Environmental Assessment of
Hoopa Valley Tribe
Forest Management Plan
Alternatives for the Period 2011 – 2025

Hoopa Valley Indian Reservation,
Humboldt County, California

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I. INTRODUCTION

A. Purpose and Need

The purpose of this Environmental Assessment document is to summarize and disclose to the public the Tribe's findings for environmental impacts expected from various project alternatives presented in the 2011-2025 Hoopa Valley Programmatic Forest Management Plan (Plan). Such public disclosure and scoping of federalized actions is required pursuant to the National Environmental Policy Act (NEPA) of 1969. Although the Hoopa Valley Tribe is a sovereign nation, certain proposed forest management actions in the Plan require funding, permitting, or approval by the Bureau of Indian Affairs, thus "federalizing" these actions.

The purpose of the Plan is to outline a management strategy for the Hoopa Valley Indian Tribe's forestlands for the period of 2011 to 2025, and to govern the utilization of the timber and forest resources. The Plan has been addressed in this Environmental Assessment which documents the potential impacts of the management and all mitigation measures implemented to assure that no significant adverse impacts occurs. Part of the purpose of the Plan is to provide guidelines to the Tribal membership concerning their forest resources, and to outline the management strategy alternative chosen by the Tribal Council for the benefit of the Tribal members. It is also to establish a balance between societal needs, which include Tribal economic needs and tribal membership employment, with resource sustainability. One of the purposes of harvest operations should be the capitalization of future equipment to continue to sustainably utilize the Tribal resources. However, the plan must be flexible to account for market fluctuations. This includes the utilization of hardwood stands to tap into emerging markets. The plan must balance Tribal economics, job creation/maintenance, and resource needs. A final purpose of the Plan will be to outline and facilitate the shift of forestry practices to the utilization of second growth plantations.

The need for this document is a result of the expiration of the previous Forest Management Plan which was adopted in 1992 and had an initial duration of 1993 to 2003, but was amended and extended to continue through the end of 2009. The plan will continue the protection measures for listed species, such as the Northern Spotted owl, the marbled murrelet, and the Southern Oregon/Northern California Coasts (SONCC) Coho salmon. The plan also includes revised or updated protection measures including: preservation of sensitive and/or culturally important plant and animal species, Riparian Protection Zones, and No-cut designations on lands with cultural value to the Tribe and/or its members.

The plan will continue to meet the Management by Objectives (MBO) goals adopted by the Tribe in 1992.

The Hoopa Valley Indian Reservation contains approximately 87,500 acres of commercial timberland with about 1.3 billion feet of commercially important timber species. Tribes with significant timber resources (category 1 tribes, see BOFRP Status of Management Planning and Inventories report, 1991) are required to have current approved forest management plans.

Forest management plans are required under current 25 CFR 163 guidelines as well as under the Indian Forest Management Act, November, 1990. Content of plans is governed by 53 IAM Chapter 2. In addition, Supplement 2 guides the process of developing management plans and accompanying environmental documentation. Management Plans are required to be updated following re-measurement of Continuous Forest Inventory (CFI) plots and completion of a Timber Inventory Analysis of these plots.

The Forestry Department currently sells timber and manages Tribal forest lands under authority of an "Amended Forest Management Plan for the Hoopa Valley Indian Reservation, for the period of 1994 to 2008 " first adopted in 1992, amended in 2000 and extended in 2008. The amended plan was signed the Tribal Chairman on May 13, 2002, and by the Pacific Regional Director on October 8, 2002.

The Tribe completed the latest CFI re-measurement in 2007. As required by 53 BIAM Supplement 2, an inventory analysis of the CFI plots was conducted jointly by the Tribe and BIA (see Timber Inventory Analysis, 2010). Although various allowable harvest schedules were calculated that ranged from 10.971 MMBF per year to 7.25 MMBF per year, no land allocations were proposed and no alternative forest management practices were recommended. Instead, the Timber Inventory Analysis (TIA) set the Allowable harvest level at 8.889 MMBF for the current CFI period. The TIA also acted as an analysis of the management situation and provided a look at reasonably expected outputs and incomes from various harvest and investment strategies on the reservation.

With emerging markets and technologies, the impetus for Value Added Industry has grown, especially in anticipation of the reduced revenues expected as a shift to second growth timber is made. The creation of value added projects will increase tribal employment and help to balance the revenue needs of the Tribe with employment needs of Tribal members in the more competitive market for second growth timber. Outlining the economic procedures needed to capitalize such projects is an essential component of the economic analyses of the Forest Management Plan. In addition, another emerging Tribal need is an expansion of Urban Areas. Current population growth has depleted available housing sites within the current Urban Area. As the rising generation ages, greater demand has arisen, and there is a need for the FMP to address this issue, within the scope of forest management. This includes accounting for the potential loss of timber revenues as timberland is removed from the base.

With issues arising on adjacent lands, the FMP has been structured to account for the ramifications these issues place on the Tribe. The expansion of the wilderness adjacent to the east side of the reservation, the increase of bear damage to plantations, and the intrusion of barred owls into northern spotted owl territories are examples of issues evolving within the scope of forest management. There is a need for these issues to be dealt with in a forest management context.

B. Plan Period

In conformance with the original plan there are three planning periods covered by the plan. The initial period covered is the 15 years from the date of approval, which includes the life of the plan from 2011 through 2026. This will tie the plan period fairly closely to the CFI inventory dates and/or the date of the timber inventory analysis. Future CFI surveys will occur in 2016 and 2026

For the previous plan version of the FMP, the Tribe's Timber Inventory Analysis (TIA) was not approved until 2010. That caused the Tribe to extend the previous FMP through two 1-year extensions while the TIA was being drafted. That gave the Plan an effective life of 3 years since the CFI interval ran from 2006 to 2007. The fifteen year plan period will cross over the next CHI and coincide with the 2026 CFI. This will require a prompt completion of the CFI and TIA or result is potential FMP extensions.

The Tribe has now passed out of the original 15-year planning period and entered the second plan period, for which approval was not previously required. In the prior FMP, the 50 year "Vision" period, from 1994-2043, was used to predict reasonably foreseeable consequences, particularly the

condition of the forest as a result of the management prescribed. In this revision, the comparison with the previous plan indicates that the Tribe's actions were consistent with the previous vision.

