not be possible. Page 3-14 of the Handbook states that the ability to calculate the level of take “depends on the ability of the HCP participants to determine, to the extent possible, the number of individual animals of a covered species occupying the project or land use area or the number of habitat acres to be affected.” The Plan does quantify the acreage for which Green Diamond is seeking incidental take coverage for ongoing timber harvesting and associated timber management activities. The Plan Area encompasses approximately 416,532 acres (IA Paragraph 2.1(a)). The distribution of covered species in the Plan Area and the spatial and temporal variation of this distribution preclude the ability to determine the number of individuals of the covered species that would be affected by implementing the Plan. In addition, the Plan’s Operating Conservation Program applies measures to minimize and mitigate

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Specific priority concerns include:

- G10-2 Management measures are unjustifiably assumed to provide for the needs of covered species without regard for existing and future cumulative watershed effects.
- G10-3 The Plan’s stated objectives and the assessment of environmental effects are inappropriately founded on acceptance of a highly managed, degraded environmental baseline.
- G10-4 There is a general lack of quantitative supporting analysis regarding the expected level of management-related impact to covered species and their habitats, nor any associated analysis of how these impacts relate to the survival and recovery of these species. Absent such an assessment, there is no way to gauge the sufficiency of the proposed measures to achieve habitat protection and recovery. The analysis provided is conclusory and its basis is not disclosed. The Plan fails to identify and disclose the assumed mechanisms of biological impact and magnitude of effect, rendering the record opaque to scientific review and verification of assumptions.
- G10-5 The Plan is not spatially explicit and therefore does not ensure protection of biological refugia critical to survival and recovery of the covered species. Without specific information about where activities will take place in space and time, analysis of impacts of activity conducted under the Plan and the effects of conservation measures can be erroneous or misleading. The fragmentation of the covered species current range has significant demographic consequences on species persistence that needs to be accounted for in a formal analysis. If conservation measures are not carefully targeted to protect and enhance remaining self-sustaining populations and the specific habitat refugia that sustain them, the species will likely be lost from the planning area.
- G10-6 The sediment delivery objectives and measures lack a biologically-relevant basis and slope stability measures, including those for headwall and deep seated, currently inactive metastable areas, are inadequate to prevent harmful, management-induced alteration of the natural landslide regime, including timing, frequency, distribution and volume of mass-wasting.
- G10-7 Despite criticism of the current California Forest Practice Rules from the Services and independent critics, the proposed riparian protection measures are not better than current rules and could actually provide less than current rules, e.g.,

impacts to both the ITP and ESP species even though minimization and mitigation of impacts is not expressly required in the ESP approval criteria. See AHCP/CCAA Section 7.1 and the response to Comment G9-13.

Green Diamond has designed the Operating Conservation Program to, among other things, evaluate, minimize, and mitigate the impacts of Green Diamond's operations and forest management activities on the covered species and other similarly situated species. A description of the covered activities, including those that may cause take (in the terms of the commenter, "assumed mechanisms of biological impact"), is provided in AHCP/CCAA Section 2. AHCP/CCAA Section 5 describes the relationship between potential impacts and the Covered Species and their habitats. A more detailed literature review of the potential effects of timber management is provided in AHCP/CCAA Appendix E.

See Master Response 9 regarding quantitative analysis of expected levels of impact. As the comment reflects, Green Diamond used a qualitative analysis of potential impacts in the Plan wherever quantitative data were not available or useful in the impacts analysis. The Services have reviewed those analyses and find that they were both appropriate and correct. Qualitative analyses are acceptable and highly useful tools in conservation planning, particularly when based upon the degree of site-specific information and experience that Green Diamond and the Services have with the impacts identified in the Plan.

Response to Comment G10-5

The geographic area where incidental take will be authorized, the covered activities will occur, and the Operating Conservation Program will be implemented is called the "Plan Area" and, as explained in greater detail in AHCP/CCAA Section 1.3.2.1, includes all commercial timberland acreage within eleven HPAs on the west slopes of the Klamath Mountains and the Coast Range of California where Green Diamond owns fee lands and harvesting rights, during the period of such ownership within the term of the Permits, subject to certain limitations. The 11 HPAs have been identified in Figure 1-1 and Table 1-1 of the Plan and described in AHCP/CCAA Section 1.3.2.4. This is the entire

commercial timberland acreage analyzed in the Plan and the EIS (see EIS Section 1.4) to support the Plan's provisions allowing for additions and deletions of lands from the Plan Area over the term of the Plan and Permits. See Master Response 11.

The Services are issuing Permits for incidental take of the covered species, not for timber harvesting. The Services do not have the authority to authorize timber harvest operations. That authority lies with the CDF, and is exercised on a THP-specific basis that will require site-specific and activity-specific review by the State. The Services are issuing Permits that allow Green Diamond to take covered species throughout the Plan Area and over the 50-year term because the analyses in the EIS show that Green Diamond will be meeting the issuance criteria for both the ITP and the ESP (see Master Response 8). Some biological refugia of the covered species may be impacted during the implementation of the Plan. However, the Services do not believe that refugia critical to survival and recovery of the species will be lost.

Response to Comment G10-6

Studies indicate that the input of sediment has perhaps the greatest negative effect on the covered species in the Plan Area. This is recognized in Plan's biological goals and objectives, which then guided the development of the measures in the Operating Conservation Program. As stated in AHCP/CCAA Section 6.1.2.2.4, the biological objective for reducing sediment delivery into watercourses is based on two targets:

1. Treat high or moderate priority road sites (classified in terms of likelihood to deliver sediment to Plan Area watercourses), to reduce the amount of road-related sediment at such sites by more than 46 percent (change high and moderate priority sites to low priority sites) within the first 15 years of the Permits, and the remaining percentage over the last 35 years of the Permits.
2. Achieve a 70 percent reduction in sediment delivery from management-related landslides in harvested steep streamside slopes compared to delivery volumes from appropriate reference areas within clearcut stands.

Based on the biological goals and these objectives, specific prescriptions have been developed and included in the Operating Conservation Program to address potential causes of sediment input. For example, road management measures are set forth in AHCP/CCAA Section 6.2.3 and harvest-related ground disturbance measures are set forth in AHCP/CCAA Section 6.2.4. An assessment of the conservation strategy's effectiveness in fulfilling the purposes of the Plan has been provided in AHCP/CCAA Section 7. In particular, see AHCP/CCAA Section 7.2.2.5 relating to Road Management Measures and Section 7.2.2.4 relating to Plan Measures and Strategy for Mass Wasting.

Response to Comment G10-7

ESA section 10(a)(1)(B) requires that a conservation program minimize and mitigate the impacts of take to the maximum extent practicable - it does not require that a Plan exceed the measures included in the existing regulatory scheme on a measure-for-measure basis (see Master Response 8). The Operating Conservation Program supplements the CFPRs and all other existing governing laws. AHCP/CCAA Section 1.4.2; EIS Section 1.5.3.1; see also Master Response 7. Although the commenter believes protections for Class III streams are minimal, Green Diamond's site-specific application of stream class and seep and spring delineation, many of the features currently assumed to be Class III streams will in fact be classified as Class II streams with the implementation of the Plan. Therefore many of these features will have additional tree retention, and will likely result in additional late-seral habitat across the Plan Area. See also responses to Comments G4-27, G4-28, R1-49, R1-70, S1-3, S1-47 and S5-3, among others, relating to the applicability of the CFPRs in the Plan Area

Response to Comment G10-8

Minimization of the alteration of the landslide regime is only one of many aspects of the Operating Conservation Program's strategy to reduce sediment load to Plan Area waterbodies. One of the objectives of the Operating Conservation Program is to reduce sediment delivery from management-related landslides in harvested steep streamside slopes by 70 percent compared to delivery volumes from appropriate reference areas within clearcut stands. These steep streamside slope areas are the source areas for the majority of the non-road related landslide sediment. AHCP/CCAA Section 6.1.2.2.4; see also Master Response 16 regarding the effectiveness of the 70 percent. Measures designed to address deep-seated landslides have been provided in AHCP/CCAA Section 6.2.2.3 and road placement has been addressed there. For example, Green Diamond will not construct new roads across active deep-seated landslide toes or scarps, or on steep (greater than 50 percent gradient) areas of dormant slides, without approval by a registered geologist and a registered professional forester with experience in road construction in steep forested terrain. AHCP/CCAA Section 6.2.2.3.6. Shallow rapid landslides have been addressed in AHCP/CCAA Section 6.2.2.4, which also states that road-related failures will be addressed by the road implementation plan (see AHCP/CCAA Section 6.2.3). The Services believe that these measures, including the Plan's road construction measures, together with other measures of the Operating Conservation Program, minimize alteration of the landslide regime sufficiently to satisfy the Permit issuance criteria discussed in EIS section 1.3.

*James Bond (NMFS) and Amedee Brickey (FWS)
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G10-7

protection and restoration of coniferous large wood sources in riparian areas. The proposed riparian protection standards do not adequately emphasize the importance of creating late-successional streamside areas and retaining the largest trees. There is inadequate protection of Class III streams and headwall swales.

G10-8

Plan measures do not adequately minimize alteration of the landslide regime. New roads are not adequately prevented in sensitive and unstable locations.

G10-9

There is virtually no analysis regarding the relationship of this Plan to attainment of water quality standards and TMDLs for parameters other than temperature. Nor are the effects of herbicides on water quality and covered species addressed, although their use is associated with the activities covered in the Plan.

G10-10

Monitoring and adaptive management measures lack mechanisms capable of detecting and implementing limits on cumulative watershed effects. Suspended sediment, not temperature, would best serve as a rapid response indicator. Fish response thresholds are absent, and amphibian response mechanisms are flawed.

With respect to the applicable decision standards, key problems are that:

G10-11

ESA § 10(a)(2)(A)(i) requires that an HCP specify "the impact which will likely result from such taking." Yet, the Services do not specify or justify the actual level of take being authorized by the incidental take permit as required by the ESA. The Plan does not adequately quantify or otherwise adequately assess and limit the permitted take. This problem is inexorably related to inadequate safeguards in implementation and monitoring of the permit. The public review package lacks the type of information that must be in hand to make these determinations.

G10-12

The Services must also find that the HCP will minimize and mitigate the impacts of such taking to the maximum extent practicable. ESA, § 10(a)(2)(B)(ii). It is the Services' explicit policy that "the record must contain some basis to conclude that the proposed program is the maximum that can be reasonably required of the applicant." HCP Handbook at 7-3. We find that the Services have failed to conduct the rigorous analysis required to demonstrate that the proposed HCP complies with the ESA's "maximum extent practicable" mandate when analyzing management options and setting standards for the minimization and mitigation of take. For example, comparisons with forestland HCP standards in the same bioregion should have been included in the supporting analysis. Failure to conduct adequate analysis related to this standard has produced an unsupported

Response to Comment G10-9

The Plan provides an additional layer of regulation to the governing scheme provided by all applicable existing laws and regulations (AHCP/CCAA Section 1.4.2). Accordingly, Green Diamond must comply with requirements imposed under Federal and State water quality laws in addition to the requirements imposed under the Plan. However, the Plan acknowledges the TMDL process in AHCP/CCAA Section 4.3.6. Herbicides have been addressed in Master Response 4. Responses to Comments G2-3, G2-4, G2-17, G6-39 and G7-1, among others, address the fact that herbicide use is not a covered activity. Further, the responses to Comments G3-52 and G3-53, among others, address consideration in the Plan of the cumulative effects of herbicide use.

Response to Comment G10-10

The Services believe that the rapid response measures (as discussed in AHCP/CCAA Section 6.2.5.1) are appropriate. The Plan includes a number of monitoring measures for sediment and the Services believe these are appropriate to carry out the Plan's purposes and meet the ESA approval criteria discussed in Master Response 8. While other monitoring regimes also could serve a useful purpose in other situations, the suite of measures included in the Plan are sufficient to serve the Plan's needs. See Master Response 8 and response to Comment G10-12. For example, the rapid response monitoring program for sediment includes monitoring of road-related delivery of fine sediments into Plan Area streams (turbidity), and evaluation of the effectiveness of the road upgrading measures (AHCP/CCAA Section 6.2.3.4) in reducing those inputs. (AHCP/CCAA Sections 6.2.5.1.4 and 6.3.5.2.4.) Turbidity will be measured in the Plan Area immediately above and below Class II-1 and II-2 watercourse crossings using the protocol identified in AHCP/CCAA Appendix D.1.5. Road surface erosion monitoring will compare changes in turbidity on individual road segments before and after road upgrading, and between roads which have been upgraded and those which have not. There will also be one permanent continuous monitoring station in each of the four drainages included in the Experimental Watersheds Program (see AHCP/CCAA Section 6.2.5.4).

Response to Comment G10-11

Concerns regarding quantification of the level of take have been addressed in Master Response 9. See also response to Comments G4-15 and G10-4, among others.

Response to Comment G10-12

As discussed in Master Response 8, the Services have sufficiently analyzed whether the Plan's conservation strategy meets the ESA requirement to minimize and mitigate the impacts of take to the maximum extent practicable. Further, ESA section 10(a)(1)(B) requires that a conservation program minimize and mitigate the impacts of take to the maximum extent practicable - it does not require that a proposed plan equal or exceed the measures included in previously-approved plans on a measure-for-measure basis. See related discussion in Master Response 6, regarding the Pacific Lumber Company HCP

Response to Comment G10-13

As discussed in Master Response 9, the ESA requires analysis of the *impacts* of take. The Services believe that the analysis of the impacts of take in Green Diamond's Plan is based on best science and has a sound biological rationale. See responses to Comments G10-58, G10-51, G10-2, G10-13, J1-8, R1-15, S2-2 and S5-24, among others. The Plan and Permits address ESA Section 10(a) requirements. The ESA Section 7 process is separate, and is being addressed separately.

Response to Comment G10-14

The criteria for issuance of an ESA Section 10 Permit have been discussed in AHCP/CCAA Section 1.4.1, EIS Section 1.3 and Master Response 8. The ESA Section 7 process is separate and is being addressed separately. The ESA does not require the Services to circulate a draft ESA Section 7 Biological Opinion for public review. The Services believe that the Operating Conservation Program is based on a sound biological rationale. See responses to Comments G10-58 and G10-51, among others. Further, the public will have the opportunity to review the Final EIS for a 30-day period following its publication.

Response to Comment G10-15

The Services believe that the measures contained in the Operating Conservation Program are sufficiently vigorous and are likely to be successful. The adaptive management program provides a mechanism to adjust the Operating Conservation Program as appropriate, and the Services do not believe, as the commenter

James Bond (NMFS) and Amedee Brickey (FWS)
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G10-12

decision which implements impermissibly weak protection for the covered species.

G10-13

In approving an HCP, the Services must determine that the "taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild." ESA, § 10(a)(2)(B)(iv). Under Section 7, a biological opinion must make a similar jeopardy determination. We find that the Services lack a credible scientific basis for the mandatory jeopardy and mitigation findings. "The base mitigation strategy or initial minimization and mitigation measures which are implemented must be sufficiently vigorous so that the Service may reasonably believe that they will be successful." HCP Handbook at 3-24 to 3-25, see also *Id.* at 3-19 (mitigation programs "should be based on sound biological rationale"). The jeopardy finding mandated under Section 10 is nearly identical to that required under Section 7(a)(2), which the ESA mandates be made using the best available scientific information. 16 U.S.C. § 1536(a)(2). To make these determinations, the Services need to know the full extent and nature of the take that will result from this HCP – yet as stated above and in the attached review, this kind of analysis is lacking.

G10-14

In sum, there is little or no supporting analysis provided to indicate how this decision meets the applicable decision standards. This decision deserves more careful scrutiny for its ecological consequences. Because approval will insulate the applicant, Simpson, from new regulatory requirements over the next 50 years, this decision must be based on a solid scientific rationale that justifies placing the public trust in this Plan versus the evolutionary process to which the state rules clearly are subject. It would have been appropriate to include at least a draft biological opinion in the review package. "It is now Service policy to begin integrating the section 7 and section 10 processes from the beginning of the HCP development phase; and to regard them as concurrent and related, not independent and sequential, processes." HCP Handbook at 3-16. The Handbook specifically directs that "[t]he Services should provide information that documents compliance with the requirements of section 10(a)(2) of the ESA." Handbook at 6-22.

G10-15

The problems we have identified with the conservation strategies are not capable of remediation solely by adjusting the monitoring and adaptive management provisions. We remind the Services that adaptive management has a role when significant uncertainty exists regarding the long-term effects of implementing an HCP's conservation strategy, but it is not a substitute for adequate mitigation and jeopardy avoidance strategies in the HCP itself. Handbook at 3-24 to 3-25. "The base mitigation strategy or initial minimization and mitigation measures which are implemented must be sufficiently vigorous so that the Service may reasonably believe that they will be successful. . . . The Services should not approve an HCP using conservation strategies that have a low likelihood of success." *Id.* at 3-25. In other words, the existence of an adaptive management program should not be used as a subterfuge for an inadequate conservation strategy in the HCP itself.

suggests, that it is a “subterfuge.” Regarding adaptive management, see responses to Comments C4-6, C4-29, G3-58, G3-59, G3-67, G3-72 through and including G3-77, G3-86, G5-2, G10-49, G10-53, G10-51, S1-14 and S5-32, among others.

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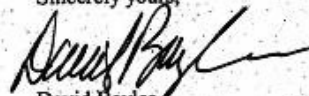
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Page 5

We appreciate the time and effort that went into this proposal and strongly support Simpson's desire to manage their lands for the conservation of aquatic species. We urge the Services to continue working with Simpson to generate a final proposal that addresses the concerns we have raised. We stand ready to meet with the Service and Simpson to discuss our comments and how they may be addressed in a revised final proposal.

Thank you for your attention to our concerns.

Sincerely yours,



David Bayles
Executive Director
Pacific Rivers Council



Mary Scurlock
Senior Policy Analyst
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And for

Cynthia Elkins
Environmental Protection Information
Center (EPIC)

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Letter - G10

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**REVIEW OF SIMPSON RESOURCE COMPANY'S
AQUATIC HABITAT CONSERVATION PLAN AND CANDIDATE
CONSERVATION AGREEMENT**

**A Proposed Action of the U.S. Fish and Wildlife Service and the
National Marine Fisheries Service
Under the Endangered Species Act**

By Don Ashton, Chris Frissell and Bill Trush
Edited by Mary Scurlock



18 November 2002

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**REVIEW OF SIMPSON AQUATIC HABITAT CONSERVATION PLAN
AND CANDIDATE CONSERVATION AGREEMENT**

*By Don Ashton, Bill Trush, and Chris Frissell,
Edited by Mary Scurlock*

I. INTRODUCTION

This report critiques a proposed decision by the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) ("the Services") pertaining to the logging-related activities of Simpson Resource Company on 416,531 acres in Humboldt and Del Norte Counties, California. The product of this decision is an agreement between the Services and Simpson that protects the company from prosecution under the Endangered Species Act for the next 50 years.

The plan covers eight salmonid fishes. The Southern Oregon/Northern California coho salmon, the California Coastal chinook, and the Northern California steelhead are all currently listed. The other covered fish are two other populations of chinook and one of steelhead and coastal cutthroat and rainbow trout. Two unlisted amphibians also are covered -- the southern torrent salamander and the tailed frog.

The NMFS is charged with conservation of the ocean-going species and the FWS with conservation of all others. In this decision, NMFS grants an "Incidental Take Permit" to Simpson allowing impacts to anadromous salmonid species pursuant to the terms of a "Habitat Conservation Plan." The FWS similarly grants an "Enhancement of Survival Permit" for the resident trout and amphibians pursuant to a "Candidate Conservation Agreement." The operative documents examined in this review are the two-volume Habitat Conservation Plan and Candidate Conservation Agreement and Appendices ("the Plan"), the Draft Environmental Impact Statement (DEIS), and the Implementation Agreement (IA). For simplicity, we will generally refer to the whole package as "the Plan" or the "AHCP."

By law, the Services' approval of the Plan must be based on a determination that Simpson's activities will not jeopardize the continued existence of covered species, among other decision criteria. ESA, 16 U.S.C. § 1539(a)(1)(B) and (2). For the unlisted species, the proposed actions must reduce the likelihood that these species will need to be listed in the future. 64 FR 32713; 50 CFR Part 17 (regulations governing CCAs); 64 FR 32726 (final policy for CCAs) (stating intent is to preclude or remove the need to list species).

The core operative provisions of the plan are contained in 49 pages appearing at Section 6.2 in Volume 1 of the HCP document, and in such appendices as are referenced in that section.