This plan follows the 2006 CFI and subsequent Timber Inventory Analysis, which was completed in June of 2010. The length of this plan is 15 years in accordance with 53 IAM 24.C. This period overlaps the projected 2016 CFI and extends to the end of the 2106-2026 CFI interval. It is preferable to have the CFI and resulting TIA complete prior to the end of the FMP period, however, the 15-year life is the BIA approved lifespan for FMPs under present regulations.

This extends the second, or 50-year, planning period from 2011 to 2060. This is the Vision portion of the plan, and is does not require approval, but is used to predict reasonably foreseeable consequences, particularly the condition of the forest as a result of the proposed management prescription.

The last plan period is the planning horizon of 120 years, or 2011 - 2130. This planning period is not a requirement of the regulations, however, for even aged managed forests with the potential for significant clearcutting, predicted long term yield is sensitive to management for periods of at least 2 rotations. In forestry terms, the planning horizon needs to be sufficiently long enough to be able to determine the eventual long term yield from a fully "regulated" forest. In this instance a planning period of 160 years is equivalent to 2 conversion periods (i.e. 80 years, each). The conversion period is the period over which most or all of the intensively managed lands have been entered for a regeneration harvest. The results of this entry at any point in the conversion period need to be projected at least 80 or more years past the end of the conversion period in order to determine long term sustainability.

Due to modeling constraints, the planning horizon is limited to 120 years. Since the even aged rotations are projected to last 80 years a more realistic planning horizon would be 140 or 160 years rather than 120. Due to technical limitations with scheduling growth and harvest during 12 decades (let alone 14 or 16 decades) on 250 different land types, the planning team arbitrarily determined that 120 years was sufficient to determine sustainability.

C. Tiering

This environmental assessment is tiered to the FMP environmental assessment which was prepared by the Forest Plan Technical Committee on April 18, 1994 to document the environmental consequences of implementing the eight forest management alternatives prepared for the Tribal Council. The Council approved the analysis in the Environmental Assessment and chose to adopt Alternative 3C as the Tribe's Forest Management Plan on April 20, 1994. The BIA approved the plan on September 20, 1994 and issued a Finding of No Significant Impacts (FONSI) documenting the fact the adopted plan would not have significant consequences on September 20, 1994.

Although this is a completely new Forest Management Plan, it fundamentally has not changed from the course set in the 1994 Plan. The Alterations that are included in this Plan are simply to update the original plan to bring it in conformance with current regulations and current management requirements to balance changing climate and technological opportunities with the cultural desires of the Tribal membership. This Assessment will address these proposed alterations and the potential impact each brings based on the original EA for the 1994 FMP, which is the "No-Action" Alternative.

D. Scoping

In 2007, Tribal Forestry in preparation of the December 31, 2008 expiration date of the FMP initiated an Inter-Disciplinary Team Review with a Plan Initiation Letter on March 27, 2007. This was followed by a notification in the Newspaper in July of 2007. The table on the following page lists the Dates of the IDT meetings.

2007	2008	2009	2010
April 9	January 3	January 29	May 26
May 31	February 13	February 26	June 30
July 26	February 29	April 2	July 27
September 6	March 20	April 30	August 26
October 30		June 4	October 12
November 27		June 30	
December 19		July 23	

A Tribal Newsletter was prepared for the Tribal Membership meeting in December of 2007. This newsletter outlined a number of the issues and concerns that the IDT determined to address in the revision of the FMP, as well as presenting some of the successes that Tribal Forestry considered important.

The yearly tribal Sovereign's Day celebration provided an opportunity to get the impressions and concerns of the Membership. At each of these events, Tribal Forestry gave out a Forestry Department Shirt to anyone filling out a questionnaire. Although lacking any statistical viability, these polls nonetheless gave the IDT a sense of the Tribal memberships concerns. These polls occurred on August 10, 2007, August 8, 2008, and August 10, 2009. For the 2010 Sovereign's Day celebration, a typical questionnaire was put out, but a raffle for a Tribal Forestry Jacket was also held for those filling out a more complete survey. The general survey contained the goals of the FMP. The results are shown in the following table.

Question	Importance (%)		
	Not	A little	Very
Protect and enhance Tribal sovereignty within and through forest management.	2	7	92
Protect and enhance tribal natural resources and cultural sites from wildland fire commensurate with the natural resources values at risk.	0	9	91
Manage for healthy and diverse timber stands on tribal lands.	1	14	85
Plan, construct and maintain roads in a cost effective manner while minimizing adverse impacts to other resources for both the tribal and BIA road systems.	1	23	76
Conserve and develop natural resources for the present and future benefit of the Hoopa Tribe, while promoting tribal cultural integrity.	2	10	88
Develop the Hoopa forest by the Hupa people for the purpose of promoting a self-sustaining community.	2	12	86
Maximize economic returns for all harvested forest resources.	3	25	72
Preserve forests in their natural state wherever it is considered and authorized.	0	23	77
Promote soil conservation and reduce erosion to as great an extent as possible.	3	18	79
Document and clearly disclose the environmental consequences of a proposed action consistent with the requirements of NEPA.	2	29	69
Develop tribal expertise in areas of resource management.	2	18	81
Harvest the allowable annual cut in such a manner as to provide the maximum monetary return to the Hoopa Tribe within prevailing legal and environmental constraints.	6	26	67
Recover, conserve, and maintain salmon and steelhead that are listed as threatened or endangered for the exercise of tribal treaty fishing rights; maintain cultural, grazing, prairie, watershed rehabilitation and wildlife management standards and guidelines	1	14	85
Continue efforts to reduce arson fire due to high wildland resource values.	0	15	85
Promote a permit and small timber sale and salvage program which will assure opportunities for all Indian loggers.	8	26	67
Protect the forest from insects, disease and fire commensurate with the values at risk.	5	20	75
Provide Hoopa Tribal members with dependable year round forestry employment when it is sound management practice and cost effective.	3	19	77

The raffle questionnaire was longer asking for the participant's views on a number of items. Participants were asked about various FMP measures and their level of concern about the particular issue. The FMP was presented to the Tribal Council at three working meetings in preparation of the council action.

On February 23, 2011, The Tribal Council voted on the FMP and placed under a 30 Legislative Procedures Act Review. Two public meetings were held on March 28, 2011 and April 11, 2011. During those meetings all members of the public and Tribal Council were able to ask questions. There were no proposed amendments to the FMP during these meetings. The Council approved the FMP in its entirety without any proposed revisions or amendments on April 22, 2011.

E. Issues, Concerns and Opportunities - Scoping

Throughout the FMP revision process, the Inter Disciplinary Team built on the previous FMP, convinced that the Plan needed only to be modified rather than entirely recreated. Many of the concern or opportunity statements from the previous Review are still applicable. However, there are new issues, concerns and opportunities (ICO's) appearing in this revision of the FMP. Through Sovereign Day questionnaires and Tribal newsletters, the Forestry Department has tried to educate the members about the activities of Tribal Forestry. The ICO's have been grouped into a handful of classifications.

Tribally and Federally Imposed Restrictions Issues, Concerns and Opportunities

There are a number of concerns about the restrictions within the FMP due to Tribal priorities, as well as the influence of outside regulatory agencies.

Maintaining No-harvest reserves is a worthy goal of the FMP. However, if these areas cannot be managed, they cannot be protected from natural occurrences. Changes in the level of protection should be made to preserve the reserves. The FMP should allow some type of management to help preserve those areas, like the dance ground which is heavy to litter and in danger of a fire.

There is a concern that the FMP should include provisions which would permit the Tribe to assume functions that are ordinarily performed by Federal agencies. There is the assumption that the development of guidelines leading to the creation of a Tribal ESA, ~~it~~ would encourage Federal agencies to better meet Tribal needs. Additionally, it is assumed this would empower Tribal departments to emphasize Tribal agendas rather than those set by the agencies. However, since the FMP must rely on existing regulations governed by Federal agencies, it may be beyond the scope of the FMP to create Tribal ESA documents.

As an example, the Tribe could develop a Tribal Historic Preservation Office (THPO) program. Under this scenario, the THPO may assume some of the functions that would otherwise be the responsibility of the State Historic Preservation Office (SHPO). For instance, the THPO could carry out the function of commenting on Section 106 of the National Historic Preservation Act actions triggered by Federal agency undertakings. Under such circumstances, the lead Federal agency would consult with the THPO in lieu of the SHPO on their actions that could affect significant cultural resources.

FMP restrictions on Logging Issues, Concerns and Opportunities

There is concern about the length of the logging season due to ESA restrictions. This has potential to impact families as it limits the amount of income that comes in to those reliant on logging. Advocates of logging families worry that the future logging season would be shortened even more due to environmental, ESA and other factors, and that this will negatively impact local jobs~~?~~ .

The future of Hoopa Forest Industries (HFI) is a concern as it provides a number of local jobs to private members. There are concerns that economic hardships will prevent the Tribe from paying for the necessary upgrades in equipment costs to keep it as a viable logging company. And finally, as timber becomes less accessible, how will helicopter logging impact the future of HFI.

Domestic Issues, Concerns and Opportunities

There remains a significant amount of concern about the future housing needs of the Tribal membership. Building homes in the "forest" is a significant issue because homesite development in the "woods" significantly complicates forest management and fire protection. Some believe the FMP must designate housing areas outside the Valley floor as a means of establishing future housing plans and preserving agricultural lands. Protecting agricultural lands will be an important component to incorporate into the Tribe's defense of flows for the Trinity River. The FMP should also describe if timber removed from designated housing areas will be used for site development and installation of utilities.

With housing concerns come concerns about recreation and whether or not the Tribe should maintain current and future trails for recreational or cultural use. Some advocate that the FMP must include the necessary approvals of a Reservation-wide trail system for jogging, packing and biking. This would identify all existing trails, and potentially provide protections for special trails. It might also designate roads that would be incorporated into the trail system as needed.

There is an issue with firewood permits as many feel that a Tribal Membership Card is sufficient for wood cutting and gravel extraction for non-commercial personal purposes. Since the Tribal Council has acted on this, the FMP should be changed so that a Tribal roll card is sufficient for woodcutting and gravel extraction by tribal members for noncommercial use.

Socio-Economic Issues, Concerns and Opportunities

Despite the operation of the FMP for the past sixteen years, there are still revenue issues that come up. This is especially true as the economy outside the Reservation becomes less certain and it impacts the Tribe. During Review there are many who focus on the economic return of forest management. However this is countered by the belief that the Tribe is to manage the forest for the benefit of the tribe, and not to get the best financial return.

Some believe logging to be a key revenue and job generator for the Tribe and any forestry action negatively impacts those opportunities. The shift into second growth is a deep concern as the value of the timber is expected to effectively drop by to half its current value. Many wonder if the Tribe can change from an old growth harvest to a second growth harvest without an economic crash.

This impending change impacts revenues for many departments. The roads department has expressed concern that any reduction in timber sale roadwork impacts Department revenue. HFI is concerned about affording the replacement of equipment to handle the small lumber. Tribal Forestry is looking at how to fund reforestation costs with a lower value on logs. This has potential to require a restructuring of Tribal Forestry and how they get their funds. It also is creates concerns that mandates resulting in costs to the tribe, either by outside agencies or Tribal Departments, not be implemented until adequate funding is obtained.

One opportunity is exploring other non-timber resources that can be developed to off-set possible declines in timber revenues and jobs. This requires considering whether the Tribe will establish a mill and other facilities needed to add value to timber and provide jobs and revenues for the Hoopa community. Time is running out to consider kinds of alternative resources should the tribe explore and what should the tribe do about it before the available mature trees run out.

Resource Issues, Concerns and Opportunities

Roads, streams and wildlife are the main sources of concern and opportunities brought up. However, another pressing matter is a Fire Management Plan that is no long covered under the Forest Management Plan.

Road management is important to manage sediment production and delivery into watercourses. Road maintenance is at times better than road closure. Outside agencies and tribal departments are in agreement that the FMP needs to be modified so that all culvert sizing is done for a 100-year flood event, rather than the current 50-year rating. In difference to the unfunded mandate concern, this should apply to all new road construction and damaged culvert replacement, but should not require the replacement of currently functioning culverts.