A. Reviewer Goals

This review was conducted at the request of Pacific Rivers Council, whose overall goal is to ensure that the affected aquatic species receive the full level of protection to which they are

entitled under the federal Endangered Species Act (ESA). The participating experts were specifically requested to judge the scientific merits of the Simpson proposal.

Regarding the decision standards, it is understood that while the proposed plan may allow the "incidental take" of covered species, such take may not permissibly "jeopardize" the continued existence of these species, nor "appreciably reduce the likelihood of the survival and recovery of the species in the wild." There must further be a rational basis for the decision agencies' finding that these decision standards are met.

B. Questions Posed by Reviewers

Assumptions: Are key assumptions clearly identified? Are they sound? Is justification provided for the assumptions based on expert opinion?

Goals and Objectives: Are the goals and objectives clearly stated? Are they sound? Does the plan establish metrics of land use pattern and practice and for watershed condition that correspond with maintenance and recovery of habitat condition sufficient for local persistence and/or rangewide recovery of the covered species and subspecies? Does the plan identify specific variables to describe habitat condition, including threshold criteria for suitable and high-quality habitat?

Adequacy of Baseline Data and Process Analysis: Are the current and historic conditions described? Is the ecological path for getting from historic to current condition understood? Does the plan adequately reference key source data, theoretical principles, and analysis or analytic methods? Are physical, chemical and biological processes examined, and are interactions in the covered watersheds understood?

Species Demographic and Genetic Data: Are status and trend data available for key populations and reported and interpreted in the plan? Is the biology of all life stages discussed and is justification provided for the choice of conservation measures relative to the life-cycle and mortality sources and magnitudes of each life stage?

Adequacy of Management Direction: Are sensitive and priority habitats adequately delineated (e.g. riparian areas, unstable areas, high quality habitats)? Are risks to habitats and species adequate to attain stated objectives and/or those required for species survival and recovery?

Restoration: Does restoration of impaired watershed processes occur under the plan? Is there a valid ecosystem assessment that links species and site-specific recovery or restoration measures to ecosystem organization and processes and evaluates the likely success of recovery measures in this context?

Monitoring: Are monitoring plans adequate (spatially and temporally)? Are these efforts capable of ensuring attainment of objectives? E.g. are methods identified for measurement and monitoring of habitat conditions relative to biological thresholds, if any?

Response to Comment G10-16

See Master Response 3, discussing the cumulative effects analysis. See also responses to Comments G10-32 through G10-38 regarding cumulative watershed effects. Measures to address hydrology, peak flows and the reduction of sediment input to Plan Area watercourses have been provided in the Operating Conservation Program (AHCP/CCAA Section 6.2).

Response to Comment G10-17

See Master Response 1 and the response to Comment G9-4 regarding baseline.

Response to Comment G10-18

See Master Response 1 regarding baseline, which explains why a comparison between expected conditions with and without the Plan and Permits is appropriate. The EIS includes a comparison of existing baseline conditions and expected future conditions under the No Action Alternative and a comparison of conditions that would result under the Proposed Action and other action alternatives. See also the response to Comment G10-55 regarding the importance of Green Diamond's holdings in the Klamath Basin.

Transparency of Analysis with Respect to Decision Standards: Is there presented a rational analytical basis for a finding that the applicable decision standards have been met? Specifically, (1) is the harm to affected species from the proposed management assessed using best available scientific information? (2) is there a sound basis for a finding that the proposed action will mitigate for this harm (i.e., the incidental take) to the maximum extent practicable? (3) is there a sound basis for a finding that the survival and recovery standards of Section 10 and the jeopardy standards of Section 7 are met?

II. OVERALL FINDINGS

Key concerns of the panel are summarized below:

- G10-16 + **There is no basis upon which to find that the proposed management prescriptions will effectively limit ongoing harm to the covered species arising from cumulative watershed effects, particularly those associated with alteration of sediment and hydrologic regimes.** Instead of addressing these impacts, the plan evades any meaningful analysis of these cumulative impacts and their effects on the covered species. Rather, there is an implicit and unsubstantiated assumption that the proposed default management measures are adequate to prevent detrimental cumulative watershed effects regardless of the current condition of any specific watershed. Moreover, no watershed analysis or analogous process is proposed to assess or establish limits on cumulative watershed effects where unacceptable impacts exist or would occur without more locally tailored management limitations. The plan inappropriately dismisses the impacts of current management on hydrology, peak flows and soils.
- G10-17 + **The Plan's stated objectives and the assessment of environmental effects are inappropriately founded on a highly managed, degraded environmental baseline.** For example, maintenance of the current distribution of amphibians, which reflects the virtual elimination of many species from historically occupied lowland sites, is considered acceptable in the plan without analysis or disclosure of the consequences of this assumption.
- G10-18 + **The Plan inadequately describes past management activities and current condition of watersheds within Simpson's holdings.** Noticeably absent for each watershed is a quantification of such parameters as road density, past timber harvest rates and methods, and riparian density and composition. Such parameters are essential for a meaningful description of the environmental baseline and its relationship to the recovery of Covered Species. Without such information it is impossible to adequately assess the effectiveness of proposed mitigation measures and the potential cumulative effects of Simpson's proposed 50-year work plan. Impacts on coho salmon in particular are inadequately assessed: in describing the plan area, the AHCP downplays the importance of Simpson's holdings in the Klamath Basin, stating that their properties comprise only 2% of the basin. However, Simpson presently owns over 80% of the Lower Klamath sub-basin

Response to Comment G10-19

See response to Comment G10-4.

Response to Comment G10-20

The Plan’s goals and objectives (AHCP/CCAA Section 6.1) were developed to address the assumed biological impact which could potentially occur during Green Diamond’s implementation of covered activities in the Plan Area. In addition, general “limiting factors” analyses were performed by Green Diamond to prioritize habitat conditions that may be preventing healthy, functioning aquatic/riparian ecosystems. One of the primary “limiting factors” in many HPAs (see AHCP/CCAA Table 7-1) was determined to be excessive sediment delivery to Plan Area watercourses. The Plan conservation measures were designed to address each of those limiting conditions in every HPA as though it were in fact a limiting factor in that HPA. See Master Response 3 specifically regarding the “limiting factors” analysis.

As described in AHCP/CCAA Section 6, in the HCP Handbook, and in the Final Addendum to the Handbook (65 FR 35251), biological goals provide broad, guiding principles for an HCP’s operating conservation program and “the rationale behind the minimization and mitigation strategies.” Biological objectives are more specific, include measurable parameters, and are the different components needed to achieve the biological goals. One of the biological goals of the Plan is to minimize human-caused sediment inputs (AHCP/CCAA Section 6.1.2.1). The biological objective for reducing sediment delivery into watercourses (AHCP/CCAA Section 6.1.2.2.4) complements this goal and is based on two measurable targets: (1) treatment of high or

G10-18

(excluding Federally owned portions of Blue Creek) which contains a major portion of the remaining coho salmon habitat in the Klamath Basin. The potential impacts of Simpson's commercial timber production in this basin on coho survival and recovery are highly significant.

G10-19

There is a general lack of quantitative supporting analysis regarding the expected level of management-related impact to covered species and their habitats, nor is there any associated analysis of how these impacts relate to the survival and recovery of these species. Absent such an assessment, there is no way to gauge the sufficiency of the proposed measures to achieve habitat protection and recovery. If the Services have conducted such an assessment, it should be presented with the DEIS as part of the rationale for proposing this decision. It should not be relegated to the role of post-hoc rationalization for a deal that has already been struck. The analysis provided is conclusory and its basis is not disclosed. The plan should include complete disclosure of what conceptual or numerical models were used to determine the direction and magnitude of impact on habitat conditions and species survival. The plan fails to identify and disclose the assumed mechanisms of biological impact and magnitude of effect, rendering the record opaque to scientific review and verification of these assumptions.

G10-20

The sediment delivery objectives and measures lack a biologically-relevant basis. The Plan's sediment delivery measures and supporting analysis are not tied to the habitat needs of covered species. Sediment delivery studies in Simpson Hydrographic Planning Areas should tie sediment delivery volumes and frequency to habitat degradation, stasis or improvement. Furthermore, discussing reduction in sediment delivery without discussing how habitat is affected in the streams to which the sediment is being delivered is not addressing what should be the main sediment issue in the AHCP. Forest management activity alters habitat of the affected species by changes in the magnitude, frequency, and spatial distribution of landslides and other erosion sources, not simply by changes in net volume delivered over time. These must all be addressed for credible projections of biological response to the proposed conservation measures.

G10-21

The appropriate objective for the slope stability measures is to prevent alteration of the natural landslide regime. Affected species have adapted to the periodic delivery of large volumes of coarse and fine sediment to stream channels as a consequence of slope failures produced by storms. It should be the goal of the AHCP to ensure that the volume of this periodic delivery is not further increased by management, and that the spatial distribution of landslide occurrence is not expanded. Therefore, management should avoid road building and harvest activities that demonstrably have contributed to large sediment deliveries during storms. These activities include major road construction on steep streamside slopes and road construction across headwater swales. In lieu of the specific analysis of biological consequences of landsliding described in the previous paragraph, this is a defensible approach to defining the conditions of biological recovery with some fairly high level of confidence. Any regime that departs substantially from the

moderate priority road sites to reduce the amount of road-related sediment at such sites by more than 46 percent within the first 15 years of the permits, and (2) achieve a 70 percent reduction in sediment delivery from management-related landslides in harvested steep streamside slopes compared to delivery volumes from clearcut reference areas. Possible effects of sediment delivery to Plan Area waters are discussed on an HPA-by-HPA basis in AHCP/CCAA Section 4.4. Further, the biological relevance of these targets is described in AHCP/CCAA Section 5.3, which describes the potential for increased sediment input including: (1) potential effects of covered activities, (2) sediment sources and erosion processes, (3) sediment transport processes, and (4) potential effects on covered species. The Plan's sediment delivery measures and supporting analysis are directly linked to the stated biological goals and objectives, and a reduction in sediment delivery would benefit the covered species.

The reduction in the net volume of sediment delivered over time is one of the desired effects of the Plan. Prescriptions to reduce sediment input have been set forth in AHCP/CCAA Section 6.2.1 (riparian measures), AHCP/CCAA Section 6.2.2 (slope stability measures), AHCP/CCAA Section 6.2.3 (road management measures), and AHCP/CCAA Section 6.2.4 (harvest-related ground disturbance measures). When the Operating Conservation Program as a whole, has been implemented in the Plan Area, the Services expect that its measures will result in an overall reduction in sediment delivery to Plan Area watercourses compared to the No Action Alternative.

Response to Comment G10-21

The riparian conservation (AHCP/CCAA Section 6.2.1) and harvest-related ground disturbance measures (AHCP/CCAA Section 6.2.4) described in the AHCP/CCAA are expected to work in concert with the Plan's slope stability measures to mitigate and reduce the volume of sediment delivered during storms. Specifically, slope stability measures include prescriptive measures to avoid impacts on steep streamside slopes (AHCP/CCAA Section 6.2.2.1), headwater swales (AHCP/CCAA Section 6.2.2.2), deep-seated landslides (AHCP/CCAA

Section 6.2.2.3) and shallow rapid landslides (AHCP/CCAA Section 6.2.2.4) that may occur from implementation of the covered activities.

Response to Comment G10-22

See response to Comment G10-5.

Response to Comment G10-23

See response to Comment G10-50 and Master Response 18 regarding riparian management measures; response to Comment G9-2 and Master Response 6 regarding comparisons between Green Diamond's Plan and other HCPs, including the Pacific Lumber Company HCP; and Master Response 7 regarding the relationship between the Plan and the CFPRs. See also responses to Comments G10-24, G10-51 and R1-152, for example, regarding the selection of different or additional conservation measures.

Response to Comment G10-24

See response to Comment G10-49 regarding the Plan's biological objectives; responses to Comments G10-40 through G10-43 regarding the conservation of amphibians; and the response to Comment G10-50 and Master Response 18 regarding riparian management. Further, the selection of specific prescriptions, including whether to include a "no cut" buffer, is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role during the development of a conservation program is to "be prepared to advise," and to judge its consistency with the ESA approval criteria once the application is complete (HCP Handbook at 3-6 and 3-7). The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria have been discussed in EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8. The Services believe, based on the analysis provided

G10-21

pre-management landslide pattern requires careful analysis and justification that are not in evidence in the draft plan.

G10-22

The Plan is not spatially explicit and therefore does not ensure protection of biological refugia critical to survival and recovery of the covered species. Without specific information about where activities will take place in space and time, analysis of impacts of activity conducted under the plan and the effects of conservation measures can be erroneous or misleading. Most of the covered fish and amphibian species exist in a highly patchy distribution, as a consequence of historic habitat deterioration or fragmentation and local population decline. This fragmentation has significant demographic consequences on species persistence that need to be accounted for in a formal analysis. It also has consequences for conservation needs: if conservation measures are not carefully targeted to protect and enhance remaining self-sustaining populations and the specific habitat refugia that sustain them, the species will likely be lost from the planning area.

G10-23

The riparian protection measures proposed in the proposed Plan could, in several key respects, actually provide less protection than the current rules in protecting and restoring depleted sources of conifer LWD in riparian areas. The SRP Report (Ligon et al. 1999) concludes that current rules regarding the harvest of riparian stands are insufficient in protecting current sources of recruitable redwood LWD and the growth of future recruitable LWD. Therefore, it seems that if the applicant desires an incidental take permit, then they should be proposing riparian standards well above the current rules, yet the proposed Plan will effectively lock in the status quo with only minor modifications. The riparian management measures identified in the Plan will not adequately rehabilitate riparian areas currently devoid of mature redwoods. Key large redwoods should be permanently dedicated to the stream – not potentially harvested at a date after the Plan expires. The California Forest Practice Rules have been seriously criticized for their inability to protect aquatic species by the very agencies now proposing to grant Simpson this permit, yet the Services are proposing federal assurances without significant improvements to these rules and, in some cases, weakening of the rules. For example, Simpson's riparian proposals would replace the existing requirement that the ten largest trees in riparian area be retained. See *infra* at Section V B. The Plan also appears to ignore recommendations made in the recent past by NMFS and/or FWS technical staff regarding forest management practices necessary for take avoidance and practices recommended in other recent HCPs on nearby lands. (NMFS 2000; Palco HCP 1998). For example, the Pacific Lumber plan prohibits harvest on mass-wasting areas, including headwall swales (Palco at 6.3.3.7) while Simpson allows it with limited restrictions. Cf. Simpson at 6.3.3.7. The Pacific Lumber HCP is also more restrictive with respect to wet-weather road use. Palco at 6.3.3.6.

G10-24

The plan does not set appropriate management objectives for riparian areas, given the needs of Covered Species. No clear vision for riparian zone recovery (e.g., late-successional stand composition) is offered. The proposed riparian protection standards

in the Plan and EIS, that the Plan meets ESA requirements. The Services will complete ESA section 7 intra-service formal consultations and document our findings regarding Permit issuance. See also responses to Comments G10-51 and R1-152, for example, regarding the selection of different or additional conservation measures.

Response to Comment G10-25

The selection of specific prescriptions, including whether they specifically protect Class III streams or headwall swales, was addressed in the Plan and the overall selection of measures was a matter of the Permit applicant's discretion. HCP Handbook at 3-19. The Services' role during the development of the conservation program is to "be prepared to advise" and to judge its consistency with the ESA approval criteria as a whole once the application is complete (HCP Handbook at 3-6 and 3-7). See Master Response 3 and the response to Comment G6-42. As noted above, the ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria are discussed in AHCP/CCAA Section 1.4.1, EIS Section 1.3 and Master Response 8. Also see responses to Comments G3-40, G10-41 and S5-95 for additional discussion of Class III streams and response to Comment G10-42 for additional discussion of headwall swales.

Response to Comment G10-26

As provided in AHCP/CCAA Section 6.3.5.4.3 and Master Response 16, the 70 percent effectiveness pertains to minimizing management-related sediment delivery from landslides compared to that from appropriate historical clear-cut reference areas, not road-related sediment. See AHCP/CCAA Section 6.2.3.5 specifically relating to construction of new roads. The Services expect that implementation of these and other measures included in the Operating Conservation Program would result in a reduction of new road construction in "problem areas." The Services agree with the commenter that not all road related erosion and

G10-24

do not adequately emphasize the importance of creating late-successional streamside areas and retaining the largest trees. It is particularly important for amphibians to create and maintain interior or "core" areas of riparian forest where aquatic and near-stream conditions are suitable for cold-water adapted amphibians. Wide no-cut buffers of 30 meters or greater are necessary to provide the microclimate required by the adult life stages of several amphibians, including the tailed frog and southern torrent salamander. See e.g. Welsh et al. p. 67. The services own guidance has recommended protection within areas equivalent to a site-potential tree height. E.g. Spence 1996. Retention of larger size classes of conifers also is necessary to prevent the continuous selection and harvest of larger trees, allowed by this proposal. These largest existing trees are most likely to contribute large wood structure during the life of this plan. Such wood is necessary to create the structurally diverse habitats needed by the larval life stages of these species. Given the low levels at which most riparian areas currently function, only management actions that do not impede or accelerate riparian recovery should be permitted.

G10-25

There is inadequate protection of Class III streams and headwall swales. Actions in the headwaters will propagate their effects downstream. There is a complete lack of analysis regarding foreseeable changes in the sediment regimes that are likely to accrue to public natural resources off of Simpson's ownership.. Headwater systems provide the link between terrestrial processes and fish bearing streams (Gomi et al. 2002). Employing the River Continuum Concept (Vannote et al. 1980) to riparian protection measures would result in the greatest protection occurring in headwater zones (Noss et al 2000). Protection of headwater areas is especially important in meeting the needs of amphibian species. Although the Plan extends Class II watercourse protection measures to seeps, springs, wet meadows, and wet areas, recognizing the importance of these aquatic features to the aquatic ecosystem, there still exists a lack of protection for headwall swales. Headwall swales are often the source of unchanneled aquatic features (seeps, springs, wet areas) and serve as initiation points for slides delivering sediment to watercourses. They are also sources of nutrients and habitat structure for receiving waters. Headwater systems provide the link between terrestrial processes and fish bearing streams (Gomi et al. 2002). Employing the River Continuum Concept (Vannote et al. 1980) to riparian protection measures would result in the greatest protection occurring in headwater zones (Noss et al. 2000). Because Class III streams are vectors for transferring sediment and water to downstream aquatic habitat, and they are a primary direct erosion source in the affected watersheds, vegetation along these stream courses and woody debris within them are crucial to mediating their role in sustaining downstream habitat. A plan that fails to afford specific protection to Class III streams in this landscape is not likely to be effective.

G10-26

New roads are not adequately prevented in problem locations. The panel identifies several key concerns with the assumptions and analysis regarding the roads provisions. First, there is an assumption that the reduction of road-related sediment by 70% from current levels is adequate to avoid road-related jeopardy to the covered species. However,

subsequent sediment delivery to streams will be, or can be, eliminated. The net amount of sediment input to Plan Area watercourses and thereby the covered species' habitats, is anticipated to be less than under the No Action Alternative. See also the response to Comment G10-52 regarding the road management measures.

Response to Comment G10-27

The Services believe that the rapid response measures (AHCP/CCAA Section 6.2.5.1) are appropriate. See response to Comment G10-10.

Response to Comment G10-28

Plan approval and issuance of the Permits would supplement Green Diamond's existing obligation to comply with otherwise applicable laws, including Federal and State water quality laws. With or without the Plan and Permits, Green Diamond would continue to be subject to water quality laws, and the Plan does acknowledge water quality issues. See, for example, AHCP/CCAA Section 4.3.6 regarding the status of some Plan Area watercourses as water quality impaired. See also the responses to Comments R1-27, S5-1 and S5-48, among others, regarding the applicability of water quality laws in the Plan Area; the response to Comments G10-35 through G10-38 regarding suspended sediment and turbidity; and Master Response 4 regarding herbicide use.

Response to Comment G10-29

Comments regarding herbicide use in the Plan Area have been addressed in Master Response 4.

there is no ecological basis for this objective, as 70% is tied neither to the natural regime nor to the needs of the covered species. A second set of concerns addresses the extent to which reduction or prevention of road related sediment production through stormproofing actually is capable of offsetting the large amounts of sediment produced from silviculturally related landslides. See infra at V.D.2. Therefore, given the uncertainties about the potential to mitigate for landscape-level alterations of the sediment and hydrological regimes through road upgrades, it would be prudent for this plan to avoid making the situation worse through new roadbuilding, particularly in steep and riparian locations. Although roads are prohibited from draining "directly" into watercourses, however, the road location standards still will allow new roadbuilding in riparian areas and on landslide-prone-locations. Though perhaps possible in theory, in a practical sense it is widely recognized as infeasible to construct stable roads that do not drain or deposit sediment into watercourses in these most sensitive portions of the landscape

G10-26

Monitoring and adaptive management measures lack mechanisms capable of detecting and implementing limits on cumulative effects. Suspended sediment, not temperature, would best serve as a rapid response indicator. See infra at III.B. Fish response thresholds are absent, and amphibian response mechanisms are flawed. See Sections IV and V.D.