In order to address the lowering of the Allowable Annual Cut, and in an effort to increase available volume, some have advocated a reduction in stream buffer widths and protection measures. Any justification of this requires more intensive stream surveys. Without these surveys data to justify any lessening of the current stream protections, the Tribal Fisheries Department recommends that the stream buffers not be decreased. That department also requests that in areas where owl core boundaries are modified, all stream buffers should remain consistent with the rest of the forest. And because stream zone widths in Priority B watersheds are variable, Tribal Fisheries requests that stream buffers be standardized for both priority classifications.

Wildlife concerns all center around the necessity to balance of people needs with wildlife needs. Concerns exist about the potential to change wildlife restrictions and whether any proposed changes will remain adequate in protecting sensitive/Endangered Species Act (ESA) species. Do the needs of the Tribe outweigh the impact for wildlife? And the issue of bears killing trees is a great concern as it impacts the Allowable cut. There is no current solution to the management of bears. Current Management creates perfect habitat for bear damage, but can current management change to address this? Timing of timber harvests can minimize adverse impacts to, or even benefit, some wildlife species. It is a concern that timing of regeneration and Timber Stand Improvement activates be altered to change bear habits and reduce damage. It is also a concern of many tribal members that some form of deer management should be created to increase deer populations.

Some Tribal members desire that a process be developed for the Tribe to enact its own ESA Ordinance. This process would establish appropriate population levels for listed species, viable recovery plans for activities that the Tribe can actually control, and the Hoopa fish hatchery can be incorporated into our Coho recovery plans.

II. DESCRIPTION OF ALTERNATIVES

With the expiration date of the 1994 FMP set for December 31st 2008, the plan was extended for the first of two one-year extensions. At that time the BIA position was that the then current FMP could be re-instigated for another 15 years if no alterations were to be made and conditions were relatively unchanged from the previous Environmental Assessment and its projected impacts. Therefore the current FMP is the "No Action" Alternative and would have the Hoopa Tribe continue operating as it has done for the past fifteen years.

The original FMP Environmental Assessment contained 6 alternatives, varying from an alternative managing the forestlands to maximize timber harvest for revenue generation to an alternative to manage the forest for non-economic resource protection. Through public scoping, a middle of the pack Alternative, Alternative 3 was chosen. However, further IDT and Tribal Council negotiation produced three variations of Alternative 3, focusing on different levels of protection for different resources. Ultimately Alternative 3C was chosen as the Preferred Alternative and has guided management for the past sixteen years. The other Alternatives are discussed in Chapter D of this section and are completely covered in the 1994 EA for the Hoopa Valley Tribe's Forest Management Plan. For a more complete evaluation

As the IDT commenced the assessment on forest management in an effort to develop alternatives, the original six alternatives were evaluated. The differences in these alternatives are so distinct that after fifteen years of operations, none of the other former alternatives could be brought back into consideration. Alternative 3C had so completely dominated management that only new Alternatives could be considered. However, the IDT was not interested in drastic changes in management. Therefore the IDT was content to examine variations to the Original Alternative 3C, which as stated above became the "No Action" Alternative.

Although forest management has not varied substantially from Alternative 3C of the 1994 FMP, which was amended in 2000, there are opportunities that have come before the Tribe which were not addressed in the previous plan. It was also determined that some of the projections of that plan may have been overly optimistic in projecting the mature forest stands available for treatment. That plan was based on a land classification format, which made the document difficult to read and understand. Therefore the IDT determined that a revision of the plan was in order. At that point, the "No Action" Alternative was deemed not to be the preferred Alternative. This document will assess the changes in the management style from the original FMP, and address the potential impacts against a "No Operations" Alternative.

A. Alternative 1 – No Action Alternative

The description of the "No Action" Alternative is as follows.

- The overall vision is for the Reservation's shareholders to receive a moderate income from timber sales and a modest number of jobs from timber management while slightly reducing the precipitous decline in old growth habitat and traditional wildlife species. The vision from a timber standpoint is that within the next 50 years all lands considered for management will have both a young growth and old growth component nearly everywhere. This vision does not include a sawmill, but instead continues the present practice of selling timber to the high bidder through the Tribe's business enterprise.

- The goal is to harvest the Annual Allowable Cut (AAC) on a yearly basis. The AAC is currently set at 8.889 Million Board Feet per year, based on the sustained yield calculations generated from the 2006 Continuous Forest Inventory (CFI). The AAC shall remain the same until after the 2016 CFI data is collected and processed. To achieve the current AAC, approximately 200 to 400 acres will be operated.

- The vision for all intensively managed lands includes modified clearcut logging. The vision also includes not managing significant areas of the Reservation for timber management purposes; instead, timber would be a secondary use to wildlife management. Stands would continue to be managed on an 80 year rotation with maximum young growth sizes reaching 16-30" interspersed with residual old growth.

- This vision includes protecting significant amounts of old growth in a managed setting and from any management at all, such as along riparian areas.

- Within 50 years the vision includes leaving hardwood saw timber sized material for future use, but the extent of hardwood would be reduced over that which exists today. Hardwoods would be reduced somewhat on managed lands and relatively abundant on other lands.

- Within the next 50 years (perhaps in the next 5 years) helicopter logging would be used to reach both accessible and some inaccessible lands. The vision for the mix of logging systems is to move increasingly to cable yarding with an expected mix of 60% cable to 40% cat within the next 5 years. Within the next 50 years the vision includes substantial amounts of modified clearcutting which would be limited to 10 acre patches, each. While this vision includes clearcutting, the modified form of clearcutting proposed would leave significant amounts of residual trees from the existing vegetation, including culls, snags, hardwoods and fast growing conifers as a means to reduce wildlife and aesthetic impacts. Due to proposed timber management systems many new cutblocks would have an overstory remaining after harvest and would mostly have an irregular or clumpy appearance after 10 or 15 years.

- The 50 year vision for this alternative does not leave managed wildlife corridors throughout the Reservation

- The 50 year vision establishes about 1,290 miles of variable width streamside zones on all domestic and non domestic streams on the Reservation. The 50 year vision for these streamside zones includes logging within the riparian zones in most of the non-domestic priority B streamside zones as well as about 1/3 of the Priority A Non-Domestic streamside zones. This vision excludes more acres from timber management than alternatives 1, 2 and 3A, but harvests more acres than alternatives 3, 4 or 5.

- The 50 year vision excludes all Valley and Bald Hills timberlands from any timber management and reserves such lands for housing development. The vision for these lands is to leave the timber remaining on these lands until the lessee requests treatment.