G10-27

There is virtually no analysis regarding the relationship of this plan to attainment of water quality standards for parameters other than temperature. Best available data on turbidity, for example, should be brought to bear. Consideration should be given to watershed-specific practices in areas not currently meeting standards for forestry-related parameters.

G10-28

Herbicide impacts are not addressed, although their use is associated with the activities covered in the Plan. The proposed Plan fails to make any substantive findings about the potential impacts of herbicides on water quality and listed aquatic species. These impacts should be addressed regardless of the fact that Simpson is not seeking coverage of their use. AHCP v.1, 2-9 (Section 2.4.3. Control of Competing Vegetation). Based on the substantial literature available regarding how the application of herbicides may affect aquatic species, the Plan could and should have included the steps they (or their sub-contractors) would follow to minimize the accidental introduction of substances commonly used in commercial timber management; such as Atrazine; Triclopyr; Garlon 3 and 4; 2,4-D; and Glyphosate into Plan Area streams. Section 2, Description of Simpson's Timber Operations and Forest Management Activities, should include a description of annual, repeated use of herbicides over several thousand acres of forest lands that drain into waterways that support listed species and are utilized by the public, yet this analysis is omitted. The potential impacts of Simpson's proposed activities or the effectiveness of proposed mitigation measures cannot be evaluated without the information necessary to understand all interrelated portions of their timber management activities.

G10-29

Response to Comment G10-30

Comments regarding the determination of “likely to recruit” are addressed in Master Response 5.

The definition for watercourse transition line provided in the Plan is not an unspecified protocol. The definition predates the Threatened and Impaired Watershed Rules package of the CFPRs by over ten years and was used by CDF and RPFs to successfully implement forest practices for riparian protection. The slope class refers to a slope’s gradient that would be compared with the Plan’s conservation requirements to qualify for steep streamside slope or other RMZ conservation measures.

Response to Comment G10-31

See response to Comment G10-14.

Response to Comment G10-32

Comments regarding cumulative watershed effects have been addressed in Master Response 3 and the response to Comment G6-42. Further, as indicated in AHCP/CCAA Section 1.4, the Plan provides an additional layer of regulation - a level of regulation in addition to the requirements imposed by applicable laws and regulations including, among others, the Federal ESA, Federal CWA, the California Public Resources Code (including the CFPRs), and the California Fish and Game Code (including the State ESA). Background conditions have been discussed in Master Response 1 and the Plan’s monitoring and adaptive management processes have been discussed in Master Response 11.

G10-30

★ **Key provisions of the Plan rely on extremely subjective, discretionary provisions that, while they may be given ecologically appropriate meaning by some current technical staff at Simpson, may not be given consistent meaning by future managers.** Key provisions regarding retention of riparian trees dependent on a subjective determination of “likely to recruit”. The delineation of riparian areas depends on an unspecified protocol for determining watercourse transition lines, and a key factor for determining riparian protection – slope class – has no associated clear definition.

G10-31

★ **There is little or no supporting analysis provided to indicate how this decision meets the applicable decision standards.** The public review package addresses matters of NEPA compliance but short-shrifts analysis of the applicable decision standards. Because approval of this plan will have the effect of insulating the applicant, Simpson, from new regulatory requirements over the next 50 years, this decision must be based on a solid scientific rationale that justifies placing the public trust in this plan versus the evolutionary process to which the CFPRs are clearly subject. This decision deserves more carefully scrutiny for its ecological consequences. We suggest that it would have been appropriate to include at least a draft biological opinion in the review package.

III. CUMULATIVE WATERSHED EFFECTS

G10-32

A habitat conservation plan should reserve and/or restore significantly more and better quality habitat than is anticipated under existing and future regulatory authority. Otherwise, it is not advantageous from a public resource perspective to strike a long-term deal with private landowners and forego the possibility that the baseline rules for protecting protected species will likely improve beyond the protection afforded in the HCP. From an ecological and anadromous salmonid fishery perspective, the greatest deficiency of the California Forest Practice Rules (CFPRs) and its implementation continues to their failure to actively prevent significant cumulative watershed effects (CWEs). This was the conclusion (Ligon et al. 1999) of the Scientific Review Panel (SRP), an independent panel of scientists created by the March 1998 Memorandum of Agreement between the National Marine Fisheries Service (NMFS) and The Resources Agency of California that comprehensively reviewed whether the CFPRs adequately protected anadromous salmonid species in Northern California. Simpson's proposal, however, fails to demonstrate how CWEs will be reduced to a level that meets the needs of covered species throughout their ownership over a projected timeline. In order for this Plan to compensate the existing rules' greatest deficiency, the plan should be fundamentally based on establishing reasonable background conditions (i.e., quantitative objectives), assessing present CWEs, devising a management strategy to mitigate and prevent CWEs, and monitoring performance to encourage timely adaptive management.

G10-33

Simpson believes (Section 5) that following the AHCP’s actions will provide an incremental “positive” effect on the listed species and will not cause or contribute to negative cumulative effects. Where is the evidence or proof of this claim if there is no cumulative effects analysis provided? The plain fails to provide even rudimentary background information on the harvest history for each watershed, specifically: harvest and road building methods, timing, amounts,

Response to Comment G10-33

Comments regarding cumulative effects are addressed in AHCP/CCAA Sections 5.7 and 7, and in Master Response 3. Regarding rate of harvest, see Master Response 11. Watershed conditions were summarized on an HPA-by-HPA basis in AHCP/CCAA Section 4.4. Regarding loss of fry, as described in the limiting factor discussion in Master Response 3, only a reduction in the life history stage of a covered species ultimately would affect the population. For example, a reduction, within limits, in the number of fry emerging from the spawning gravels would not affect the population if the limiting factor (bottleneck) was summer rearing habitat for the juveniles. (See AHCP/CCAA Section 5.7.)

Response to Comment G10-34

Comments regarding cumulative effects, including issues associated with the rate of harvest, are addressed in AHCP/CCAA Section 5.7 and 7, and in Master Response 3. Rate of harvest also is discussed in Master Response 11. The Plan does not rely on an assumption that “best management practices prevent cumulative watershed effects from occurring or limit them to insignificance.” This statement does not reflect the premises of the cumulative impacts assessment in the Plan or the EIS. The analysis in the Plan and the EIS is an analysis of the cumulative impacts of the Services’ approval of the Permits, including implementation of the Plan.

Regarding the assertion that management of cumulative effects should be integrated throughout the Plan “to achieve biological goals,” the Services note that, as discussed in Master Response 12, the role of biological goals and objectives in a prescription-based plan like Green Diamond’s is different than their role in a results-based plan. In a prescription-based plan, the biological goals and objectives guide development of specific measures that are included in the operating conservation program; they are not themselves standards that must be “achieved.”

G10-33

and rates of harvest. These past activities not only contributed to the current state of the plan area, but will also influence the rate of recovery when combined with Simpson’s current management and the proposed mitigations in Section 6. Simpson’s assessment of the limiting factors impacting juvenile salmonids in the Plan Area watersheds seems on target – mainly reductions of summer and winter habitat as related to excess sediment and a lack of inchannel LWD and a lack of recruitable LWD within riparian areas. However, a previous statement that it might be acceptable to reduce the survival of the coho egg and fry production by 50% and have no negative effect on the species as a whole, is highly speculative, is unsupported by any evidence, and, in fact, quite likely wrong. High turbidities can stress or kill a large portion of those fry that do manage to survive and emerge from the stream bed. Furthermore, much of the “surplus” coho fry is probably an important forage item for older age-classes of juvenile salmonids, as well as birds and other aquatic/riparian wildlife. Also, the same physical impacts that harm incubating eggs and newly emerged fry also contribute to a paucity of summer and winter habitat – that is, accelerated slope and channel erosion causes excess sediment input (coarse and fine), leading to high percentage of fines in spawning gravels, as well as filling-in pool habitat. (Hagans and Weaver 1986; Lisle 1982; Lisle and Hilton 1992; Frissell 1992; Frissell et. al. 1997 and numerous others).

A. Ongoing and Potential CWEs Not Integral Component of the AHCP

G10-34

The Simpson AHCP focuses harvest prescription, adaptive management, and proposed monitoring on how an acre can be better harvested (including road management), and not on how many acres can be safely harvested to prevent significant cumulative watershed effects. Take the North Fork Mad River as an example where considerable harvesting can be observed from Rt. 299. As more of this watershed is harvested, how does the Simpson plan determine no significant cumulative watershed effects are occurring? Observing the North Fork Mad River mainstem from Korbel Bridge last winter, the extremely high turbidity indicates significant cumulative impacts already are occurring. (B. Trush personal observations).

Management of cumulative effects must be integrated throughout the Plan to achieve biological goals (Section 6.1.1, pp. 6-1& 6-2). However, this proposed AHCP carefully avoids specifically addressing either present or future CWEs. For example, habitat typing surveys in streams revealed low large woody debris (LWD) levels. Yet the only human factors attributed to this current habitat condition were past harvest practices and stream cleaning – inexplicably, no effect is attributed to current harvest practices. In Section 6.2.6.2 (p. 6-57), the rate-of-harvest is not even considered an option for monitoring and adaptive management. Simpson relies on the assumption (a doctrine for CDF) that best management practices prevent cumulative watershed effects from occurring or limit them to insignificance. Common sense dictates otherwise. No matter how good a management prescription might be, even if improved over practices in the current CFPRs, no management prescription is foolproof. Sediment, particularly fine sediment, will be produced and will enter a drainage network under the best intentions. The more surface area cumulatively exposed (as with harvest surface area and road surfaces of all kinds), the more cumulative sediment enters streams thus elevating the risk of significant CWEs. An HCP must

Response to Comment G10-35

See Master Response 3. The ESA does not require implementation of the Plan to actually result in “biological recovery” (see Master Response 8). The Services’ conclusions do not rely on any specified rate of harvesting. The mitigation furnished by the applicant is tied to its operation rates such that an increase would result in a concomitant increase in mitigation. Rate of harvest has been discussed in Master Response 11.

Response to Comment G10-36

See Master Response 3.

G10-34

be capable of detecting and then preventing cumulative exposure from timber harvest operations that is, or can be, too great. The Simpson AHCP does not have this capability.

B. Suspended Sediment and Turbidity Should be Primary Measures of CWEs

Suspended sediment is a highly responsive measurement variable collectively relating timber operations from many harvest units to CWEs and, ultimately beneficial uses (Reid no date). Although the Simpson plan may seem to exhaustively address sediment impacts, a close review reveals otherwise. The Plan only enlists suspended sediment as a tool to develop better prescriptions for how a segment of road can be better managed (Section 6.2.5.2.2, p.6-49). But suspended sediment is perhaps the best indicator for measuring how well present and future harvest operations in an entire HPA are performing collectively, such as throughout the North Fork Mad River watershed. If best management practices have been doing their job at preventing significant CWEs (an implicit assumption in the HCP), then a turbidity monitoring station under Korbel Bridge would reveal suspended sediment concentrations within state water quality standards administered by the North Coast Regional Water Quality Control Board. If these standards are being exceeded (visual inspection by B. Trush last winter clearly indicates exceedence), then turbidity monitoring will document future watershed level trends where cumulative suspended sediment effects are most likely to be expressed.

G10-35

We agree that the Plan might reduce sediment delivery relative to current levels (unless the rate-of-harvest is increased) but this does not ensure that biological recovery will occur, nor does it free the Plan from addressing CWEs, ongoing and future. The Simpson proposal supplies incomplete information on the contemporary harvest rate (last 10-yr rate) and proposed future rate in specific watersheds. With a higher rate-of-harvest – which could occur under the Plan, future sediment delivery could increase over present delivery, even with improved harvest and road management prescriptions. Moreover, extensive habitat impairment could continue or worsen as a consequence of the accumulated effect of new sediment exacerbating existing sediment levels. This is in fact the situation in other watersheds adversely affected by sediment input from logging over time (e.g., Frissell et al. 1997, Frissell 1992, Platts et al. 1989, Hagans et al. 1986, and many more).

C. Rapid Response Monitoring is Not Part of the Plan

G10-36

Long-term monitoring of spawning habitat permeability and channel morphology is the only method proposed to quantify sediment-related effects and evaluate whether present sediment delivery is cumulative, biologically significant harm. However, rapid response monitoring to head-off cumulative sediment-related impacts at the watershed scale is conspicuously missing. In fact, the AHCP does not recognize sediment-related CWEs as a future issue. Appendix F (p. F-4) states:

The sediment model does not address cumulative watershed effects (CWEs). It is not site specific, and it does not integrate past, current, and reasonably foreseeable projects. Instead, the sediment

Response to Comment G10-37

See Master Response 3. The Plan's monitoring program is designed to monitor progress on these areas (see AHCP/CCAA Sections 6.2.5, 6.2.7, 6.3.5 and 6.3.7, and AHCP/CCAA Appendices C and D).

Response to Comment G10-38

Green Diamond is required to include the continuous turbidity monitoring approach in the conservation measures, specifically within the four experimental watersheds (See AHCP/CCAA Section 6.2.5.1.4, as further described in Section 6.3.5.2.4). A Permit applicant is not required to include every "feasible" monitoring method within its plan, as long as there are appropriate, adequate and effective monitoring methods proposed in the plan. Similarly, the ESA does not require that the Services require Green Diamond to provide a rationale for rejecting (or selecting) one monitoring method over another but rather to judge the adequacy of the Plan overall in light of the Section 10 approval criteria. See Master Response 8.

model is spatially- averaged over the Simpson ownership with the 11 HPAs and time-averaged over the next 50 years. This does not reflect actual sediment delivery processes, which are prone to occur in more of an episodic nature and vary locally, depending mostly on climatic conditions. However, the significance of this limitation is reduced by the adaptive management mechanisms in the Plan that are expected to provide appropriate elasticity for the conservation measures within individual HPAs to meet the needs of the aquatic resources of concern.

Thus, sediment-related cumulative effects are dealt with by simply stating that the habitat needs are being met by the proposed "conservation measures." This philosophy parallels CDF's checking the box for whether CWEs are, or are not, occurring in a given THP. Given all the model's qualifiers (see Appendix F, p. F-4), how will we know if the predictions of the sediment model are reasonable, and future sediment reductions biologically significant, if the plan does not propose monitoring at the watershed scale of the HPA? Chronic turbidity at baseflows is not episodic and can be effectively modeled to relate surface erosion (from harvest area and roads) to the rate-of harvest (including road management) and, ultimately, to beneficial uses.

G10-36

The Plan's experimental watershed program also fails to address CWE monitoring. Given the harvest activity in the North Fork Mad River, this watershed should be a prime candidate for the program to assess potential and ongoing cumulative effects. Within the four experimental watersheds that were selected, suspended sediment will be monitored -- but only in Class III tributaries (Section 6.2.5.2.2, p.6-49) to determine the amount of sediment delivered from Class III watercourses following timber harvest and above and below Class II-1 and II-2 watercourse crossings. Section 6.2.5.1.4 (p.6-49) notes there will be one permanent continuous monitoring station in each experimental watershed. Presumably these four monitoring stations will be in the Class III tributaries only. Section 6.2.5.4, p.6-51) cites: "Effectiveness monitoring projects and programs that due to their complexity and expense of implementation can only be applied in limited regions (these include turbidity monitoring, Class III sediment monitoring, and road related mass wasting monitoring)." Monitoring suspended sediment and turbidity where CWEs are most likely to occur, i.e. farther down in the watershed, again is conspicuously missing.

G10-37

G10-38

We do not expect a private timber company to become a private research institute as well, but turbidity monitoring to document HPA performance is highly feasible. A few active parents have established a continuous turbidity monitoring station on Jacoby Creek for Jacoby Elementary School. In the lower mainstem of Little River, an ongoing gauging station could readily be fitted to continuously monitor turbidity. Simpson provides no acceptable rationale for discounting turbidity monitoring at downstream locations (i.e., not limited to the headwaters) within HPA watersheds undergoing high harvest activity, whether deemed experimental or not. Measurement of turbidity is not simply an experimental tool for refining harvest prescriptions as adopted in the Plan. It is a practical, rapid-response approach to measuring and documenting CWEs resulting from ongoing and future land use practices. In fact, the North Coast Regional Water Quality Control Board is requiring turbidity monitoring under its regulatory authority in

Response to Comment G10-39

Comment noted. By way of clarification, however, the Permit applicant is not requesting a 50-year exemption from the ESA; instead, the application seeks authorization of take which is limited by the Plan, Permits and IA, from the ESA Section 9 take prohibition for the covered species in the Plan Area. In any event, the Services' enforcement mechanisms are available, and the integrity of personnel does not play a role in Permit approval.

Response to Comment G10-40

An early warning signal of potential increases of stream temperature employs a "yellow light" temperature threshold based on watershed acreage. See AHCP/CCAA Section 6.2.5.5.1. These thresholds would be potentially more protective of sub-lethal habitat conditions and the actual temperatures representing the "yellow light" thresholds are at lower temperature values than those for the "red light" thresholds. As stated in AHCP/CCAA Section 4.3, exceedance of this "yellow light" threshold will result in an internal audit by Green Diamond to determine causes and management actions that may be necessary to correct these temperatures if practicable. As such, these early warning reviews would occur prior to any "red light" or upper limit temperature threshold is reached. If an increase in temperature occurs, the acreage weighted "red light" threshold criterion would then precipitate a joint review by Green Diamond and the Services to determine causes and management actions. See AHCP/CCAA Section 6.2.6.1.2. These would be taken to rectify excessive water temperatures which may be deleterious to aquatic life.

Also, as discussed in AHCP/CCAA Section 6.2.5.5, a maximum

G10-38

other Humboldt County watersheds currently developing Habitat Conservation Plans (California North Coast Regional Quality Control Board 2000).

IV. ISSUES RELATED TO CONSERVATION OF AMPHIBIANS

Both Covered Species of amphibians in the Plan are considered California State Species of Special Concern (Jennings and Hayes 1994) and the proposed activities could adversely impact their persistence and/or recovery in the Plan area. Key concerns with the Plan as it relates to the covered amphibians are discussed below.

A. Time Frame

G10-39

Time frame is a serious concern. The Plan requests a fifty-year exemption from the Endangered Species Act. We have learned a great deal about forest ecosystems and management over the last fifty years and it is reasonable to expect we will learn much more in the next. Adaptive management and biological thresholds may help adjust the Plan as the state of knowledge increases, but much of the interpretation and implementation depends on the people administering the Plan. Even given full confidence in the integrity of the current amphibian biologists at Simpson Resource Company, it is impossible to predict how the program will develop as personnel changes over the decades.

B. Temperature

G10-40

The covered amphibians are considered cold-adapted species (Simpson AHCP, v.1, S-6, Brattstrom 1963, Nussbaum et al. 1983). Increases in temperature following timber harvest have been implicated in population declines at some sites (Welsh 1990, 1993, Welsh and Lind 1991, 1996). Temperature is especially important for inland populations, but may be less a factor for the covered species in cooler coastal forests (Ashton 2002). Over the next fifty years, the threat of global warming may increase the importance of thermal buffers for cold-adapted species in both aquatic and terrestrial habitats.

Simpson's use of water temperature as a monitoring threshold to trigger an adaptive management response gives rise to two concerns.

First, biological threshold temperatures are upper limits for survival, but thermal stress can result from prolonged exposure to sub-threshold levels. Long term persistence at near threshold temperatures has not been investigated in the wild. Reported thermal threshold for larva of these species is based primarily on laboratory work (Brattstrom 1963).

A second major concern is the use of a 7-day moving average temperature (7DMAVG) as the monitoring threshold. Using the average temperature can mask peak temperatures. This masking would be expected to be greatest in streams with the highest temperature fluctuations. Averaging nighttime low temperatures with daytime high temperatures lowers the average, allowing maximum water temperature to climb above threshold levels without triggering an

threshold of 17.4°C will be set as an absolute or upper “red light” temperature threshold. It must be pointed out that the area-weighted temperature thresholds described and shown in AHCP/CCAA Section 6.2.5.5.1 were derived from monitoring data collected from locations presently occupied by populations of the two amphibian species and coho salmon. Based on the use of both the “yellow” and “red light” triggering thresholds, temperature monitoring in the future will protect those species from both lethal and sublethal temperatures. These triggers will protect the covered species from both sub-lethal effects (e.g., “thermal stress” or reproductive effects) and lethal effects (mortality) from elevated water temperatures.

As stated above and in AHCP/CCAA Section 4.4.1.1, of the 400 Class I temperature profiles developed within the Plan Area since 1994, 93.8 percent were at or below the 17.4°C threshold. This threshold (MWAT) was developed from the NMFS’ (1997) *Aquatic Properly Functioning Condition Matrix*. However, the MWAT threshold of 17.4°C failed to account for natural variation in water temperatures due to geology, climate, and drainage area. As such, the MWAT was not selected as the most protective and appropriate metric for measuring water temperature effects on aquatic life. As stated in AHCP/CCAA Section 5.5.2, for water temperatures less than lethal, the impacts of elevated temperature to aquatic life tends to be cumulative and therefore short-term increases, as measured by the absolute maximum temperature, are less likely to be harmful than chronic, long-term increases as measured by the 7DMAVG temperature. Therefore, as described in the Plan, “red and yellow light” threshold criteria were developed to adequately monitor and provide protection to covered species from both lethal and sub-lethal water temperatures.

Response to Comment G10-41

It is true that sediment generated from Class III streams has the greatest impact on the covered amphibians that occur primarily in Class II streams. However, monitoring of sediment is focused on Class III streams because it is most easily quantified in these stream reaches. Headwater Class II streams tend to be transport reaches that often do not show the impact of increased sediment inputs except in the low gradient reaches. These low-gradient reaches of Class II streams generally contain high levels of fine sediments deposited from harvesting activities that occurred in the past together with natural accumulations. As a result, headwater Class II streams may show little change in sediment composition even when the sediment supply is changing. To avoid this circumstance, sediment monitoring in the Plan intentionally focuses on the Class III reaches in which sediment can be monitored and quantified more easily using changes in channel morphology. In those stream reaches, the processes of down cutting, head cutting, sediment formation, and suspended sediment can be measured. For a discussion of the monitoring protocol, see Appendix D2.3 of the Plan.

Response to Comment G10-42

The Plan acknowledges the importance of headwater reaches and provides conservation measures for protection of those areas, including Class II protection to headwater seeps, springs, and wet areas where they define habitat for the covered species, Class III protections to maintain riparian function (AHCP/CCAA Section 6.2.1.5), measures for steep streamside slopes (AHCP/CCAA Section 6.2.2.1), and measures specifically for headwall swales

G10-40

adaptive response. If the goal is to protect the covered species from exposure to excessive temperatures, it may be more appropriate to use a 7-day moving maximum (7DMMX) as an adaptive management trigger. The Plan proposes to document the 7MMX but only appears to use the 7DMAVG as a threshold trigger (AHCP v2 D-5).

C. Sediment

G10-41

Fine sediment in streams may be the single most important habitat characteristic affecting the covered amphibian species in the Plan Area. The Plan admits that increased sediment in streams has "the greatest potential to limit habitat and deter beneficial conservation efforts." (AHCP v1 S-9). Fine sediments fill the interstitial spaces in the stream substrate, reducing habitat availability for lotic amphibian larva and invertebrates. Smaller, lower gradient streams may be especially vulnerable to sedimentation because they often lack sufficient flow to flush sediments through the system (Ziemer 1998). This is why some studies on commercial timberland have shown lotic amphibian densities to be positively correlated with stream gradient (Diller and Wallace 1996, 1999). In the Plan, threshold monitoring for sediment is limited to Class III streams, but increased sedimentation may have the greatest impact on amphibians in Class II streams. It appears substrate conditions will be measured in conjunction with amphibian surveys, but sediment load does not appear to be part of the adaptive response for Class II streams.

D. River Continuum Concept

G10-42

The Plan extends Class II watercourse protection measures to seeps, springs, wet meadows, and wet areas. Recognizing the importance of these aquatic features to the aquatic ecosystem is a step in the right direction, but there still exists a lack of protection for headwall swales. Headwall swales are often the source of unchannelized aquatic features (seeps, springs, wet areas) and serve as initiation points for slides delivering sediment to watercourses. They are also sources of nutrients and habitat structure for receiving waters. Headwater systems provide the link between terrestrial processes and fish bearing streams (Gomi et al. 2002). Employing the River Continuum Concept (Vannote et al. 1980) to riparian protection measures would result in the greatest protection occurring in headwater zones (Noss et al. 2000).

E. Upslope Harvest Activities

G10-43

Aquatic habitat does not exist in isolation from the surrounding terrestrial landscape, so an AHCP that ignores upland forest management practices, fails to realistically assess the threat to, and response of, the aquatic system. The effectiveness of riparian buffers at controlling microclimate and sediment is strongly influenced by upslope land use. (Chen et al. 1993). Treating the AHCP as independent from upslope practices ignores the connection between riparian processes and upland forests (Gomi et al. 2002).

We are not able to assess the impact of herbicide use on aquatic systems because the Plan fails to acknowledge use of herbicides in upslope areas, which are not technically covered in the AHCP, but nonetheless may drain to receiving waters.

(AHCP/CCAA Section 6.2.2.2). The selection of specific prescriptions, including protection measures for Class II streams, is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role during the development of a conservation program is to "*be prepared to advise,*" and to judge its consistency with the ESA approval criteria once the application is complete (HCP Handbook at 3-6 and 3-7). The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria have been discussed in EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8.

Response to Comment G10-43

The Plan assesses upslope conditions as they relate to potential impacts on the covered species. The Plan evaluated conditions on an HPA-by-HPA basis (AHCP/CCAA Section 4.4) and analyzed potential impacts on the covered species in AHCP/CCAA Sections 5 and 7, including potential impacts from upslope activities. The impacts identified were those with the greatest likelihood to occur. The geographic scope of analysis conducted for the Plan has been discussed in Master Response 3. Herbicide use has been addressed in Master Response 4.

Response to Comment G10-44

Comment noted. The Operating Conservation Program places the highest emphasis on reducing significant sediment inputs, and, through its accelerated road management plan (AHCP/CCAA Section 6.2.6.2.3.2.1), the Plan has placed a particular focus on treating high and moderate priority sites that are potential sources of sediment to streams. Implementation of the Operating Conservation Program is expected to reduce the risk that such sites will fail and deliver significant sediment to Plan Area streams. In this way, the Plan is expected to reduce sediment delivery. This risk of sediment delivery from roads can be reduced by decommissioning or upgrading (see AHCP/CCAA Sections 6.2.3.3 and 6.2.3.4). By following the Plan's system for prioritizing treatment of sites, the Plan would reduce sediment delivery from the highest priority sites in an accelerated fashion regardless of whether the treatment of a particular road site is decommissioning or upgrading. The commenter is correct in that roads in the Plan Area are expected to have little traffic on them during rainy nights when the amphibians are moving. Accordingly, the Services do not expect significant direct impacts on the covered species from traffic.

Response to Comment G10-45

The potential negative effects of water drafting on the covered amphibians was given consideration in the development of the Plan and measures were included in the Operating Conservation Program that are expected to minimize such effects (see AHCP/CCAA Section 6.2.1.13, as further described in AHCP/CCAA Section 6.3.3.11).

F. Forest Roads

G10-44

Forest roads have been shown to negatively impact amphibian populations by direct mortality and habitat alteration. (Trombulak and Frissell 2000 provide a review of these and other impacts of roads). It is reasonable to expect that logging roads in the Plan Area receive little traffic during peak amphibian activity periods (raining nights) so direct mortality (roadkill) may not be a significant concern. Alteration of habitat is a larger concern in the Plan Area. Forest roads can increase sediment delivery to watercourses by increasing surface runoff and initiating slope failure (Best et al. 1995, Madej 2001). Forest roads also fragment forest habitat and can serve as a barrier to movement for a variety of vertebrates and invertebrates (see deMaynadier and Hunter 1995 for a review).

G. Water Drafting

G10-45

Airborne dust from haul roads is not considered as a significant source of fine sediment to the aquatic system (L. Reid pers. comm.), but efforts to reduce airborne dust may impact amphibians. The proposed method of airborne dust reduction is road watering using water drafted from nearby sources, such as streams, springs and ponds. Water drafting may impact amphibian populations by changing stream level and flow rate above and below the drafting point. The Simpson AHCP states that larvae of the covered amphibian species are aquatic obligates (AHCP v1 S-6, Nussbaum et al. 1983), but then goes to suggest that "under certain circumstances, both can *persist* with temporary periods of subsurface flow during late summer and early fall". Does *persist* apply to the population or the individual? Is water drafting one of those circumstances where they are expected to persist? Is rate duration of water drafting consistent with natural processes? Will aquatic larvae be trapped in dewatered edgewater refugia during water drafting?

H. Monitoring

G10-46

Amphibians can serve as sensitive bioindicators of stream condition (Welsh and Ollivier 1998). Simpson proposes to use tailed frog and southern torrent salamander sub-populations as primary indicators of habitat condition in headwater streams. The AHCP states they have documented "the apparent extinction and recolonization of several torrent salamander sites" (Simpson AHCP v2 d-33). In our review we were unable to locate in the record a description of the procedure used to document the extinctions. Extinction of sub-populations is used as a monitoring threshold for southern torrent salamanders, but documenting extinction is highly sensitive to sampling method and net sampling effort, so it is critical to state the protocol for confirming extinction. Simpson proposes to monitor physical conditions in the stream in conjunction with amphibian sampling, but threshold values for important habitat characteristics of Class II streams are not used as adaptive management triggers. Water temperature and fine sediment load are probably the most important environmental factors for the covered species. Temperature (Heyer et al. 1994) and fine sediment load (Lisle and Hilton 1992) can be easily monitored and it is suggested that these parameters (in addition to bioindicators) should be used in an adaptive

Response to Comment G10-46

It is true that determining absence of a species is practically impossible, so that apparent extinctions may give false negative indications. However, this outcome means that the monitoring trigger is more conservative, or in other words, more likely to trigger adaptive management than is necessarily warranted. In addition, the monitoring was not focused on the habitat in headwater streams for the same reason described previously in response to Comment G10-41. The Services further note that headwater amphibian monitoring should not be considered in isolation, but in the context of all the other monitoring actions that will be concurrently taking place (see AHCP/CCAA Section 6.2.5).

Under the Proposed Alternative, triggering of a yellow light will result in notification to the Services within 30 days after Green Diamond's internal assessment indicates that yellow light threshold has been exceeded, and the Services and Green Diamond will work together to determine the cause of the exceedance and to determine any and all management changes necessary to address the situation. Within the limit of the AMRA (see Master Response 15), all necessary measures will be taken to address the issue. The Services believe that this collaborative approach to responding will benefit the covered species and their habitats in the Plan Area.

Response to Comment G10-47

Comments relating to the Scientific Review Panel are noted. The scientific review panel is discussed in AHCP/CCAA Section 6.2.6.1.2, regarding red light threshold triggers, and section 6.2.6.1.3 regarding SSS triggers. The AMRA, including the opening balance and how it may change, and how it would be used under the Plan are described in AHCP/CCAA Sections 6.2.6.3 and 6.3.6.2, as well as in Master Response 15. The Services believe this approach will provide sufficient independence to address the issues that may be directed to the Scientific Review Panel and that the AMRA is adequate for the purposes provided in the Plan.

Response to Comment G10-48

Regarding selection of control sites, Green Diamond sought to locate relatively undisturbed sites, including pristine sites on adjacent Federal or State park land. Given the possible control sites that are available, the Services believe that the BACI experimental design is the best possible monitoring tool to detect a significant treatment effect. The objective of the study is to determine if current timber operations have any effect on populations of the covered amphibians. Even if the control populations were declining, which the Services understand is unlikely based on the monitoring results in the Plan, they still could be used effectively as experimental controls. The criteria necessary for a site to be used as a control are that the site not have any treatment effects while having similar environmental covariates or nuisance variables (e.g. aspect, elevation, geology, climate, etc.) as the treatment site.

management plan. Changes in these important habitat conditions may be detected prior to any statistically significant response in amphibian populations. If channel conditions degrade, do we really want to wait for a detectable change in amphibian populations before responding?

In sum, there is no convincing rationale to indicate that the yellow and red light thresholds really trigger a quick response in land management practices. They seem primarily to trigger more studies, which must have conclusive results before reacting. It can take years to achieve conclusive results in wildlife studies.

The Plan further states that a scientific review panel of independent experts will be convened to resolve disputes between Simpson and the Services (AHCP v1 5-56). But the panel really comes down the one person. It is stated that the panel will consist of one Simpson appointee, one Services appointee, and a third person agreed upon by the two appointees. That third person may be the only independent panelist. In the case of a dispute between Simpson and the Services, the panel goes to a vote. Majority rules; 2 out of 3 wins it, so it could come down to the third panelist either agreeing with Simpson or the Services. Additionally, no adaptive management changes will be made unless there is a sufficient balance in the Adaptive Management Reserve Account (AMRA). It seems that if habitat conditions degrade with continued harvest, the AMRA could be quickly depleted rendering the yellow and red light thresholds meaningless. The AMRA can also be depleted by translating FSA to funds for road prescriptions (AHCP v1 6-58) at a rate of 2% per year, or 100% by the end of the 50-year plan. Many of the monitoring measures will not produce results for 5 to 15 years, often only triggering further study before reaction. By the time there is an adaptive management response, there may be very little left in the AMRA. If yellow-light thresholds are exceeded, "management change will only be made to the extent of the availability of a balance in the AMRA" (AHCP v1 6-55), but it is not clear whether the red light thresholds are subject to the same limitations. There is a process to add credit to the AMRA, but it seems a like shell game, moving credits around without any real additions (AHCP v1 6-58). There is a provision for adding new area to the "Plan Area" after the Plan is approved. Does this include adding more FSA to the AMRA when new area is added?

I. Reference Sites

Although we are unaware of data on pre-harvest amphibian densities for this area, we believe that the covered species currently occur at lower than historic densities in the Plan Area as a result of previous timber harvest operations. The tailed frog and southern torrent salamander have shown declines following timber harvest (Welsh 1990, Ashton 2002, others). Both species still occur on Simpson timberlands despite decades of timber harvest (Diller and Wallace 1996, 1999). A combination of features may reduce harvest related impacts to these species in the Plan Area. The maritime climate helps stabilize stream temperatures; consolidated parent geology minimizes fine sediment delivery to watercourses; and higher gradients help flush sediments through the aquatic system. The persistence of these species on Simpson lands is more a result of abiotic properties of the landscape, than of biotic tolerance of past forest practices.

Response to Comment G10-49

Biological goals and objectives have been discussed in AHCP/CCAA Section 6.1 and Master Response 12.

Basis for Biological Goals and Objectives.

Green Diamond established the biological goals and objectives of its Plan in consideration of common needs and habitat preferences shared among the six aquatic covered species. Although the specifics vary, all of the covered species are adapted to relatively cool water temperatures, and require streams with complex habitat both in terms of stream morphology and substrate composition. Each of the covered species exhibit life history variability, with the result that different portions of their life cycles depend on freshwater habitat. Of the fish species, Chinook salmon spends the least time in freshwater where the spawning and estuarine rearing habitats are the most critical freshwater elements. In comparison, coho salmon and steelhead generally spend up to two years or more of their life in freshwater habitat so that spawning, and summer and winter rearing habitats are important. Most of the coastal cutthroat trout probably spend their entire lives in freshwater. This fish species is completely dependent on the freshwater habitat, although some individuals of certain populations may exhibit anadromy. The amphibian species spend their entire lives within relatively small areas in the upper reaches of watersheds, although the adults of both species are terrestrial and presumably capable of limited overland movements during certain times of year. Based on these considerations, Green Diamond has established the five goals and five objectives to reflect in biological terms the intended result of the proposed conservation program. The Services have, as the commenter

G10-48

Selecting second-growth forests as reference sites for monitoring may mask declines because the reference populations may already exhibit a depressed state. Populations of the covered amphibian species in the Plan Area should be compared to populations in late-seral forests with similar physical attributes, for example, comparison of Simpson holdings vs. Prairie Creek Redwoods State Park. Previous work has shown an average density of 0.724 southern torrent salamanders per hour in ten streams in PCRSP (Welsh and Ollivier, *unpublished data*), while Wroble and Waters (1989) reported densities of 0.052 southern torrent salamanders per hour in 17 streams on PALCO lands (*see* Welsh et al. 1998). Control sites for the BACI design experiments are also on second-growth timberlands. The BACI design may be useful for detecting changes within the second-growth system, but it should be made clear the “before” only refers to “before” the proposed impact (future harvest) and it does not mean before all timber harvest in the Plan Area. A BACI design experiment should be conducted using late-seral forests as the control, but it would be difficult (or impossible) to find late-seral reference sites in close proximity to some of the treatment sites. Still, there would be some value in comparing the reference sites (second-growth) with late-seral forests (Mulder et al. 1999).

V. DETAILED SECTION-BY-SECTION COMMENTS ON AHCP

This section steps through the core conservation commitments made in this proposal, generally according to the sequence in which they are presented.

A. Biological Goals and Objectives

G10-49

Section 6.1, Biological Goals and Objectives, contains contradictory language. While the introduction states that to comply with the terms of an HCP, the conservation measures must minimize and mitigate the take of listed species and ensure that such take does not reduce the survival or recovery of the listed species, the objectives section states that, “the permittee’s obligations for meeting the biological goals and objectives are met via proper implementation of the conservation program of the AHCP. Thus, a permittee is only required to implement the operating conservation program of the HCP, regardless of its effect on Covered Species. We recommend that Section 6 be re-written and peer-reviewed with attention both to the substance of the goals and objectives and to establish a direct relationship to Plan compliance through the monitoring and adaptive management provisions.

For purposes of this review, although the Services apparently do not propose to use either the biological goals or the objectives of the Plan as performance measures¹, these objectives nonetheless deserve careful scrutiny in that they are described as the functional goals of the

¹ According to Simpson: “Permittees are not required to achieve the HCPs biological goals or objectives to comply with their permits. Rather than being enforceable terms or conditions, the goals and objectives guide the development of the operating conservation measures. . . .” “the permittee’s obligation for meeting the biological goals and objectives is proper implementation of the operating conservation program of the HCP. In other words, to qualify for No Surprises assurances, a permittee is required only to implement the operating conservation program of the HCP; the IA, if used, and the terms and conditions of the permit. . . .”

suggests, carefully reviewed the biological goals and objectives. However, we emphasize that it is evaluation of the Operating Conservation Program, not the biological goals and objectives that determine whether the Plan meets ESA Section 10 Permit approval criteria (see Master Response 8). The Services believe that the Operating Conservation Program meets the requirements of ESA Section 10 and the commenter provides no basis to conclude otherwise.

Temperature Objective.

As noted above, each of the covered species has adapted to relatively cool water temperatures, and requires streams with complex habitat both in terms of stream morphology and substrate composition. Implementation of the riparian management measures (AHCP/CCAA Section 6.2.1), together with the other measures in the Operating Conservation Program, will minimize and mitigate the impacts of take to the maximum extent practicable and ensure that permitted take does not appreciably reduce the likelihood of survival and recovery of the covered species in the wild. Information regarding temperature monitoring data from outside Green Diamond's ownership was not used because sufficient temperature information from within the Plan Area was available to judge the impacts and measures outlined in the Plan. Finally, implementation of the Operating Conservation Program, including the riparian management measures (AHCP/CCAA Section 6.2.1), address concerns regarding thermal refugia. Regarding the environmental baseline, see Master Response 1.

Large Woody Debris Objective

See Master Response 18.

Amphibian Population Objective

Comments regarding baseline conditions are addressed in Master Response 1.

A detailed explanation for the southern torrent salamander population monitoring objective is provided in AHCP/CCAA Section 6.3.5.2.5.2 and Appendix D.1.6.3. Class III streams will be extensively monitored under the Plan, as discussed in AHCP/CCAA Section 6.3.5.3.2 and Appendix D.2.3.

Sediment Objective.

The potential for increased sediment input has been identified as a potential impact to the covered species and their habitats (AHCP/CCAA Section 5.3; AHCP/CCAA Appendix E). Implementation of the road management measures and harvest-related ground disturbance measures (AHCP/CCAA Sections 6.2.6.2.3 and 6.2.4) will reduce sediment delivery to watercourses, which in turn, will improve conditions relative to current conditions and the No Action Alternative for the benefit of the covered species and their habitats.