- The 50 year vision for this alternative excludes all timber management from the DeNoTo Trail corridor.

- The 50 year vision includes added concern during the next 50 years over the increasing fire hazard which might potentially result from increased fuel loading in unmanaged stands. In addition the 50 year vision includes much higher concern about fuel loading in future cutover stands since some to much of the activity generated fuels may not have been treated due to the complexity of treatments in "partial cuts."

- This vision includes leaving a substantial component of both low-value and potentially high-value, timber for structural and habitat features necessary for most T&E species and most traditional species. The vision also includes added concern during the next 50 years over increasing fire hazard potentially resulting from increases in untreated slash.

- The vision for the Reservation's road system includes upgrading and or annually maintaining many miles of the Reservation's road system, while barricading closed or dead end roads, particularly on the west side of the Reservation. The 50 year vision for this alternative does not include installation of gates.

- The vision for this alternative includes a moderate amount of after-logging employment and a modest amount of during-logging employment during the 50 year period, compared to today.

- This vision has the potential to provide in excess of $3.5 million dollars, annually, in timber harvest stumpage income as well as providing an additional $35 million dollar “endowment fund" over the next 20 years.

Technically the goal will be to maximize the long term sustained yield average on the intensively managed landbase with major restrictions in harvest method to mitigate wildlife impacts. Several significant reserves would be established including no harvest streamside zones. Single tree and group selection cutting would be prescribed, where allowed, for various lands including the viewshed.

B. Alternative 2 – Proposed Action (Preferred Alternative)

- The overall vision is for the Reservation's shareholders to receive a moderate income from timber sales and a modest number of jobs from timber management while mitigating the decline in old growth habitat and impacts to traditional wildlife species through the retention of old growth structural elements. The vision from a timber standpoint is that within the next 50 years all lands considered for management will have both a young growth and old growth component nearly everywhere. This vision includes a small sawmill to handle cull and special cull logs to create dimensional lumber out of logs that currently do not bring back a return. The remainder of the timber would be sold to the high bidder through the Tribe's business enterprise.

- The goal is to harvest the Annual Allowable Cut (AAC) on a yearly basis. The AAC is currently set at 8.889 Million Board Feet per year, based on the sustained yield calculations generated from the 2006 Continuous Forest Inventory (CFI). The AAC shall remain the same until after the 2016 CFI data is collected and processed. To achieve the current AAC, approximately 200 to 400 acres will be operated.

- The vision for all intensively managed lands would be a combination of shelterwood, group shelterwood, and modified clear-cut logging in old growth stands with a shift to include commercial thinning and Single Tree selection in second growth stands. The vision still includes not managing significant areas of the Reservation for timber management purposes; instead, timber would be a secondary use to wildlife management. Stands would continue to be managed with a targeted 80 year rotation interspersed with residual old growth. The intent is to produce second growth stands with maximum young growth sizes reaching 16-30" DBH. This option does not preclude intensive management of stands as young as 60 years to meet the AAC allotment, in recognitions that past estimates overestimated the abundance of available old growth timber.

- This vision includes protecting significant amounts of old growth in a managed setting and from any management at all, such as along riparian areas, within NSO Core areas, viewshed and dance ground reserves and on extreme Geohazard areas.

- Within 50 years the vision includes utilizing hardwood saw timber and pulpwood for lumber and alternative forest products. Although hardwood stocking levels will be reduced in designated commercial conifer stands, hardwood dominated stands would be perpetuated as commercial lands for repeated hardwood utilization.

- Within the next 50 years helicopter logging would be used to reach only inaccessible lands, but only if road construction is completely unfeasible. The vision for the mix of logging systems is to move increasingly to cable yarding with an expected mix of 60% cable to 40% cat within many previously tractor logged second growth stands converted to cable units. Within the next 50 years the vision includes substantial amounts of modified clearcutting which would be primarily limited to 10 acre patches. While this vision includes clearcutting, the modified form of clearcutting proposed would leave significant amounts of residual trees from the existing vegetation, including culls, snags, hardwoods and fast growing conifers as a means to reduce wildlife and aesthetic impacts. Due to proposed timber management systems many new cutblocks would have an overstory remaining after harvest and would mostly have an irregular or clumpy appearance after 10 or 15 years.

- The 50 year vision for this alternative does not leave un-managed wildlife corridors throughout the Reservation. However, it does have a “wildlife dispersal corridor” system that

serves to connect the surrounding public lands and allows species to move through the Reservation in natural habitat.

- The 50 year vision maintains about ***252*** miles of variable width streamside zones on all domestic and non domestic streams on the Reservation. The 50 year vision for these streamside zones includes logging within the riparian zones in most of the non-domestic priority B streamside zones as well as about 1/3 of the priority A non-domestic streamside zones. This vision excludes approximately the same number of acres from timber management as the "No action" alternative.

- The 50 year vision excludes all Valley and Bald Hills urban zone timberlands from any timber management and reserves such lands for housing development. The vision for these lands is to leave the timber remaining on these lands until the lessee requests treatment. The volume removed will be sold but will not be included as part of the AAC since the acres within the Urban zone do not contribute to the AAC.

- The 50 year vision for this alternative excludes all timber management from the DeNoTo Trail corridor, but allows for treatment of fuels to protect the trail corridor from catastrophic fire, under direction from the Tribal Cultural Committee. This would mostly include hand removal of sub-merchantable material and some limited burning to meet the maintenance desires of the Cultural Committee.

- The 50 year vision includes utilization of the 2008 10-year Fuels Management Plan, and subsequent plans, to reduce fire hazard which might potentially result from increased fuel loading in unmanaged stands. In addition the 50 year vision includes use of those plans to maintain or reduce fuel loading in future cutover stands especially where "partial cut" treatments are utilized.

- This vision includes leaving a substantial component of primarily low economic value, timber for structural and habitat features necessary for most T&E species and most traditional species. The vision also includes added concern during the next 50 years over increasing fire hazard potentially resulting from increases in untreated slash and abundance of young regenerating stands.

- The vision for the Reservation's road system includes upgrading and or annually maintaining many miles of the Reservation's road system, while barricading closed or dead end roads, particularly on the west side of the Reservation. The 50 year vision for this alternative does not include installation of gates.