Monitoring and Adaptive Management

As discussed above, AHCP/CCAA Section 6.1 provided a basis for the development of the Operating Conservation Program provisions, including the monitoring and adaptive management measures (see AHCP/CCAA Section 6.2.5 and 6.2.6). Therefore the biological objective for monitoring and adaptive management is not "superfluous" but instead provided a foundation for enforceable provisions of the Plan. Regarding adaptive management, see responses to Comments C4-6, C4-29, G3-58, G3-59, G3-67, G3-72 through and including G3-77, G3-86, G5-2, G10-15, G10-53, G10-51, S1-14, and S5-32, among others.

proposed management measures. The question asked was: if these goals and objectives actually were met by a proposed management regime, would such a regime be adequate to conserve the covered species? This review finds that the answer is no. The panel is further concerned by the apparent disconnect between these objectives and the monitoring plan.

The four biological "goals" stated on 6-3 are intended to provide the context for the objectives. The first goal, to "[m]aintain cool water temperatures that are consistent with the requirements of individual species" is appropriately based on the needs of the covered species, but the term "consistent with" is not defined. The second goal, to "[m]inimize and mitigate human-caused sediment inputs" cannot be properly termed a biological goal as it does not limit human caused sediment inputs in relation to the biological needs of the covered species in any way. The third goal, to "[p]rovide for the recruitment of LWD into stream so as to maintain and allow the development of functional steam habitat conditions" depends heavily on the undefined term "functional stream habitat conditions," and does not speak to the rate at which development of such conditions must be allowed to occur relative to unmanaged. The fourth goal is to "[a]llow for maintenance and increase of populations of the amphibian Covered Species in the Plan Area through minimization of timber harvest-related impacts on the species," appropriately stated an intent to limit harvest related impacts to some level that would allow conditions to improve for amphibian populations.

Concerns regarding the biological "objectives" are discussed below.

1. Temperature Objective

This is the most quantitatively stated of all the objectives: to remain "below the upper 95% PI" as described by a regression equation. The goal applies only to 4th order or small Class I and II watercourses w/drainage less than 10,000 acres. The key problem with this objective is that it in no way attempts to reflect the biological needs of the covered species. Rather, it reflects an existing average that changes depending on the size of the watershed. The current environmental baseline should not be considered the management objective for this plan. A plan designed to meet this goal would merely lock in the current temperature regime, a regime that reflects the legacy of past management. See also comments in Section __ infra regarding the temperature analysis.

There are further concerns about the representativeness of the samples used. There is no explanation for why existing data from streams outside of Simpson ownership were not relied upon. For example, there have been long term temperature monitoring studies on Prairie Creek, as mentioned above at Section IV.J.

The objective is further eroded by the statement that it will only operate to the extent that temperature fluctuations are "[n]ot attributable to annual climatic variation." There is no explanation as to how Simpson plans to "adjust" for climatic variation (or drainage area effects), how they plan to isolate for such effects or what type of fluctuation qualifies for the exemption. We suggest that this is an unworkable framework for this objective and is not defensible. In fact,

it is unarguably the net effect of management-induced change and such climatic variation that determines the biological consequences of stream temperature. A principal effect of management may be to render waters more vulnerable to climatic influences, e.g. by opening canopy, changing windspeed, reducing baseflows, and disconnecting surface flow from intragravel flow by sediment infilling of the bed. The full effects of these man-made changes will not be expressed until they are tested by climatic extremes.

Lastly, there is no objective that recognizes the significance of thermal refugia to the continued persistence of covered species on a highly managed landscape where suitable habitats are fragmented. Because utilization of these refugia is a key survival strategy for salmonid fishes (Ozaki 1988; Nielsen et al. 1994; Matthews et al. 1994; Torgerson et al. 1999; Coutant 1999; Poole and Berman 2001; Ebersole et al. 2001) and other coldwater biota in this region, protection and restoration of such refugia should be an explicit management objective.

2. *Large Wood Objective*

"The biological objective for LWD is to increase the abundance and size class of in-channel and potential LWD in watersheds in the Plan Area." AHCP at 6-5. This is a strategy, not an objective. An objective specifies a desired outcome.

Quantitatively, the objective is for riparian areas to be "99% stocked" with "stands greater than 60 years" and "70% stocked" with "stands greater than 80 years." Also, "the potential recruitment based on managed potential tree height will be greater than 80 and 70% attainment for Class I and II watercourses respectively." There are several critical problems with this objective.

First, this "mature" stand is an industrial rather than ecological characterization of conditions that are expected to increase LWD. This stand condition is not an objective for LWD, but a strategy based on an industrial forestry definition for "mature." Note the provision that at the end of 50 years, Simpson can propose another 50-yr provision, i.e., another entry into the industrially "mature" riparian stands. A longer-term vision of "mature" is needed.

Second, it appears that this objective is based on projections of what is attainable in terms of stocking levels under the proposed Plan prescriptions, which is a bootstrapping means of determining a plan's objectives. This objective should be based on a determination of what is necessary to adequately provide for the covered species, and the metric should focus on measures that have a high likelihood of producing those conditions.

Third, this objective implies that all sources of LWD will be stream adjacent riparian areas. No attempt has been made to characterize the sources of LWD under historic conditions, which included upstream and upslope sources.

Fourth, this objective provides a foundation for management prescriptions that would allow the harvest of all older trees, so long as the dominant age class is over 60 years and 80 years,

respectively. This would create conditions where there is no available source of large key pieces. The largest trees play a critical role in habitat formation and sediment regulation, and in maintaining relative stability of habitat-forming debris jams in the face of accelerated sediment loading.

Fifth, this objective needs clarification to be given meaning. For example: What are the units of the objective? Stem counts? The stem density of recruitable trees is necessary to evaluate the relationship of this objective to large wood supply

Lastly, there is no associated provision in the plan to monitor attainment of this objective. There is only required to be a 10 year inventory of large woody debris.

3. *Amphibian Population Objective*

Simpson's stated goal is "maintenance or increase of populations of the amphibian Covered Species in the Plan Area through minimization of timber harvest related impacts on the species."

As with the temperature goal, this states a goal of no change from the current baseline. Given that the entire Plan Area and its immediate surroundings have been intensively logged, existing conditions do not state an appropriate baseline. Another problem is that the stated objective inappropriately relies on a metric that registers only the presence or absence of the Southern Torrent Salamander. One animal should not be used to indicate the presence of a healthy or viable population. Mere "occurrence" should not be the metric used to assess amphibian populations.

Further concern with this objective arises upon reviewing the monitoring plan because Class III streams are not included. Yet Class III streams provide much of the salamander habitat under current distribution. If Simpson truly intends to manage for the upstream extent of these animals, as they have long contended they do in their mapping, then they should be monitoring the Class III streams to ensure this is the case.

4. *Sediment Objective*

The stated goal is "minimize and mitigate" human caused sediment inputs. However, the sediment objective is not biologically based. There is no unit of biology nor metric related to habitat suitability.

There is no acknowledgement that contemporary levels of suspended sediment reflect past and current forest management within the planning area. We note that nearby Pacific Lumber lands were subject to a cease and desist order for violating the 20% over background standard (California North Coast Regional Water Quality Control Board 2000).

Response to Comment G10-50

The comment acknowledging that current riparian conditions will improve under the Plan is noted. A discussion of the Operating Conservation Program and the CFPRs is provided in Master Response 7. The ESA requires that its Section 10 issuance criteria be met (See EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8). This Plan provides an additional layer of restrictions and does not absolve Green Diamond of its ongoing legal obligation to comply with all applicable laws. The commenter suggests alternative protocols for riparian management. The ESA does not require avoidance of impacts to covered species, but that the issuance criteria for ITPs and ESPs be met. The Services believe that this Plan satisfies these requirements.

The use of the term “stem” in this case was intended to be used interchangeably with “trees.” In the forestry industry, the terms are considered synonyms. The meaning of “likely to recruit” is discussed in Master Response 5. The ESA does not require permittees to “rehabilitate riparian areas currently devoid of mature redwoods” or otherwise “recover” the covered species or their habitats. Instead, as discussed above, it requires that applications meet the criteria for Permit issuance.

The selection of specific prescriptions, including riparian management measures, is a matter of the Permit applicant’s discretion. HCP Handbook at 3-19. The Services’ role during the development of a conservation program is to “be prepared to advise” and to judge its consistency with the ESA approval criteria once the application is complete. HCP Handbook at 3-6 and 3-7. The ESA does not require that any particular measure be adopted or imposed, but only that its criteria for Permit issuance be met. The Services believe that this Plan meets ESA standards.

G10-49

5. Monitoring and Adaptive Management

"The biological objective for monitoring and adaptive management will be to measure detectable changes in baseline biological conditions so as to make appropriate adjustments to the Operating Conservation Program to meet the Plan's goals. This is not a biological objective. It is a performance objective for the monitoring program to pick up "detectable changes" in "baseline conditions." The parameters to be measured in assessing baseline conditions are not actually identified here, making this objective superfluous.

G10-50

B. Riparian Management Measures

We acknowledge that in some respects the proposed plan appears to improve on current riparian protections, such as the stated intent to apply current state rules' Class II protection to streams seeps, springs and wet areas. This section focuses areas where plan measures fall short of current rules and/or may not have their intended effects due to uncertainties related to implementation.

1. Background Discussion of Riparian Delineation

Terraces are evidence of channel movement. They are defined as abandoned floodplains created under past climatic and geomorphic environmental settings (Leopold 1994). In contrast, floodplains are contemporary channel constructions, which under textbook conditions are just inundated by the bankfull discharge. A third type of channel surface exists throughout Northern California, a type that is flooded less frequently than by the bankfull discharge, but which still is constructed in the contemporary climate and geomorphic setting. For lack of a better term, these are aggraded floodplains. Woody riparian vegetation modifies local channel hydraulics. As riparian vegetation colonizes floodplains, vegetation resists flood flows, thus radically decreasing water velocities. A subsequent depositional environment evolves such that large floods are encouraged to deposit significant layers of fine sediment onto the contemporary floodplain. As deposition accrues, the flood necessary to just overtop a developing depositional floodplain increases. Typically, depositional floodplains exhibit a downward sloping surface away from the channel. More sediment, upon encountering low velocities during floods inundating the fringe of floodplain vegetation, is deposited close to the active channel (creating natural levees) than farther from the active channel. This downward sloping surface provides diverse microenvironments that favor stands of large conifers and hardwoods as well as backwater wetlands. In healthy river ecosystems, depositional floodplains have been major contributors of large wood. To recruit large trees, now and in the future, each must be allowed to grow big safely, but in locations ultimately vulnerable to lateral channel migration. This often requires being a considerable distance from the present channel to allow time to grow, while remaining within reach of the mainstem channel. Late-successional conifer stands associated with aggraded floodplains require developmental times greater than the age of one of its members. The riparian zone, by encompassing the active channel, the floodplain, and depositional floodplains, defines a dynamic river-dependent ecosystem highly dependent on fluvial processes that require

considerable space and time to function properly (Trush, McBain, and Leopold 2000; Bolton and Shellberg 2001; Poole and Berman 2001).

In order to be consistent with recovery of the covered anadromous salmonids, the proposed Plan must allow recovery of the riparian zone's structure and function throughout a watershed's drainage network. However, maintaining the integrity of the riparian zone is not solely a salmon issue. Other important beneficial uses are directly attributed to healthy riparian corridors (CFPR 2002; Bolton and Shellberg 2001) and their consideration is necessary under law. The CFPR clearly identifies goals of protecting and restoring the riparian zone.

CFPR 2002 Section 916.9(c) Protection and Restoration in Watersheds with Threatened or Impaired Values states: *Any timber operation or silvicultural prescription within 150 feet of any Class I watercourse or lake transition line or 100 feet of any Class II watercourse or lake transition line shall have protection, maintenance, or restoration of the beneficial uses of water or the populations and habitat of anadromous salmonids or listed aquatic or riparian-associated species as significant objectives.*

Section 916.2(a) Protection of the Beneficial Uses of Water and Riparian Functions states: *The measure used to protect each watercourse and lake in a logging area shall be determined by the presence and condition of the following values: (1) The existing and restorable quality and beneficial uses of water as specified by the applicable water quality control plan and as further identified and refined during preparation and review of the plan, (2) The restorable uses of water for fisheries as identified by the DFG or as further identified and refined during preparation and review of the plan, (3) Riparian habitat that provides for the biological needs of native aquatic and riparian-associated species, (4) Sensitive conditions near watercourses and lakes. These values shall be protected from potentially significant adverse impacts from timber operations and restored to good condition, where needed, through a combination of the rules and plan-specific mitigation.*

In short, there is ample regulatory language requiring the protection and recovery of riparian zones that goes beyond simply meeting minimum requirements set forth in the CFPR. An AHCP should excel at satisfying these regulatory mandates in scope and content.

2. Identifying the Riparian Zone

The foundation for sound riparian management would be to adopt the best (scientifically defensible, reproducible, and reasonably enforceable) protocol for establishing riparian zone boundaries. As explained above, riparian zones encompass the active channel, the geomorphic floodplain, and aggraded floodplains. Watercourse transition lines (WLTl), the terminology employed by the California Board of Forestry, should be considered identical to the riparian zone boundaries. The maximum stage height of twice the bankfull discharge (1.65-yr annual maximum flood) is the least ambiguous, most scientifically defensible technique for identifying the WLTl on Class I and Class II channels (Ligon et al. 1999). This measure should not be considered a surrogate measure for channel migration zone (CMZ) as quantified by the

Washington DNR method (Washington Department of Natural Resources 2001), nor should it be considered equivalent to the method described in the Simpson AHCP. The Washington DNR method relies on arbitrary timelines for “near-term” migration and assessments for “likelihood” of channel migration. Neither is scientifically defensible, reproducible, or enforceable (Washington Forest Law Center 2002). Criteria for the Simpson CMZ are described, but not defined. Instead, a future expert panel would determine how to designate CMZ boundaries.

The foremost concern here is actually not how CMZs are delineated, but rather why CMZs need to be delineated. As proposed, however, the CMZ designation does not meet any goal for riparian zone recovery. By eliciting arbitrary criteria using “near-term” and “likelihood” (as the Washington DNR method does and other field approaches would be required to do) it becomes necessary to speculate the necessary minimum condition (i.e., What is just enough?). This is not a recipe for recovery of aquatic ecosystems. Furthermore, the proposed procedure of CMZ designation does not account for riparian beneficial uses other than those associated with anadromous salmonid habitat needs. Riparian ecosystems are one of the most endangered worldwide. Last, due to arbitrary criteria, the wide range of expertise and bias likely encountered, and the remote location of many channels, inadequate oversight by CDF, riparian management requiring CMZ designation is not scientifically defensible, reproducible, or reasonably enforceable. Rather than designate CMZs, the floodplain boundary should be objectively identified as the WLTL (Ligon et al. 1999).

(a) Under the proposed Plan, CMZ delineation could fall short of the watercourse transition line during implementation. Simpson proposed to apply twice the maximum bankfull depth criterion to establishing a “floodplain” boundary (same as “riparian zone”) which may, or may not, correspond to the WLTL. The Plan’s definition for CMZ (e.g. Draft EIS p.7-2) is: *“the area of channel defined by a boundary that generally corresponds to the modern floodplain, but may also include terraces that are subject to significant bank erosion”*. When the CMZ boundary coincides with the floodplain boundary, the WLTL also is placed there. Smaller, partial-alluvial third order stream channels typically have evidence of recent channel migration throughout their floodplains. The Plan also allows locating the WLTL within the floodplain boundary (i.e., within the riparian zone). This is likely to occur in larger 3rd order alluvial channels where back portions of the riparian zone can support small stands of large conifers. The CMZ could be located on the streamside margin of these stands (e.g., using the Washington DNR method) with the justification that the channel has not migrated through the stand in the “near-term.” This CMZ boundary becomes the WLTL (Section 6.2.1.1, p. 6-7), thus allowing harvest of conifer stands within the floodplain. Depending on its application, it appears this classification may lead to setting very narrow riparian widths – thus leaving vital conifers “outside” the truly functional RMZ where they would be subjected to a THP’s clear-cutting. Another likely scenario would allow location of the WLTL within the floodplain under the proposed plan. If a channel is determined to not migrate (e.g., the Washington DNR method has an office protocol for this determination), Simpson could use its basic definition for locating the WLTL (EIS p. 7-14): *that line closest to the watercourse where perennial vegetation is permanently established*. This is the old WLTL definition not in use by California Board of Forestry in Northern California. Under this scenario, most of Simpson’s Class I channels would most likely be labeled non-migratory.

This allows harvest of large conifers within the floodplain boundary on smaller channels that do not have a conspicuous floodplain, but rather a short bench. CMZ designation will not accomplish riparian zone recovery as mandated in CFPR 2001 (or less restrictive CFPR 2002) or meet the AHCP goals.

In the Plan, determination of the CMZ is instrumental in establishing the WLTL on more alluvial channels particularly important as coho rearing habitat, but floodplain designation (using twice maximum bankfull stage) is not. Instead, the floodplain designation is used to establish the outer boundary of the RMZ (federal) or WLPZ (state) (Section 6.2.1.1, p. 6-7). Depending on local channel characteristics, the Simpson plan would allow staff/agencies doing the field assessment of the CMZ (p. 6-13), and the presence/extent of large conifers, to prescribe the harvest of conifer stands within the floodplain.

(b) The screening process directing floodplain and CMZ field assessments is not clear (p. 6-13). Many Class I channels migrate over a distance no more than one or two times their present bankfull width. A GIS analysis cannot adequately screen these channels. Of great concern is whether a general rule or office procedure (such as exists in the Washington DNR method) will exclude most Class I channels by "determining" no migration is occurring or no floodplain exists. All these channels would then have the WLTL placed at the first line of permanent vegetation (using the Plan's definition), which in Northern California is typically well below bankfull stage (let alone twice bankfull stage). Section 6.2.1.1.2 (p. 6-7) incorrectly implies that the Plan's WLTL corresponds to the bankfull channel. The elevation of the Plan's WLTL also is well below that of CFPR 2002 for Class I watercourses. In most small and steep Class I watercourses, relatively short segments, such as at sharp bends and backwaters from downstream channel constrictions, will be wider and thus have floodplains and/or prominent benches within the riparian zone. These segments are biological hotspots for channel and riparian diversity. A GIS screening process would not adequately identify these unique reaches.

3. Impacts of Large Wood Depletion are Significant

Historically, large wood, particularly large redwoods, played a key role in regulating channel processes. When large redwoods entered streams due to blowdown, bank undercutting or mass wasting they often remained as functional stream elements for centuries. Given the pervasive harvesting of redwoods in this region – with most of the early harvesting in streamside areas – stream ecosystems have been significantly altered (Welsh et al. 1998).

There is clear indication in the language explaining the conservation measures that Simpson does not believe that it has any legal duty under the ESA that could arise as a result of harvest-related depletion of large wood sources. See e.g. 7-14 stating that while there is the potential for "potentially significant long term negative impacts" from depletion of large wood supplies, that this impact is not identified as falling within the legal definition of "take." Rather this kind of action simply "has the potential to result in long term impacts other than "take." Thus, the plan admits that large wood is a critical habitat component that requires a thorough assessment of

critical habitat, and though Simpson agrees to inventory and monitor large wood impacts, it does not concede that ESA liability could potentially attach for these impacts.

It is not the intention of this review to take on legal arguments. We can, however, speak to the ecological impacts associated with the loss of riparian conifers given the current environmental baseline, i.e., a system depleted of recruitable large wood from either riparian or upland sources.

First, the impacts of current riparian and instream conditions themselves constitute an ongoing "harm" to fish and their habitats. The lack of instream material has led to elimination of elements critical for providing instream cover, channel complexity and pool development. The extent of current habitat modification then, must be recognized as having a continuing impact on the covered species. In fact, NMFS is known to have issued biological opinions governing federal land use actions, actually found current degraded conditions to be responsible for the "take" of covered species.

Second, removal of existing trees within the range of deliverability of any size may deplete future potential sources of large wood. Such actions can effectively impede the rate of recovery of mature riparian stands, an impediment which goes into effect immediately—not some time in the future as is implied in the plan rationale and DEIS. Actions that impede recovery of large wood sources have real ecological impacts that should be recognized and prevented where species recovery also is impeded.

Third, the impacts of low levels of LWD are not as speculative as the HCP indicates. Simpson states that "[h]arvesting practices that result in low levels of LWD may, accordingly, impact the growth, survival, and total production of the Covered Species." We propose that the "will" would be a more appropriate word.

Fourth, while it may be Simpson's position that LWD depletion cannot technically be a "take" that does not justify the lack of analysis regarding this important factor, the lack of analytic disclosure, nor the requirement for recovery under CFPR 2002. NMFS is not the only agency with a mandate for recovery of the riparian zone. Affected parties and the public are entitled to be made aware of the proposal's ecological consequences.

Habitat alteration that depletes LWD supplies can cause significant habitat modification and destruction that can kill or injure covered species. The extent to which existing degradation and its effects will continue to harm these species depends in part on the stochastic effects of future natural events as well as the rate of recovery. Although recovery rates are not always themselves easily predictable, actions that impede such rates are identifiable. The recovery process and how well restoration activities compensate for the degradation, as well as natural processes and their effects, will dictate the timeline of effects on covered species in the plan area. Logically, the faster the recovery the less effect there will be on covered species; the slower the recovery, the greater the effects. No basis is provided for a finding that the riparian logging proposed in the Plan will actually enhance LWD recovery sufficient to meet species habitat needs.

4. Recruitment Trees and Desired Condition of the Riparian Zone

The 2002 CFPRs and the SRP recommendations both require retention of significantly more large conifers in the riparian zone than would the Simpson proposal. Simpson requires a minimum of 15 stems > 16 inches dbh per acre of 50 ft inner zone (equal to 871 feet of channel). Both the SRP recommendations and FPRs 2002 provide 26.6 of the largest trees per acre (calculated by adjusting 328 ft of channel retains 10 of the largest trees) or per 871 feet of channel with a 50 ft inner zone.

We note that the Simpson Plan also requires that all trees within the inner zone “likely to recruit to the watercourse” be retained, but it is not clear how this requirement will affect the 15 “stem” minimum for the entire RMZ and/or for just the inner zone. Within 871 feet of channel, the probability of identifying 15 large trees (not just smaller trees near 16-inches dbh) seems high based on meeting the Plan’s proposed criteria for likelihood of recruiting. Thus, the Plan would not require retention of more than 15 conifer “stems” throughout the full RMZ (unless those retained for their likelihood to recruit exceeded 15 stems greater than 16-inch dbh). If the 15 trees retained mostly are in the inner zone (e.g. 50 feet for 0-30% side slope), then how might the outer zone be harvested? Notably, the AHCP doesn’t require that 25% of the overstory canopy be comprised of conifers as in CFPR 2002.

Why is the term “stem” used? This is apparently used to count multiple stems that have sprouted from previously harvested redwood stumps (Section 6.2.1.2.3). Simpson could reach the “15 stem count” very quickly from two or three sprouting stumps, then proceed to harvest the remaining conifers, leaving the alders in place for the “shade” canopy requirement. The size of current redwoods should be considered, with the largest trees not harvested (as in CFPR 2002). The time required to grow redwoods to the size of key LWD pieces is beyond the 50 years of this plan – and the current measures will allow Simpson to harvest the largest trees, leaving a minimal number of trees just barely over 16” dbh that then could be harvested on the next entry. A 16-inch dbh conifer would be 80 years old (approximating 4 to 5 years per inch of growth increment). This management scheme will never allow the riparian zone to function as a lateral riparian community.

Why is there no agency oversight or participation in the selection of conifers likely to recruit? It seems like in the many years that Simpson has taken to develop its draft AHCP they could have mapped their riparian zones along fish-bearing streams and included in the AHCP exactly what they were going to harvest and retain for future LWD recruitment. Agency biologists should play an active role in the selection of trees likely to recruit (Ligon et al. 1999). Which set of criteria is over-riding: Section 6.2.1.2.5 – “Likely” or Section 6.2.1.2.6 - “Unlikely” Factors to Recruit? There are numerous situations where trees would have factors on both lists – such as:

- a tree leaning away from the stream, yet is on a slope;
- a “clonal group” (sprouted stump) that is leaning towards the stream;
- a redwood is leaning towards the stream, but others are between it and the creek.

There are many permutations for making an argument why a particular tree was ultimately “unlikely” to recruit. Also, with no agency oversight there is no opportunity to know if trees likely to recruit were actually harvested. The Agencies should be allowed to perform pre-harvest inspections too if there is a question regarding the selection of likely to recruitment trees (Section 6.3.7).

Safety of timber fallers is important, but as currently stated (Section 6.2.1.2.7 – Tree Falling for Safety Purposes) this does not address how to avoid the loss of recruitable LWD. If anything, this can be a loophole to potentially target the harvesting of larger redwoods remaining within the riparian zone. A better way to state this operational practice might be, “when selecting areas for cable-yarding corridors, the RFP will locate the corridors in a manner such as to eliminate or reduce the need to fall and extract conifers that are likely to provide recruitable LWD.”

Reestablishment of mature conifers as the dominant riparian component is stated as one of the biological objectives of the AHCP. However, the riparian management measures identified in the AHCP will not adequately rehabilitate riparian areas currently devoid of mature redwoods. The objective of the AHCP should be to allow riparian to recover towards late-seral conditions not vaguely described as numerous conifers in the 80 to 120 year-old range. Does Simpson encourage management of the riparian zone as a multi-aged stand with late-successional forest characteristics? Although Simpson accommodates harvest within the floodplain, no vision for riparian zone recovery (e.g., late-successional stand composition) is offered. Key large redwoods should be permanently dedicated to the stream – not potentially harvested at a date after the AHCP expires. The SRP Report (Ligon et al. 1999) concludes that current rules regarding the harvest of riparian stands are insufficient in protecting current sources of recruitable redwood LWD and the growth of future recruitable LWD. If an AHCP applicant desires an incidental take permit, then they should be proposing riparian standards well above the current CFPR’s. The measures proposed in the proposed Plan are no better than current rules, and if aggressively applied, actually provide less protection than the current rules in protecting and restoring depleted sources of conifer LWD in riparian areas.²

² The HCP and DEIS imply that modeling analysis has been done to elucidate the effectiveness of the riparian prescriptions in providing large wood. However, there is no disclosure of this analysis, though it is referenced in summary fashion at 7-15 and 7-16, and the DEIS relies uncritically on this analysis. Without full disclosure of the data and methodology, there is no way to evaluate the claims that the buffers provide certain percentages of total potential recruitment for site potential tree height (managed and unmanaged). Even taking this analysis at face value, it is unclear why large wood recruitment potential that is 88% of unmanaged for Class I, 73% for Class II-2 and 57% for Class II-1 is adequate to meet the needs of the covered species. There is no recruitment estimated at all for Class IIIs and virtually zero upland sources provided. Apparently, Simpson is relying on its prohibition against cutting of trees “judged likely to recruit” and its assessment that most wood that actually becomes “functional” in Class II streams originates from inner gorges or other areas near the stream. Simpson estimates on this basis that “the majority of the functional LWD will be provided by the Class II RMZs.” 7-17. We further question reliance on Reid and Hilton, “Buffering the Buffer,” (cited at 7-16) for support of the LWD analysis and claims that the proposed measures will meet objectives. How is this research being applied? The premise of this paper is that the physical integrity of stream channels can be protected if the characteristics and rates of tree fall along buffered reaches are similar to those of undisturbed forests. The key finding is that due to fringe area trigger-tree effects, “the core zone over which natural rates of tree fall would need to be sustained is wider than the one-tree height’s width previously assumed,” and that an additional width is necessary to sustain background rates. For the site studied in

Response to Comment G10-51

Slope stability measures

The Plan's Adaptive Management Program provides a mechanism to implement changes to the Operating Conservation Program as necessary, within the limits of the AMRA (see IA paragraph 10.0, AHCP/CCAA Section 6.2.6 and Master Response 15). Regarding adaptive management, see responses to Comments C4-6, C4-29, G3-58, G3-59, G3-67, G3-72 through and including G3-77, G3-86, G5-2, G10-15, G10-49, G10-53, S1-14, and S5-32, among others. The commenter correctly notes that "the goal of these Plan prescriptions is not attainment of some biological objective" (see Master Response 12). Instead, the Operating Conservation Program has been developed to meet the Permit issuance criteria discussed in EIS Section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8. The establishment of the 70 percent threshold to evaluate the effectiveness of the conservation measure for protection of SSSs has been discussed in Master Response 16. The Plan includes measures to reduce sediment input from roads and other sources (see, e.g., AHCP/CCAA Sections 6.2.3 and 6.2.4). However, selection of specific measures to include in an operating conservation program are within the discretion of the Permit applicant. The Services' role during the development of the operating conservation program is to "be prepared to advise" and to judge its consistency with the ESA approval criteria as a whole once the application is complete (HCP Handbook at 3-6 and 3-7). The Services believe this Plan meets these criteria.

Regarding the landslide regime, AHCP/CCAA Section 4 describes and assesses the current status of the covered species in the Plan Area, including landslides as they relate to landform development

5. Summary and Recommendations for Riparian Zones

The CFPR, if implemented faithfully within the regulatory language enacted (especially CFPR 2001), provides a better long-term strategy for protecting and restoring a watershed's riparian zone than the proposed Simpson AHCP. It seems to us that a 50-yr AHCP should not be a reward for being required to follow existing rules. A 50-yr agreement should be awarded when the Plan clearly establishes a heightened dedication to restoration above the present, and likely future, regulatory authority. Many proposed actions in the AHCP are at or below the minimums stipulated in the CFPR. The CFPR and its implementation was found inadequate for protecting anadromous salmonid species (Ligon et al. 1999). Proposed AHCP actions exceeding minimum CFPR requirements still do not meet the stated intentions of the CFPR. Instead, a management plan dedicated to preventing and repairing watershed-wide CWEs and enabling timely habitat recovery for species of concern and the ecosystem deserves the long-term responsibility of an AHCP. Specific recommendations include: (1) locate WLTL boundary at twice maximum bankfull stage on all Class I and II watercourses, (2) adopt the recruitment tree rule in CFPR 2001 but eliminate specific loopholes, (3) engage in agency oversight in selecting recruitment trees as the SRP Report recommends, and (4) inventory sprouting redwoods as "one tree."

G10-50

C. SLOPE STABILITY MEASURES

G10-51

I. Overview

The plan applies prescriptions to three Mass Wasting Prescription Zones (MWPZs): Steep Streamside Slopes, Headwall Swales and Deep-Seated Landslides. On "Steep Streamside Slopes" (SSS), default prescriptions apply on Class I and II streams. These prescriptions are susceptible to adaptive management of both delineation and prescriptions. On "Headwall Swales" default prescriptions also apply. These areas are SHALSTAB based w/field verification. There is no adaptive management applicable to either the delineation or the prescription. On "Deep-Seated Landslides" default prescriptions. Delineation is map-based and there is no adaptive management.

In addition, "default" slope stability conservation measure will be applied to some shallow rapid landslides i.e. under 6.2.4 to those that are not road-related and that are "field verified to be active or which are likely to be reactivated by harvesting, and that have a reasonable potential to delivery sediment directly to a watercourse, and that are at least 200 square feet in plan view."

the paper, North Fork Caspar Creek, it was proposed that "an uncut fringe-zone of 3 to 4 tree height's width would be necessary if woody debris inputs are to be maintained at rates similar to those for undisturbed forest channels." It does not appear that Simpson is citing this paper for these contentions. The riparian analysis references functionality compared to "managed potential tree height." There is no basis establishing this as an appropriate metric to state riparian large wood objectives.

(AHCP/CCAA Section 4.2.2). AHCP/CCAA Section 5 assesses potential impacts of take on the covered species and their habitats (see, for example, AHCP/CCAA Section 5.3.1), slope stability and other measures are set forth in the Operating Conservation Program (AHCP/CCAA Section 6.2.2). In AHCP/CCAA Section 7, conclusions are drawn regarding Operating Conservation Program measures, including slope stability measures (see AHCP/CCAA Section 7.2.1.2.3). A specific comparison of historic and current landslide regimes is neither required nor necessary to the Services' determination that the Plan meets ESA Section 10 requirements.

Steep Streamside Slope Prescriptions

As indicated above, baseline conditions have been addressed in Master Response 1. As discussed in Master Response 12, biological goals and objectives in a prescription-based HCP like this Plan are not intended to be achieved. Instead, they guide the development of the specific measures included in the Operating Conservation Program. Therefore, it would be neither necessary nor appropriate for the Plan to clarify how attainment with goals would be measured. Further, the question is not, as the commenter suggests, whether sediment delivery from harvesting activities on SSSs "is large enough to adversely affect stream habitat or to prevent habitat recovery. The question, more accurately stated, is whether the Plan as a whole will meet the ESA Section 10 Permit requirements (see Master Response 8). The Services believe that it does.

Composition of the suite of measures included in an operating conservation program, including whether to limit activities on steep streamside slopes, lies within the discretion of the Permit applicant. The role of the Services during the development of the operating conservation program is to "be prepared to advise" and to judge its

consistency with the ESA approval criteria as a whole once the application is complete (HCP Handbook at 3-6 and 3-7). Here, Green Diamond has elected to include protective zones for SSSs and the Services' role is not to question the basis for its width, but to determine whether, as a whole, the Plan meets ESA Section 10 requirements. Similarly, comments regarding metrics that would be used under the Plan are noted. However, again, the role of the Services is not to require the substitution of specific mechanisms, but to judge the adequacy of the Plan overall and, once approved, enforce it (see generally Master Response 14).

Appendices D and F

The monitoring program focuses on the effectiveness of the Operating Conservation Program in meeting the Permit approval criteria and requirements for the Plan and ensuring that permitted take does not appreciably reduce the likelihood of survival and recovery of the species in the wild. It does not focus on specific potential causes of take, such as slope failure.

Headwall Swales

The goal of the Plan is to conserve habitat for and mitigate impacts on six aquatic species. AHCP/CCAA Section 1.1. The selection of specific prescriptions, including any restriction on entrance into headwall swales, is a matter of the Permit applicant's discretion. HCP Handbook at 3-19. The Services' role during the development of a conservation program is to "be prepared to advise" and to judge its consistency with the ESA approval criteria once the application is complete. HCP Handbook at 3-6 and 3-7. The ESA does not require that any particular

measure be adopted or imposed, but only that its criteria for Permit issuance be met. Issuance criteria are discussed in EIS section 1.3, AHCP/CCAA Section 1.4.1 and Master Response 8. The Services believe this Plan meets these criteria. Each of the prescriptions in the Operating Conservation Program, including single-tree selection, contributes to conserving habitat for and minimizing impacts on the covered species.

The commenter also asks about the methodology for developing site-specific alternative prescriptions. Resource professionals will use their best professional judgment to accommodate site-specific conditions. Individual headwall swales will be qualitatively evaluated in the field by a California Registered Geologist for alternative prescriptions. Slope qualities that may be evaluated to assess relative landslide potential may include but will not necessarily be limited to slope position, slope gradients, channel gradient, relative vertical relief, degree of slope convergence, bedrock or soil type, presence and orientation of geologic structures, relative abundance or thickness of colluvium, vegetative indicators, hydrologic characteristics, and the interpreted landslide history at the site and in similar surrounding terrain

Deep-seated Landslides

As noted above, the selection of specific prescriptions, including whether or how to address landsliding, is a matter of the Permit applicant's discretion (HCP Handbook at 3-19). The Services' role during the development of the conservation program is to "*be prepared to advise*" and to judge its consistency with the ESA approval criteria once the application is complete (HCP Handbook at 3-6 and 3-7). The ESA does not require that any particular measure be adopted or imposed, including those identified in this comment, but only that the ESA Section 10 Permit issuance criteria be met (See Master Response 8). The Services believe this Plan meets these criteria.

Shallow Rapid Landslides

See above discussion regarding the allocation of responsibility between the Permit applicant (Green Diamond) and the Services in developing the Operating Conservation Program.

The apparent basis for these measures is stated by the following assumption:

"The potential effects of forest management on factors that may contribute to slope failure . . . can be partially mitigated through prescriptions that limit changes in root strength and hillslope hydrology that can result from timber harvesting, and by improving construction standards associated with road or skid trails." 6-74.

As the above statement reveals, the goal of these plan prescriptions is not attainment of some biological objective. Rather "partial mitigation" is the objective, and this objective is arbitrarily quantified by the goal of a 70% reduction. This number is nowhere related to any desired biological outcome or to a habitat outcome that bears some relationship to biological needs. In order for a volume related measure to have meaning here, it must be explicitly related to existing and projected levels of cumulative effects and to some biologically relevant outcome.

In the Holocene (last ca. 10,000 years), affected species have adapted to the periodic delivery of large volumes of coarse and fine sediment to stream channels as a consequence of slope failures produced by storms. It should be the goal of this HCP to ensure that the volume of this periodic delivery is not further increased by management. As such, management should avoid road building and harvest activities that demonstrably have contributed to large sediment deliveries during storms. Roads have much greater negative effect on slope stability than harvesting of trees away from roads. Therefore, it is especially critical to prevent road construction on steep streamside slopes and across headwater swales.

Moreover, there is no discussion of the current versus historical landslide regime and how changes in the qualitative characteristics of landslides affect the balance of positive and negative impacts from such slides. Nor is there any analysis relating to management-induced alteration of the frequency of failure – which is the metric most correlated with increases in turbidity and suspended sediment – both episodic and chronic, throughout stream systems experiencing increases in landslide-induced /pulses of sediment.

2. *Steep Streamside Slopes Prescriptions*³

Default prescriptions are stated in terms of "maximum slope distance" and "minimum slope gradient."⁴ The most restrictive management takes place in the riparian portion of the SSS, or

³ Summary of SSS prescriptions at 6-83. The MSG varies by HPA and may be 60, 65 or 70%. The prescriptions also vary by Stream class as follows:

CLASS I:	Inner: 70 feet or to slope break Outer: Rest of distance out to 150, 200 or 475 by HPA or slope break
CLASS II-2:	Inner: 30 feet or to slope break Outer: 100 or 200 feet by HPA or slope break
CLASS II-1:	Inner: 30 feet or slope break Outer: 70 or 100 feet by HPA or slope break

the RSMZ. These areas are "no harvest" only in Coastal Klamath and Blue Creek HPAs. Others have no harvest inner buffers with 85% canopy retention in outer buffers on Class I and II-2 streams. Class II-1 has 85% inner and 75% outer retention requirements. SMZs outside riparian areas have less restriction.

Simpson's focus on steep streamside areas is based on the following rationale:

"Sediment budget and landslide inventories conducted in northcoast California have documented that streamside landslides constitute the bulk (50%-90%) of landslide-derived sediment delivered to streams [citations omitted]. This is consistent with preliminary landslide data collected on the Plan Area through the studies identified in Section 4.3. Moreover, preliminary landslide data collected on Simpson property reveals the bulk of sediment appears to be derived from landslides originating on the larger watercourses (Class I and Class II-2)." 6-78.

The stated goals of the prescriptions are to "[a]chieve a 70% reduction in management-related sediment delivery from landslides compared to delivery volumes from landslides in appropriate historical clearcut reference areas" An alternative goal is also stated: "A maximum of a 30% relative increase in landslide-related sediment delivery compared to merchantable-sized second growth in uncut SSS zones may be used as another comparative standard to determine the effectiveness of the conservation measures." 6-78.

The stated goals of the SSS measures themselves are problematic. First, there is nothing that indicates the ecological significance of the 70% reduction goal or the 40% increase goal, their relation to the survival of Covered Species or to natural rates and timing of landslides. Both inappropriately rely on a baseline of managed conditions. Second, the Plan does not make clear how attainment with either goal would be measured.

Criteria for whether or not to harvest a steep streamside slope are based on predictions as to how much sediment may enter a water course if harvest takes place. 6.3.2.3. These criteria are clearly presented. However, the relevant underlying issue is whether sediment delivery to channels from steep streamside slopes, caused by harvesting, is large enough to adversely affect stream habitat or to prevent habitat recovery. This fundamental issue is not addressed. There is

⁴ The area to which prescriptions apply was apparently based on the following factors: 1. Field measurements of cumulative sediment delivery from Simpson study of 471 sites; 2. % of cumulative sediment delivery from shallow slides wholly originating in streamside slopes from 471 site study; 3. Slope gradients estimated to capture 80% of volume; 4. Landslide crown distance from Class I and II streams estimated to capture 60% of volume; 5. Field verification of presence/absence of a topographic benches/breaks in slope ("reasonable ability for slope failures to deliver sediment to a watercourse") Benches and slope breaks are to be identified on site basis for whether of sufficient degree (below minimum) and distance to "likely impede" sediment delivery – through THP process. "For a slope break to truncate an SSS zone before its maximum distance, the slope break must be of a sufficient decline in slope gradient (below the minimum slope gradient for the given HPA) and of sufficient distance that it may be reasonably expected to impede sediment delivery to watercourses from shallow landslides originating above the slope break." 6-80; 6. HPA groups (uses 4 groups).

no connect made between sediment delivery from stream side slopes and habitat stability or degradation.