- The vision for this alternative includes a similar amount of after-logging employment and a modest amount of during-logging employment during the 50 year period, compared to today.

- This vision has the potential to provide in excess of $1.5 to 3.5 million dollars, annually, in timber harvest stumpage income.

Technically the goal will be to maximize the long term sustained yield average on the intensively managed landbase with major restrictions in harvest method to mitigate impacts to fish, wildlife and plants. Several significant reserves would be established including no harvest streamside zones. Single tree and group selection cutting would be prescribed, where allowed, for various lands including the viewshed. Commercial thinning would be used to groom second growth stands for

future harvests. Hardwood management would allow for the potential to increase forest revenues through alternative product creation.

This vision sees the additional changes in management:

- The primary change in the FMP is the restructuring of the document from a collection of land classifications to a structured document produced for ease of use. This makes a side by side comparison with the current FMP difficult. However, all language in the current FMP was incorporated into the proposed revision, prior to incorporating proposed IDT revisions. With the restructuring, new section labels were generated and sections were grouped differently.

- The Northern Spotted Owl Recovery Plan will be revisited from referencing the 1990 Recovery Plan. The Water Quality Control Plan for the North Coast Plan will be removed as a Coordinating Plan since it is superseded by the Tribal Water Quality Control Plan.

- Urban Housing Tree Removal provisions have been included. Tribal Forestry and TEPA/realty have worked together to produce a set of guidelines for urban clearing that should make home site development similar to the CDF Forestland Conversion Exemption process. Hardwood Management Provisions have also been included.

- Wildlife and Biological resources have only minor changes. The most significant is the creation of a Murrelet Zone to preclude having to continually conduct murrelet surveys. A botanical section has been added to the Biological section including invasive plants and a revised culturally significant plant list is added in the appendices of the FMP. This appendix also contains a culturally important animal list.

- Under Road objectives, a switch is being made from the blanket 4 miles per square mile limit to a more water-system related measure. This will use sediment delivery models such as WARSEM version SEDMOD 2 to predict the impact of roads on watersheds. Also the LSEH classification is being replaced by the Geohazard survey throughout the FMP.

- The provision for placing a ½-chain "no cut" buffer around fees lands within the boundary of the Reservation has been reduced to a 1/2-chain Partial Cut buffer.

- Silviculture has changes to further define leave tree specifications and to add commercial thinning to the list for second growth stands. There is also a provision that cable units should be restricted to a single entry as often there is insufficient timber remaining to warrant a second entry. This will change the way some units are laid out.

- Logging has been altered to be clearer and to specify when certain practices, such as Yumming, are appropriate. Yum Logging, for example, would be used for Biomass collection. Also, there are minor edits to erosion control, tractor piling, site preparation, and slash burning.

- Roads and landings have a moderately significant change in upgrading culverts from a 50 year to a 100 year storm event rating, as requested by TEPA, Fisheries, and FSC. However, in order for this not to become an overly burdensome measure, there will be a definition place on what culverts will be replaced.

- There were no significant changes to the watercourses. The minor changes that the IDT brought up were to standardize the Class B measures so that they are not dependant on slope. Also it was discussed to incorporate the typical NMFS conditions into the FMP. Since that

time, it has become desirable to standardize the Class B Watercourse RPZ's with the FSC requirements.

- The Fire and Trespass provisions have been updated to reflect current conditions and laws. One thing that changes with the FMP is the status of the Forest Management Plan to qualify as a Fire Management Plan. The specifications required for a Fire MP exceed the capacity of the Forest MP. This will require Wildlands Fire to develop a Fire Management Plan. However, that Plan must conform to both the FMP and the Fuels Management Plan. Another change is the Council action that makes a Tribal Membership Card the only permit needed for firewood cutting. This means that only an individual with a Tribal membership card can cut firewood. All non-tribal persons are in violation of trespass ordinances if found cutting firewood. To accommodate this, Tribal Forestry will begin publishing information about what areas are open for firewood cutting.

Table 1 - FMP Planning Units

Table 1: PLANNING UNITS ON HOOPA VALLEY RESERVATION	
Planning Unit Type	Planning Unit Elements
Cultural	Archaeological sites, ceremonial sites, South Tish Tang Reserve, Soctish Redwood Grove, Port-Orford cedar reserves 1 and 2, Box Camp area, campgrounds, mapped mushrooms gathering areas, DeNoTo trail corridor
Wildlife	Northern Spotted Owl Core Areas, Murrelet Retention Area (Option 2 only)
Geologic	Extreme Geohazard lands, high and very high landslide hazard lands, inaccessible lands
Roads	Arterial, collector and local roads (approximately 450 miles total)
Riparian	Priority A domestic and non-domestic streams, Priority B domestic and non domestic streams (about 1,290 miles or 20,950 acres total)
Viewsheds	Valley, Trinity Gorge and Klamath Gorge areas
Wild and Scenic River	1/4 mile each side of Trinity and Klamath Rivers, recreational in Valley, Scenic in gorge
Urban	Valley leased and not leased trust lands; Bald Hill leased and not leased lands within the urban limit line.
Fee and allotted lands	All fee lands, including Tribal fee on and off the Reservation, all allotments on the Reservation.
Timber Harvest	Unrestrained Intensive Management lands

C. Elements Common to Both Alternatives

1. Planning Units

The No-action alternative uses the same 31 planning units or land types as found in the original FMP, with the addition of two units; a Timber Harvest Unit for lands that are subject to Intensive Timber Management and a Wildlife Unit for NSO Core areas. The other planning units include such areas as the viewshed, riparian zones, etc. The differences between the alternatives are the addition a Marbled Murrelet Conservation Area in the proposed action. Maps of the planning units are shown in Appendix A, Summary Comparison of Alternatives. Acreages and harvest intensities by alternative are described in Section E, Comparison of Action Alternatives.

2. Federal minimum management requirements

Federal minimum management requirements are those minimum standards or guidelines which must be adhered to in order to comply with applicable federal law (Table 2). In instances where the Tribe has adopted standards which meet or exceed the federal standards the federal standard shall be waived. As an example, archaeological protection currently requires that a qualified archaeologist prepare an analysis of a project which is sent to the BIA who transmits the report and finding to the State Historic Preservation Officer. In lieu, this procedure could be waived once it has established a Tribal Historic Preservation Officer (THPO) that the federal government recognizes, and BIA would consult directly with the THPO.

The Tribe currently must abide by the following standards since none have been waived. A more complete description of the federal minimum management requirements is contained in Hoopa Valley Indian Reservation Forest Management Alternatives, October 8, 1993.

Table 2 - Federal Minimum Management Requirements

Management Area	MANAGEMENT REQUIREMENT
1. Threatened and Endangered Species	Abide by USFWS requirements for surveying for T&E species, submission of biological assessments, receiving biological opinions and abiding by recovery plans if in effect.
2. Cultural Resources	Conduct archaeological surveys per BIA minimum standards. Submit archaeological survey results to BIA and then SHPO (or THPO if established) for review and consultation.
3. NEPA (National Environmental Policy Act)	All projects triggering NEPA require an environmental document analyzing environmental impacts of the project (CEC or EA). Amendments to the plan may require a supplementing of the FMP EA. CECs and FONSIs and decision notices are to be signed in BIA Regional Office. Should the federal government authorize the Hoopa Tribe to have signatory authority, the Tribe would approve and sign CECs, FONSIs and EISs or other federal documents.
4. Water and Related Resources	Adopt federal minimum standards which are documented in the Hoopa Valley Tribe Water Quality Control Plan.
5. Wetlands	Comply with executive order 11990. Adopt federal standard for classifying wetlands. Adopt Tribal minimum management requirement for riparian areas.
6. Soil Conservation	No federal standard.
7. Air Quality	Comply with EPA Federal Air Rules for Reservations (FARR) open burning rules and regulations. Follow Tribal 10 Year-Fuels Management Plan for all burning and fuels treatments.
8. Wildland Fire	Respond immediately to all wildland fires depending on resources at risk. Engage in mutual aid agreements per Secretarial authority. Work to eliminate USFS in the positions of management and authority.
9. Sustained Yield	Adopt 5 and 10 year management plans based on sustained yield calculated over 120 year planning period. Update plan each year. Sustainability shall be determined based on rate of decline compared to rate of growth.
10. Clearcutting	No clearcuts exceeding 40 acres in dense stands. Sparse stands on slopes over 40% shall not be clear-cut unless individually evaluated.
11. Wild and Scenic River	Adopt scenic and recreational designations for Trinity and Klamath Rivers. Adopt a 1/4 mile river area on each side, such that the river and its immediate environment shall be protected for the benefit and enjoyment of present and future generations.

3. Tribal Management Constraints
   The following Tribal Minimum Management Requirements were adopted at various Policy Committee meetings between February 1992 and May 1992 (Table 3). The adopted Tribal minimum management requirements were presented to the Tribal Council for review on 6/20/92 and 7/3/92.

   These requirements can be changed at any time. However, a change in the Tribal minimum management requirements would require a formal amendment to the Forest Management plan in compliance with NEPA. A more detailed description of the tribal minimum management requirements is contained in the Hoopa Valley Reservation Forest Management Alternatives, October 8, 1993.

D. Alternatives Considered But Eliminated From Detailed Analysis (Base Alternatives)

The Inter-Disciplinary Team re-evaluated the original six Alternatives for their relevance to the current process. It was the determination of the IDT that after fifteen years of operation conditions had changed so that the original Alternatives were no longer applicable. Alternatives 1 and 2 centered around maximizing the financial returns either on the short term or long term basis. The amount of cut and retention currently available does not allow for the adaptation of these Alternatives at this time. Conversely, the intensity of the harvest over the last fifteen years precludes a shift to maximizing protections on Stream Protection (Alt 4) or cultural and wildlife values (Alt 5). Alternative 6 (the former No Action Alternative) was deemed unacceptable during the previous Assessment and nothing in the interim has brought feasibility to that Alternative. The exclusion of harvest from most RPZs and exclusion of the De-No-To trail makes Alternative 3, 3A and 3B unfeasible at the present time.

Therefore, the Team determined that former Alternative 3C, (the previous Preferred Alternative in 1992) is the only feasible Alternative of the original EA. However, Alternative 3C is the "No Action" Alternative. Therefore, this Assessment considers the amendments to Alternative 3C as the Alternatives.

Table 3 - Tribal Management Constraints

Management Area/Prescription	MANAGEMENT REQUIREMENT
1. Leased/assigned lands	Timber will be removed on all future non-leased sites. For existing leased lands, timber will be removed only at owners' request. Timber on existing leases is excluded from the allowable cut.
2. Brushraking	Do not convert pure hardwood stands and natural brush fields into "conifer" plantations. Whether considered as brushraking or tractor piling, all tractor piling shall be accomplished using an approved brushrake. Piles shall be parallel with the contour and not on soils with slope phases of steep, or on soils with B horizons containing more than 50% cobbles.
3. Domestic supply streams	Establish no harvest stream side zones. On all class 1 (perennial, i.e. Mill Creek) require at least 200' each side, on class 2 (perennial and intermittent such as Captain John) require 100' each side, and on class 3 streams (flow only during winter) require 50' each side.
4. Non domestic supply streams	If priority A streams (i.e. Pine Creek) use 200, 100 and 50' zones where up to 50% can be removed in outer 100' or outer 50' of all zones. In priority B streams (i.e. Bull Creek, Norton Creek, and Soctish Creek) use variable width stream side zones with up to 50% removal in all stream zones.
5. Tribal Reserves	All areas reserved from harvest shall be required to have management goals and guidelines established for each reserve.
6. Tanoak guidelines	Save vigorous and mature full crowned trees easily accessible on flat areas and adjacent to roads. Do not girdle qualified tanoak in thin and release units meeting above specifications. Protect contiguous area of pure or nearly pure tanoak stands and identify in management plan.
7. Viewshed	The agreed upon silvicultural practices are no harvest, sanitation salvage and single tree and group selection in the Valley. In the Trinity gorge the land will be dedicated to its highest and best use, generally high site lands will be dedicated to timber production. In group selection, groups are limited to 2 acres. Road density shall generally not exceed 2 miles per square mile. Selective logging is limited to no more than 20% removal per cutting cycle, and to no less than an 80 year rotation.
8. Port-Orford cedar	Continue prohibition on cutting POC. Maintain all designated POC reserves. Effectively close all dead end roads within the range of POC.
9. Pesticides	No use of pesticides will be considered on the Reservation, except at Tsemeta.
10. Firewood cutting	Conform to Council action making a Tribal Membership card a permit for firewood cutting.
11. Open range	Allow grazing only when livestock can be directly controlled by fencing or supervision, per the open range ordinance, Title 17. Designate the Bald Hills/Bloody Camp area as available for open range.