In sum, the ecological basis for SSS protection measures is not revealed and would seem at odds with the implicit goal of erosion prevention. Section 6.2.2.1.3 specifies a maximum width of SSS zones. What is the basis for these maximum widths? If the goal is for the zone to mitigate erosion to streams, then it would seem arbitrary to designate any specific maximum widths for SSS zones. Rather, the specific streamside slope and extent should dictate the local maximum width. From an erosion hazard standpoint, the limit to maximum width should be dictated by the local site.

In addition, the metrics stated in the measures are problematic from the perspective of implementation. 6.2.2.1.6 states various canopy retention requirements. Wouldn't % stem density be easier to measure, substantiate and review in the field, and therefore be less vulnerable to varying interpretations?

3. *Comments on Slope Stability Studies and Effectiveness Monitoring Protocols (Appendix D); Sediment Delivery Studies and Modeling Efforts (Appendix F)*

Three Slope Stability-related studies are proposed at 6.5 and detailed in Appendix D. These are: (1) the SSS Delineation Study (7 years, with implied changes to prescriptions); (2) the SSS Assessment Study (at least 15 years), and; (3) the Mass Wasting Assessment (20 years with preliminary report in 7 years, final by 20 years; "The purpose is to examine any relationships between mass wasting processes and timber management practices." 6.3.5 and D.3.5) Appendix D details the three studies (D.3.3; D3..4; D.3.5).

Close examination of the proposed studies reveals that all three of these monitoring protocols assess the appropriateness of management guidelines without respect to the effect of steep streamside slope stability on riparian and stream habitat. The monitoring protocols should allow assessment of how slope failures are impacting habitat and if habitat is either being degraded or not improved because of sediment delivery from slope instability. Because any agreement between the Services and Simpson protects Simpson from prosecution under the ESA, the monitoring protocols ought to more directly be monitoring whether practices are improving or at the least not degrading habitat.

The Sediment Delivery Studies and modeling efforts detailed in Appendix F are likewise beside the point. Simpson and the Services both are concerned about sediment delivery to channels because of the effect of this delivery on riparian and stream habitat, and because degraded habitat perpetuates threatened or endangered species. Therefore sediment delivery studies, if they are to address the concerns of the Services, should be tied to habitat studies. A sediment delivery study that does not at the same time address whether sediment that is delivered is affecting habitat is an incomplete study. The studies proposed at Appendix F are incomplete on this count.

The sediment delivery studies outlined in appendix F utilize standard techniques to inventory sediment on hillslopes and quantify sediment delivery to channels. The results of these studies are put into a model and the sensitivity, or reliability, of the results are tested with statistical Monte Carlo-type simulations. However, the studies do not address whether the volumes of sediment measured and predicted will result in improved, static or degraded stream habitat. Obviously this is a more difficult problem than the problem addressed by Simpson studies in Appendix F, but posing any less complicated a problem is not going to address the pertinent issue: how is habitat affected by sediment delivery? The studies proposed in Appendix F should not be used as a smokescreen by the applicant or the Services to avoid addressing the truly critical issues.

4. *Headwall Swale Identification, Default and "Alternative" Prescriptions⁵*

Simpson allows harvesting on headwater swales. 6.2.2.2.2., Headwater swales, by their geomorphology, are the erosional hot spots on the upper slopes. Identifying the headwater swales means one is identifying those headwater areas most likely to fail in the upper portions of basins as a consequence of high intensity rainfall. The appropriate goal for this HCP is to reduce the current landslide rate by some proportion; not entering headwater swales is the best way to avoid landsliding in upper slope sites.⁶

The stated intent of these prescriptions, however, does not appear to be reduction of management-induced sliding. Rather, it is to maintain a viable root network and "some" overstory canopy within the swale and steep side-slopes. It is stated that single tree selection will limit the loss of root strength and provide canopy for rainfall interception and evapotranspiration. Typically, Simpson states that tree retention "should be greatest along the axis of the headwall swales and decrease up-slope." It is not clear what effect these prescriptions are expected to have on the likelihood of slide occurrence or their impacts.

Site specific alternative prescriptions are allowed, with making the operation more cost effective as a criterion. However, no methodology for developing these alternatives is specified. Therefore, it is impossible to predict the effects of these alternatives on the covered species. Such standardless measures should not be included in this plan as they are not subject to analysis.

⁵ Headwalls will be SHALTAB identified, with boundaries adjusted by "appropriately trained field personnel." "Field review of headwall swales will focus on slope characteristics that are considered at present to be most important to landslide processes in such areas . . . the steepness (typically greater than 70%) of the slopes, the relative degree of slope convergence, the appearance of a concave or inverted teardrop or spoon-shaped slope, the presence of a build-up of colluvium, various vegetative indicators, and the apparent landslide history of the site and similar sites in the area." (6-86).

⁶ Mary Scurlock Personal Communication with Harvey Kelsey, 12 November 2002.

5. *Deep Seated Landslides*

Prescriptions are proposed to be identified by the RPF or RG during THP layout. The 1st Criterion is: A scarp or ground crack that exhibits at least three inches of horizontal displacement or at least six inches of vertical displacement that typically exposes bare mineral soil, but that may be partially revegetated, and where field observations clearly indicate that the movement occurred within approximately the past 50 to 100 years. If the first criterion obtains, the prescription is No Harvest within 25 feet upslope of the identified scarp or ground crack. 6.2.3.1. The 2nd Criterion is a convex, lobate landslide toe that exhibits evidence of activity within approximately the past 50-100 years. Here, the prescription is No Harvest on toe or within 25 feet upslope from the inflection point of the convex, lobate landslide toe. If neither criterion obtains, the FPRs will be applied. Simpson may still fall trees for worker safety and have yarding corridors up to 25 feet wide. New roads across active, deep seated slides, toes or scarps, or on steep areas of dormant sites (>50%) are allowed with input from an RG or RPF "with experience in road construction in steep forested terrain."

There is no basis provided for these prescriptions. For example, why does a crack have to have three inches of horizontal displacement or six inches of vertical displacement before the crack is deemed to have been produced by an active landslide? What is the basis for the three inches and six inches? A crack with considerably smaller dimensions (one inch horizontal and one inch vertical) could indicate an active deep seated landslide. Also, why are tilted tree not used as a criteria of activity?

Likewise, there is no basis for the 25 foot minimum distance upslope of which harvesting will not take place if a crack is discovered. For deep seated landslides, the factors of altered surface water pathways and groundwater levels due to harvest are more important than root strength factors, therefore, the 25-foot distance seems arbitrary – a more important issue is whether upslope harvest will increase runoff to the crack.⁷

⁷ The stated rationale for the deep seated prescriptions is as follows:

"In general, large scale deep-seated landslides are considered less sensitive to most forest management activities compared to shallow landslides . . . principal effects of forest management . . . from a geotechnical perspective . . . increased soil moisture from reduced rainfall interception and reduced evapotranspiration, undercutting or overloading of the slide roads or skid trails and delivery of concentrated surface runoff from roads or skid trails outside the natural contributing area of the landslide.: 6-88.

"The potential impact of harvest activities on the stability of deep-seated landslides may be partially mitigated by retaining a component of the timber stand on and upslope of active or historically active landslides and constructing or reconstructing roads across such slides under the guidance of an experienced geologist or geotechnical engineer." (There is no basis for this statement).

"management objectives are focused on existing slides . . because it is assumed that the impact of harvest activities is greater on active slides than on dormant slides with respect to sediment production"

"The intent of these prescriptions is to provide tree retention that maintains a viable root network to mitigate possible headward regression of the headscarp and shallow landslides that might occur on the toe and result in

These prescriptions fail to recognize that management can have influences on the triggering of sliding on metastable areas. The prescriptions offer some protection to deep-seated slides that are already actively failing, but not to metastable features that could be activated as a consequence of alteration of slope drainage, soil water, and vegetative conditions. The risk that any individual metastable feature is mobilized as a result of vegetative removal in the contributing catchment area may be small relative to the probability of initiating a shallow landslide after a headwall swale is logged, but the potentially massive volume and prolonged discharge of sediment that can be delivered if a large earthflow, debris slide or block slide is triggered makes the net biological risk on the same or higher order of magnitude. Preventative prescriptions are required to ensure that metastable features are accurately identified prior to logging, and that forest management, including logging, herbicide application, and road construction or road drainage do not increase the risk of landslide initiation. Research in the region has shown that such metastable landforms deform actively and rapidly in response to high-intensity rainfall events (e.g., Swanston et al. 1995 and many others) and that logging of the contributing drainage area can dramatically accelerate deformation of slopes within metastable landforms (Swanston et al. 1988), potentially triggering failures that deliver directly to downslope streams. These observations indicate that logging or road construction that alter soil water patterns on metastable slopes can increase rate of slope deformation, increasing the likelihood of initiating or re-initiating large, progressive slope failures. Adequate protective prescriptions include specific criteria and commitments to accurately identify metastable landforms prior to logging and road construction operations, and to minimize the probability of triggering a failure by avoiding road construction and vegetation removal within the metastable slope feature and its contributing drainage area up-slope. The plan shows no evidence that these measures were considered, and provides no explanation of why they were not identified and adopted.

6. *Shallow rapid prescriptions*

It is stated that the intent of this conservation measure is to "minimize" any backwashing of landslide scarps or erosion of the scarps, scar, or deposit that might result in ongoing sediment delivery. Only slides field verified to be active/likely to reactivate and deliver to a watercourse and at least "200 feet in plan view" get a prescription. The prescription is: No cut in slide boundary, and 70% overstory within 50 feet above and on sides. Site specific review may result in alternative prescriptions, although how these will be determined is not specified. The shallow rapid prescriptions specified at 6-17 explicitly to not apply to road related slides. The applicable guidance there is that on location guidance at 6.2.3.5.7.4

This prescription focuses entirely on mitigating the impacts of slides already occurring. The plan fails to include effective prescriptions for preventing management-induced increases of landslide frequency and altered slide distributions over background. That would require prescriptions that

sediment delivery to a watercourse. A possible benefit of these conservation measures on some landslides will be some measure of rainfall interception and evapotranspiration to reduce the migration of water from the crown area into the slide mass, although this may not be related to sediment delivery in all cases. The conservation measures for deep-seated landslides area subject to alternative prescriptions, as described in Section 6.3.2." At 6-89. As stated in the text, root strength is not the priority factor related to harvest near deep seated features.

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Response to Comment G10-52

70 Percent Effectiveness

As provided in AHCP/CCAA Section 6.3.5.4.3 and Master Response 16, the 70 percent effectiveness pertains to preventing management-related sediment delivery from landslides compared to that from appropriate historical clear-cut reference areas, not road-related sediment.

Storm-proofing

Storm-proofing roads is one measure among many intended to reduce sediment input into Plan Area waterbodies. It is not expected that this activity, alone, will offset all sediment-related impacts. Instead, the benefits of implementing this measure will combine with the implementation of the other measures in the Operating Conservation Program to collectively improve habitat conditions in the Plan Area. See Master Response 3, regarding cumulative effects.

New Roads

The potential for increased sediment input has been identified as a potential impact to the covered species and their habitats (AHCP/CCAA Section 5.3; Appendix E) and the road management measures have been designed to address it. Benefits derived from the road decommissioning and upgrading standards

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apply to areas at high risk for shallow-rapid landsliding likely to deliver to streams occupied by covered species.

D. ROADS MANAGEMENT MEASURES

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The road related measures encompass a comprehensive transportation planning program that includes risk assessment and prioritization of problem roads and crossings, road upgrading, road removal and road maintenance. Seasonal road use restrictions are included. Road decommissioning procedures will generally follow Weaver and Hagans (1994).

New roads locations are restricted as follows:

"Wherever feasible, roads are located on or close to ridge tops or on benches where the road prism can be build with the least soil displacement." New roads will not drain directly to watercourses. Simpson agrees to "[a]void" locating on steep slopes, inner gorges or steep toe slopes, headwall swales or debris side slopes and deep seated landslides . . . otherwise Slope Stability measures will be followed. 6-105.

No new roads are permitted in RMZs except crossings or spurs off existing that extend outside RMZ. Simpson also will "avoid paralleling watercourses" and the "least impact alternatives" will be selected." Other provisions include: width specifications, 12" compacted rock for winter hauling; limitations on grade to 15% "except where appropriate to reach strategic control points and avoid higher risk topography".

The identification of priority road work will be based on criteria including stream and road density, species occurrence and slope. See 6-95. All high and moderate sites are slated to be treated by end of permit period. A financial commitment of \$2.5 million/year is included for the first 15 years, with a total commitment of \$37.5 million. This cost is based on future sediment yield estimates. If these estimates prove incorrect, there is some room to change the expense level and the timeline (6-99).

The panel identified several key concerns with the assumptions and analysis regarding the roads provisions:

1. *There is an unsubstantiated assumption that the reduction of road-related sediment by 70% from current levels is adequate to avoid road-related jeopardy to the covered species.*

As stated above, there is no biological basis for this objective, as 70% is tied neither to the natural regime nor to the habitat needs of the covered species.

2. *A related problem is the extent to which reduction or prevention of road related sediment production though stormproofing actually is capable of offsetting the large amounts of sediment produced from silviculturally related landslides.*

(AHCP/CCAA Sections 6.2.3.3 and 6.2.3.4) and from the acceleration of the Implementation Plan (AHCP/CCAA Section 6.2.3.2.1), associated with new roads constructed in accordance with AHCP/CCAA Section 2.2.3.5 are expected to lessen the sediment input from roads. However, the Services emphasize that the Operating Conservation Program is not judged on a measure-by-measure basis, but rather whether, as a whole, it meets the Permit issuance requirements of ESA Section 10, which have been discussed in Master Response 8. The Service believe that the Plan, including its provisions for new road construction, meet these requirements.

Discretion

See Master Response 14.

Culverts and Drainage Structures

See above discussion regarding the allocation of responsibility between Green Diamond and the Services in developing the Operating Conservation Program.

100-year Flood

This is not, as the commenter suggests, an “irrational assumption.” Instead, the conclusion that a flood that is equal or greater in magnitude than a 100-year recurrence interval event is not reasonably foreseeable during the term of this Plan is based on historical evidence in the Plan Area (AHCP/CCAA Section 6.2.9.4).

Logging Pursuant to Changed Circumstances

Regarding the development of prescriptions included in the Operating Conservation Program, see the discussion above. Regarding changed circumstances, see AHCP/CCAA Sections 6.2.9 and 6.3.9, and IA paragraph 9. Changed circumstances will not trigger large-scale salvage logging. Salvage of trees after any catastrophic natural event must comply with State law plus the additional measures provided within RMZs and SMZs. See AHCP/CCAA Section 6.2.9.

Daylighting

See discussion above regarding the development of prescriptions included in the Operating Conservation Program. The Services believe that the Operating Conservation Program as a whole, including the daylighting provisions, meets ESA Section 10 requirements.

Road density

As provided in AHCP/CCAA Section 6.3.5.4.3 and Master Response 16, the 70 percent effectiveness pertains to preventing management-related sediment delivery from landslides compared to that from appropriate historical clear-cut reference areas, not road-related sediment.

See discussion above regarding the development of prescriptions included in the Operating Conservation Program. In the Plan and IA, Green Diamond has committed to implement an Operating Conservation Program to conserve habitat for and mitigate impacts on the covered species (see AHCP/CCAA Section 1.1). The Services believe that this

Operating Conservation Program as a whole, including the amount of road density it contemplates, meets ESA Section 10 requirements.

Water Drafting

The Services, in the EIS, have studied the environmental effects of the action, including its provisions on water drafting. NMFS does not intend to monitor water drafting in the Plan Area pursuant to the Plan. Enforceability of the Plan is addressed in IA Paragraph 13 and Master Response 14. The commenter points out a typographical error in AHCP/CCAA Section 6.3.3.11. The correct word should be “minimum.”

“With the proposed drafting standards, the ~~maximum~~ minimum fill up time per truck is 10 minutes.”

\$2.5 Million Commitment

The Services disagree that there are any “unanswered questions” about the \$2.5 million/year commitment to treat high and medium priority potential sediment sources on roads. The Plan calls for Green Diamond to provide a total of \$37.5 million (to be inflation adjusted in 2002 dollars for each year of the acceleration period) in the Plan Area, which includes the Lower Klamath area, during the first 15 years of the Permits’ 50-year term to treat high and moderate priority road-related sediment sites. An average of \$2.5 million will be provided each year and at least \$7.5 million will be provided during the first three years. AHCP/CCAA Sections 6.2.3.2.1 and 6.2.3.2.3, as further described in AHCP/CCAA Section 6.3.3.2.5, discuss the mechanisms to be used and the prioritization approach that will be employed to allocate funds between THP and non-THP road work. An estimated \$1 million per year will be spent on THP-related sites, and the remainder (\$1.5 million) on non-THP related sites. See EIS Section 2.2.1.3 (Road and Landing Construction, Reconstruction, and Maintenance).

The commenter does not provide, and the Services are not aware of, any ESA-related reason why funding sources need to be specified in the Plan. Green Diamond’s commitment of \$2.5 million per year will be in effect regardless of their ability to secure funding from outside parties. The Service’s assume that any funding Green Diamond uses to comply with this conservation measure will be done so, in compliance with all applicable Federal and State laws and regulations. Green Diamond will report to the Services every two years on compliance with this measure of the Plan, and will provide assurance of funding as described in the IA. Implementation of the Plan is not expected to interfere with existing partnerships, but will perhaps supplement other efforts and allow existing partnerships to continue and proliferate. See also responses to Comments G10-53 and S5-63, among others.

As noted by Dr. Leslie Reid in her analysis of the Palco HCP in 1998, it is important not to overstate the benefits of stormproofing roads are highly speculative and does "not modify the frequency of failure of what appear to be stable road fill." (Reid, 1998 p. 16). " Rather, the benefits of stormproofing are most clear with respect to problem culverts. Id. As demonstrated by the Bear Creek study (PWA 1998a), prevention of all road-related sediment production between 190 and 1997 would have offset less than 25% of the sediment produced from silviculturally related landslides during that period." Roads will continue to fail even after "storm-proofing," and the overall effectiveness of the method will need to be evaluated to determine the extent to which it redresses road-related problems." Id. (finding that while storm-proofing is a "very good idea" it is "not a panacea").

3. ***Given the uncertainties about the potential to mitigate for landscape-level alterations of the sediment and hydrological regimes through road upgrades, it would be prudent for this plan to avoid making the situation worse through new roadbuilding, particularly in steep and riparian locations.***

Although roads are prohibited from draining "directly" into watercourses, as noted above the road location standards still will allow new roadbuilding in riparian areas and on landslide-prone-locations such as headwall swales. As long as roads are located in such positions, the "prohibition" will be a hollow gesture, because frequent delivery of sediment and water from roads to streams is a physical inevitability. This HCP, like those negotiated with most non-divine parties, cannot actually prohibit physics.

Appropriately, there is a prohibition on new roads in designated RSMZs, but exceptions are made for road crossings and "spurs" from existing roads that extend outside the designated riparian zone. Simpson also will "avoid paralleling watercourses" and the "least impact alternatives" "will be selected" at Simpson's discretion. But this prohibition does not extend to the SSS zones. Specifically, with respect to 6.2.2.1.9: Road construction, the premise is that major road construction will - at times - be required on steep stream side slopes. For a plan that is to be approved for the next 50 years, the premise more appropriately should be that major roads will not be constructed on steep streamside slopes. Major roads that cross steep streamside slopes may fail during major floods.

In Subsections 6.2.2.1.9; 6.2.2.2.5 and 6.2.2.3.6, Simpson states that they will not undertake major new road construction in RSMZs, SMZs, headwater sales or areas of shallow rapid landslides without evaluation and approval of "a RG and a RPF with experience in road construction in steep forested terrain". But the relevant resource protection issue is not whether an RG or RPF is involved in road design – the core issue is whether road construction in sensitive areas will generate major sediment input to channels during big storms. It is this second issue that should have the attention of RGs and RPFs, yet is not clear that road construction will be constrained by their advice on this basis. The key question must be: will roads in these areas be likely to generate sediment during storms? If so, it is not appropriate to locate, much less design, such roads.

4. ***Direction pertaining to roads on landslide-prone areas contains open-ended discretionary guidance.***

For example:

- * "Wherever ***feasible***, roads are located on or close to ridge tops or on benches where the road prism can be build with the least soil displacement."
- * "***Avoid*** locating on steep slopes, inner gorges or steep toe slopes, headwall swales or debris side slopes and deep seated landslides . . . otherwise Slope Stability measures will be followed. 6-105. [emphasis added].

5. ***The AHCP lacks firm commitment to an inventory and prioritization of culverts that are currently migration barriers to ESA-listed salmonid species. (Section 6.3.3.6.5 – Drainage Structures and Section 6.3.3.7.2 – Methods).***

Simpson may be planning to treat stream crossings to provide fish passage as they move across their property, but without an inventory it seems there would be good chance that high-priority crossings may continue to block fish migration and/or cause the direct take of listed species for decades to come.

6. ***The Plan makes an irrational assumption that "A flood that is equal or greater in magnitude than a 100-year recurrence interval event is not reasonably foreseeable during the term of this Plan, and thus it would be considered "unforeseen circumstance.""*** 6-182.

The above statement contradicts the fact that a 100-year flood is statistically foreseeable within the term of this permit.

7. ***Ecological Justification for Logging Pursuant to Changed Circumstances Lacking.***

Section 6.3.9, Measures for Changed Circumstances, lists a suite of acts (fire, windthrow, disease, etc) that would constitute "changed circumstances" and allow the harvest of trees, including those likely to recruit from riparian areas. Could this initiate large-scale salvage logging? For the most part, the circumstances listed are natural watershed processes that should be expected to occur, and many would potentially lead to large, episodic LWD recruitment events – why should these processes trigger salvage logging? Because of the large-scale clear-cutting that has already occurred in most plan area watersheds, one would expect the cases of wind-throw of riparian buffer strips to happen more frequently than to riparian trees within uncut stands. It makes no biological sense for the AHCP to allow harvest of all fallen trees after their clear-cut management increased the likelihood (and magnitude) of the wind-throw to occur.

8. Daylighting is problematic.

The Plan proposes to “daylight” roads as a means to achieve the rapid drying of roads during wet period. Although the intention is to create road conditions that would allow hauling during the winter with less impact, the impact of this measure will be to significantly increase the total area of forest cover removed in association with the road network. While this is billed as a fairly minor provision, it is possible that thousands of acres will be logged in the name of daylighting in riparian areas and on steep slopes with unintended environmental consequences. Furthermore, the same conditions that create dry, driveable road in wet periods will lead to dryer, dustier road conditions in summer.

9. Beyond the 70% overall reduction goal, there are no watershed-specific commitments to reduction of road-related impacts.

For example, the general intent to “decrease the mileage of management roads over time” (6-93) is not translated into a commitment regarding drainage-specific road density except that “net density” will decrease over the life of the plan.

10. Water Drafting Provisions Infeasible.

The panel is concerned that the provisions concerning water drafting purport to limit drafting rates without discussing the feasibility of meeting such limits given the limitations of existing equipment. Does Simpson current own or plan to retrofit equipment such that the limits on ambient flow are attainable? Further concerns exist that the level of dewatering allowed will have significant ecological impacts and will constitute direct take of species using pool habitats. The proposal would allow dewatering of disconnected pools by a third, although where there is an ambient flow the draft rate must be limited to 10%. There is no basis for a finding that lowering pools by 1/3 would be a limited impact to one pool. There are further concerns about the habitat depletion at the margins of the pools, depletion of the local hyporheic zone and disruption of vertical flow exchange, as well as depletion farther downstream.

Section 6.3.3.11, Water Drafting, states that the measures allow a maximum fill-time (for a 3,500 gallon truck) of 10 minutes. Shouldn't “maximum” be replaced with “minimum” fill time? NMFS Southwest Region (2001) has a policy that no more than 10% of the ambient surface flow can be diverted. In the restrictions, the following is stated – “drafting will not occur in streams with less than 1 cfs of surface.” Does this mean Simpson can draft water out of fish-bearing streams with surface flows as little as 1 cfs? If so, it will take a lot longer than 10 minutes to fill the truck at 10% of the ambient surface flow!

Does NMFS plan to monitor water drafting? This may be a mitigation measures that reads well on paper, but is not feasible to implement, with little or no way to enforce it. The development of off-channel storage tanks to trickle-fill at a maximum of 10% ambient streamflow) would be a better management measure to prevent water truck operators from over-pumping small fish-

Response to Comment G10-53

Present Conditions

Baseline conditions are discussed in Master Response 1. Cumulative effects are discussed in Master Response 3. See also responses to Comments G10-15, G10-49, and G10-51, among others, regarding adaptive management.

Cumulative Effects Monitoring

Several of the long term monitoring programs (i.e., long-term habitat assessment, large woody debris, outmigrant trapping, summer juvenile salmonid population, road-related and other mass wasting, and SSS delineation and SSS assessment) under the Plan (AHCP/CCAA Section 6.2.5.3) have the potential to identify conditions of concern in the HPAs, including cumulative watershed effects, so that any necessary adjustments in Operating Conservation Program measures can be made.

Fish Response Thresholds

bearing streams. Also, in the event of fire these tanks would provide a valuable source of water for fire suppression.

11. There are many unanswered questions regarding the \$2.5 million spending cap.

The proposed Road Management Measures specifies that an average of \$2.5 million per year will be provided during the first 15 years of the HCP period to treat high and moderate priority sediment sites throughout the covered ownership. These measures fail, however, to clearly state whether this \$2.5 million is a firm commitment from Simpson itself or whether funds secured by outside parties to conduct sediment treatment activities on Simpson's property will be included in this figure. Additionally, the measures do not specify how much of this amount is above and beyond current road maintenance expenditures, nor does it clearly specify how sediment treatment activities will follow the provided prioritization matrices. Simpson should (in clear language) commit to a firm annual dollar amount, state that this amount does not include outside money, and encourage other groups to use the Simpson money as a match to garner additional funds to treat high-priority sites.

High road densities and associated high sediment yield have long been identified as the single most significant impact to fish populations and associated habitat throughout the Lower Klamath Sub-basin (e.g. see 1991 Long Range Plan for the Klamath River Basin Conservation Area Restoration Program). Simpson and the Yurok Tribe have established a partnership to address watershed restoration needs throughout the Lower Klamath tributaries, with road decommissioning and related sediment treatment projects being the priority focus of this effort. Simpson needs to identify a firm monetary commitment that they will contribute to this effort, above and beyond any additional funds that might be secured by outside entities to conduct such work on their ownership. Watershed restoration funds from outside funding sources, such as those the Klamath Task Force oversees, cannot be utilized for mitigation identified in a timber harvest plan or HCP. In addition, the HCP needs to clearly identify how these funds will be used to treat priority sediment sources based on and in conjunction with the Lower Klamath watershed prioritization and restoration planning efforts currently underway in the sub-basin. Without such information and a clear understanding of how such efforts will be funded, it is impossible to discern if the Road Management Measures will adequately treat sedimentation problems within the Lower Klamath to the point that aquatic habitat degradation trends will be reversed, let alone allow the recovery of impacted habitat.

G10-52 We recommend that the cap should not include spending to maintain appurtenant roads if they are built in high risk areas.

E. ADAPTIVE MANAGEMENT

G10-53 On the positive side, the use of amphibians to monitor and adaptively manage, headwater tributaries (Class II and III) is welcome. Water temperature monitoring relative to a true baseline, rather than the present condition, can help improve how harvesting is done adjacent to the floodplain. Both can improve how a given acre can be better harvested to minimize onsite

Population numbers were not used to develop the biological goals and objectives or the conservation measures. The conservation measures related to fish species in the Operating Conservation Program were geared towards fish habitat, and therefore, the monitoring thresholds are habitat-based.

Amphibian Response Mechanisms

Green Diamond has documented extinction and recolonization of several torrent salamander sites as part of other amphibian studies. See AHCP/CCAA Appendix D.1.6.3. Estimates of extinction rates or specifics of recolonization dynamics are not known. See discussion above regarding the development of the Operating Conservation Program and ESA requirements, as well as Master Response 8. The Services believe that the Plan, including its adaptive management triggers, meet ESA Section 10 requirements.

Water Temperature

See discussion above regarding the development of the Operating Conservation Program and ESA requirements, as well as Master Response 8. The Services believe that the Plan, including its rapid response and other effectiveness monitoring measures, meet ESA Section 10 requirements. Rate of harvest is discussed in Master Response 11.

Adaptive Management Reserve Account

The AMRA, including how it is funded, its opening balance and how it may change, and how it would be used under the Plan to benefit the covered species and their habitats, is discussed in AHCP/CCAA Sections 6.2.6.3 and 6.3.6.2, as well as in Master Response 15. Adaptive management is a tool to address uncertainty in an HCP, and the Services believe that, as structured in the Plan, the adaptive management program is the best mechanism to address any uncertainty in this Plan. The Services have found that the AMRA is adequate for the purposes provided in the Plan

effects. However, there are several serious basic flaws in the proposed adaptive management scheme, many of which already have been touched upon.

1. No assessment of present conditions relative to a biologically relevant standard

The only standard evoked is the present condition. The Plan does not address whether cumulative watershed effects are already occurring. Instead, the present condition is considered the baseline condition.

2. No cumulative effects monitoring

The AHCP does not propose long-term monitoring that will document the occurrence of cumulative watershed effects. The plan should compare rapid response to long-term response variables. Key questions include: Where are cumulative effects expected? Where is the monitoring occurring to adaptively manage? It is not clear that the two significantly overlap spatially or temporally. An assessment requires response variables (the dependent variables) that (1) are measured where cumulative effects are most likely to be occurring and (2) can rapidly respond within the timeframe of the management practice. For example, the timeframe should be well within the harvest schedule for the North Fork Mad River and the likely location of cumulative effects could be anywhere within the stream network but especially within downstream reaches of larger tributaries and the mainstem where CWEs are most likely to be expressed.

3. Fish response thresholds missing

There are no biologically-based thresholds of any kind based on fish monitoring. Although Simpson appears willing to use changes in amphibian numbers as triggers, there is no attempt to do so for fish. Watershed-level productivity can be used, regardless of ocean conditions.

4. Amphibian response mechanisms are flawed

The proposed mechanism simply will not provide a responsive trigger for habitat changes significant to torrent salamanders. (See amphibian thresholds at 6-55; Rationale at 6-155). The "yellow light" triggers are: (1) "Any extinction of a sub-population," and; (2) "An apparent decline in the average index of sub-population size in treatment sites compared to control sites." The "red light" indicators are: (1) "A statistically significant increase in the extinction of treatment sub-populations relative to control streams," or; (2) "A significant increase in the net rate of extinctions over the landscapes."

It is a misnomer to refer to the type of monitoring proposed for amphibians as "rapid response monitoring." This will provide long-term population monitoring information, which goes to long term trends, not short-term responses to management. This does not mean that such monitoring is not useful, it is just not appropriate for an adaptive management trigger in a 50-year plan.

There is an apparent contradiction in the rationale behind the use of Torrent Salamanders as “red light” thresholds in that it is explicitly conceded that this species is not well-suited to red light thresholds. Another problem with the amphibian triggers is that it will take the life of this plan to show anything statistically significant on amphibian populations.

Nor is it clear how the “net rate of extinctions over the landscape” will be measured. Although Simpson alludes to amphibians demonstrating a metapopulation dynamic of recolonization following local extinctions, no data to support these contentions are cited or presented. See Section IV. *infra*.

5. *Water Temperature*

Temperature monitoring, as outlined in the Plan, will not be a sensitive adaptive management trigger geared to recovering the riparian zone. See Section III. *infra*.

In sum, the Simpson AHCP provides no rapid response variable, and therefore no timely implementation of an adaptive management protocol capable of assessing and managing downstream cumulative watershed effects. As noted in Section III, suspended sediment and its counterpart turbidity are the quickest response variables available but these are missing from the adaptive management scheme. As also noted above, avoidance of the rate-of-harvest is evident in the adaptive management sections of the AHCP. In Section 6.2.6.2 (p.6-57), the rate-of-harvest is not considered a potential management option for adaptive management. Negotiable management options given relate to RMZ prescription, road management, and mass wasting risk. No one will argue these are minor management concerns, but scientific knowledge indicates and common sense demands that the rate at which a watershed’s surface is disturbed can be as important as how that surface is disturbed. By not considering the rate-of-harvest or monitoring for downstream cumulative effects, the Simpson AHCP maintains CDF’s doctrine that a given set of “best” management practices will prevent harmful CWEs.

6. *AMRA Mechanism Unclear*

In Section 6.3.6.2, the logic of AMRA in providing protection to the habitat of listed species is not clear. The 1,550 fully stocked acres seems quite low when compared to a plan area of 400,000+ acres – less than 0.5% of the plan area? Also, does the AHCP propose that once the “account” is drained that no additional mitigations measures can be applied to any THP’s until the “account” is credited? What exactly is a “credit”?

G10-53

Response to Comment G10-54

The ESA does not require implementation of the Plan to result in “biological recovery,” but that the impacts of taking an ITP species be minimized and mitigated to the maximum extent practicable, that authorized take not appreciably reduce the likelihood of survival and recovery of the covered species in the wild, and that other Permit issuance criteria (see Master Response 8) be met. The Services believe that this Plan satisfies these requirements.

Response to Comment G10-55

Green Diamond’s analysis considered activities on its own property and on other privately-owned commercial timberland property within the 11 HPAs that, over the term of the Plan and Permits, either are included within the Plan Area or are eligible for inclusion in the Plan Area as provided in IA paragraph 11. AHCP/CCAA Table 1-1 acknowledges that Green Diamond owns 82% of the Coastal Klamath HPA, and the Assessment of Habitat Conditions and Status of covered species in the Coastal Klamath HPA are provided in AHCP/CCAA Section 4.4.2. Further, as noted above, the Operating Conservation Program provides an additional layer of regulation that supplements existing applicable laws (AHCP/CCAA Section 1.4.2). In addition to satisfying requirements imposed under other provisions of the Federal ESA, Green Diamond also must continue to comply with requirements imposed under Federal laws, such as the Klamath River Basin Fishery Resources Restoration Act (16 U.S.C. Section 460ss).

VI. COMMENTS ON DEIS AND OTHER ANALYSIS RELATING THE PROPOSED PLAN TO THE RECOVERY OF COVERED SPECIES

A. Findings relative to impacts on recovery not linked to state or federal recovery planning

G10-54

It is not clear how the HCP will meet the objectives of an ESA-recovery plan especially since NMFS has yet to develop a federal recovery plan for coho salmon. Also, with the August, 2002 state listing of coho salmon the California Department of Fish and Game is just starting the development of a state recovery plan. Simpson’s HCP should remain flexible to allow the addition of mitigations to remain consistent with the goals and objectives of both the NMFS and CDFG recovery plans (when completed).

B. In describing the plan area, the HCP downplays the importance of Simpson’s holdings in the Klamath Basin by stating that their properties comprise only 2% of the basin

G10-55

For restoration purposes, the Klamath Basin Task Force has divided the Klamath watershed into five distinct sub-basins. The Lower Klamath sub-basin comprises the watershed boundary from the confluence of the Trinity River down to the Pacific Ocean. The anadromous salmonid stocks that spawn and rear in Lower Klamath tributaries exhibit life-history patterns more typical of small coastal streams than the stocks of fish that utilize tributaries in the middle and upper Klamath River. Simpson presently owns over 80% of the Lower Klamath sub-basin (excluding Federally owned portions of Blue Creek) and manages this property exclusively for commercial timber production. The Lower Klamath sub-basin also contains a major portion of the remaining coho salmon habitat in the Klamath Basin and thus it is imperative that the HCP be properly prepared so it meets the goals of the Endangered Species Act, as well as aiding in meeting the goals and objectives of the Klamath Basin Restoration Act.

G10-56

C. Neither the AHCP nor DEIS address herbicides

The AHCP fails to acknowledge the potential impacts of herbicides on water quality and listed aquatic species. There is substantial literature available to generate a summary of how the application of herbicides may affect aquatic species. From this literature review Simpson would could list the steps they (or their sub-contractors) would follow to minimize the accidental introduction of substances commonly used in commercial timber management; such as Atrazine; Triclopyr; Garlon 3 and 4; 2,4-D; and Glyphosate into Plan Area streams. Section 2, Description of Simpson’s Timber Operations and Forest Management Activities, describes Simpson’s current management activities, yet fails to provide information regarding the application of herbicides other than Simpson is not asking for incidental take for this action. Description of annual, repeated use of herbicides over several thousand acres of forest lands that drain into waterways that support listed species and are utilized by the public is completely omitted. Even if Simpson is not seeking incidental take for herbicides, it seems that the use of herbicides is an integral part of their management and should be fully disclosed to allow reviewers to decide if there might be

Response to Comment G10-56

Herbicide use has been discussed in Master Response 4.

Response to Comment G10-57

The ESA requires that a proposed HCP meet the criteria set forth in ESA Section 10 and accompanying regulations before a Permit may be issued. The ESA does not require that the measures included an HCP's operating conservation program exceed all requirements of other applicable laws or that the plan provide a measure-by-measure comparison of prescriptions to State law provisions. Instead, the ESA requires an operating conservation program to meet the ESA section 10 issuance criteria provided in EIS section 1.3, AHCP/CCAA Section 1.4.1 and discussed in Master Response 8. Here, the Services recognize that the Plan supplements all existing governing laws, including the CFPRs (see AHCP/CCAA Section 1.4 and Master Response 7) and believe that the Plan satisfies ESA Section 10 Permit issuance requirements.

Response to Comment G10-58

Basis for Permit Approval

Permit issuance criteria, including the ITP requirement to minimize and mitigate the effects of take to the maximum extent practicable, are discussed in Master Response 8. As indicated in above responses, the Services believe that these criteria have been satisfied.

Best Available Scientific Information

Regulations governing ITP applications that are submitted for NMFS' approval require submittal of an HCP to be based on the

G10-56

the potential for take. Because herbicides are often applied by sub-contractors with crews of migrant workers who may or may not understand English and the potential toxicity of the chemicals they are be told to work with - the plan should address the use of sub-contractors and how Simpson plans to train sub-contractors to properly apply the correct mitigations to reduce or eliminate potential take (as well as reduce the workers' exposure to herbicides). It is impossible to wholly assess the potential impacts of Simpson's proposed activities or the effectiveness of proposed mitigation measures without being able to assess all interrelated portions of their timber management activities. As a result, herbicide use should be included and effectively considered within the HCP planning context.

G10-57

D. Comparative Analysis with California Rules Lacking

It is difficult to determine and assess the mitigations listed for each of Simpson's management activities. In particular, it is difficult to discern how the mitigations differ from existing California State Forest Practice Rules (CFPR's). State regulations governing past timber harvest related activities have clearly been inadequate in terms of protecting anadromous salmonid populations and associated in-stream and riparian habitat. A recent review of the CFPR's by NMFS confirmed that the current rules were insufficient in protecting or promoting the de-listing of listed species. This AHCP needs to clearly identify all mitigation measures and specify if and how they differ from current FPR's. Only when such a comparison is made can one begin to assess if this plan will provide the necessary added protective measures to protect coho populations and lead to a significant long-term improvement in aquatic and riparian habitat conditions.

G10-58

VII. CONCLUSIONS

There has not been presented a rational analytical basis for a finding that the applicable decision standards have been met. Specifically, best available scientific information has not been brought to bear to demonstrate that the proposed measures actually will mitigate for the harm caused by timber harvest and associated activities to the maximum extent practicable. Notably, rigorous comparative analysis with recent policy recommendations by the Services and independent review bodies, and other HCPs in the region is lacking. Likewise, there is no foundation upon which to support a finding that the proposed measures, even where they purport to exceed the requirements of current rules, will not impair the survival and recovery of the covered species and/or jeopardize their continued existence.

best scientific and commercial data available, 50 C.F.R. section 222.307(b)(5). NMFS believes that Green Diamond's Plan meets this requirement.

NEPA (42 U.S.C.A. Section 4371 et seq.; 40 C.F.R. Parts 1500-15081) requires the Services and other agencies of the Federal government to use information "of high quality." 40 CFR Section 1500.1(b). More specifically, NEPA requires the Services to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.... [to] identify any methodologies used and... make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." 40 CFR Section 1502.24. However, "ultimately, of course, it is not better documents but better decisions that count. NEPA's purpose is not to generate paperwork - even excellent paperwork - but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." 40 CFR Section 1500.1(c).

Comparative Analysis

The relationship between this Plan and other HCPs in the region, specifically the Pacific Lumber Company's HCP, has been discussed in Master Response 6.

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