E. Comparison of Action Alternatives Practices and Guidelines

The tables on the following pages compare the proposed harvest practices and logging guidelines between the action alternatives. A summary comparison of the standards and guidelines for the action alternatives is contained in Appendix A. These tables DO NOT compare the environmental consequences of implementing the alternatives. Instead, the tables are a method of describing and comparing the various practices, acreage allocations, and objectives between the alternatives. The assessment of the environmental consequences of implementing the alternatives is considered in section IV.

1. Comparison of Harvest Systems within Planning Units

The tables on the next two pages describe the MAXIMUM harvest system which would be employed in anyone of the 31 planning units on the Reservation. The table below describes these harvest practices.

Table 4 - Description of Harvest Methods

SILVICULTURAL PRESCRIPTION INTENSITIES		
Harvest Prescription		Intensity Code
No harvest	0	No harvest
Sanitation Salvage	1	sanitation salvage
Single tree and group selection, shelterwood without overwood removal, commercial thinning	2	single, group select, shelterwood NOR, c-thin
Shelterwood with overwood removal	3	shelterwood WOR
Modified clearcut (leave 10 rings/inch, and all culls)	4	modified clearcut
Intensive clearcut (all material is removed or treated/burned)	5	Intensive clearcut

No harvest

- No harvest is planned or allowed.

Partial Cut Methods

- Sanitation salvage: Occasionally dead or nearly dead trees are removed (often the largest trees).

- Commercial thinning: In intermediate treatment designed to capture mortality and enhance residual tree quality. Trees that are defective, or are in the understory are removed during a single strictly managed operation typically between 40 and 80 years of age. As in even age systems, the expected diameters are similar to that predicted for even aged stands, such as 6-24" in diameter at breast height. This is not a regeneration cut and has a substantially higher retention standard than any of the following cut methods.

- Single tree selection: A form of INTENSIVE timber management where individual trees are removed, generally evenly dispersed across the harvest unit. Trees of all sizes are removed on a relatively strict cutting cycle of entry every 10 or 20 years (in this case every 20 years). This system is designed to REGENERATE the stand, at the end of the 80 year rotation (i.e. four cutting cycles), so trees will range in age from 0-80 years old. As in even age systems, the expected diameters are similar to that predicted for even aged stands, such as 6-16" for alternative 2, or 16-30" for alternative 1. This style of management has not been proven to work in the mixed evergreen forests which comprise the majority of the Hoopa forest.

- Group selection: An alternative form of selective harvest which essentially creates 2 acre clearcuts. Once entered, each group is treated as a small clearcut. Cutting cycles are often shorter in length, often every 10-15 years. For example, on an 80 acre area there would be 40 groups each 2 acres in size. At the end of the rotation, there would be 10 groups which would be 80 years of age, 10 groups, 60 years old, 10 groups 40 years old, etc. Group selection is considered as a partial cut timber management system in most instances except for assessing watershed conditions, where it is treated as a clearcut due to the repeated entries and mimicking of clearcutting

- Shelterwood without overwood removal (NOR): An even aged management technique where 10-15 sheltering trees (usually conifers) are left per acre. Usually there is only one entry, the initial entry, although occasionally there may be two entries. In this system, the sheltering trees produce shade to modify the climate and provide seed for augmenting planting success, etc. The sheltering overstory is retained in its entirety at least until the subsequent commercial entry. The resulting two story stand enhances forest health and species diversity over the rotation. In cases where slope stability or other resource protection measures are required to reduce site impacts not associated with regeneration success, hardwoods may be used in lieu of conifers for the sheltering trees.

- Shelterwood with overwood removal (WOR): Similar to above except approximately 6-15 years after the initial entry, the shelterwood trees are removed, leaving a regenerated stand of even aged trees all approximately 6-15 years old. In this instance, the result is similar to a well stocked clearcut, 6-15 years after harvest, but during the early period, the added overstory trees provide structural wildlife components and reduce visual impacts.

Clearcut (regeneration harvest)

- Modified clearcut: all trees are removed, except a minimum of 2 conifers and up to 3 hardwoods are left AFTER site preparation as wildlife mitigation for cavity nesting species of birds such as pileated woodpeckers, etc. Often these trees are lower value trees with large branches, completely cull, etc.

- Intensive clearcut: all trees are removed at the first entry.

Table 5 on the following page shows a comparison of the number of acres generated by the protection measures. It lowest numbered measures have the highest protection ratings. In this instance, the protection measures of Ceremonial areas supersede any other management activity, especially intensive or partial harvesting allowances. The column labeled “Extracted Acres” refers to the acres left in that particular category after all acres with a superseding classification are removed. For example if 10 acres of “Riparian (No Cur Stream Zone)” #15 happened to fall within a “Ceremonial Area” #1, those 10 acres would be removed from the total #15 acres in the extracted column, but would be counted in the #1 acres. This is also shown on Table 6.

Table 5 -Timber Management Maximum Intensities

Land Base	Acres -Alt 1 No Act	Acres -Alt 2 Preferred Act	Extracted Acres Alt 2
31. Intensive Timber, regenerable, low + site	39,407	43,902	43,609.3
29 leases, assignments, tribal trust, tribal fee,	83,962	75,592	42,911.0
27. Traditional species activity centers C/	2,291	2,291	1,202.7
26. Trinity/Klamath Gorge Viewshed	8,635	8,635	4,529.3
25. Tanoak mushroom areas	4,649	4,612	3,268.7
24. Valley Viewshed B/	9,168	11,926	5,090.1
23. Riparian (partial cut stream zones) D/	6,553	3,076	1,558.7
22. Wild and scenic river	5,801	5,801	1,287.2
21. Inaccessible	2,837	2,837	1,136.0
20. Campgrounds	126	126	12.6
19. Valley Viewshed No Cut (resolution 01-09,	3,375	3,375	1,433.5
18a Bald Hills other urban lands (not occupied), e.g. tribal trust, tribal fee	410	-	-
18. Bald Hills urban leased/assigned lands,	210	-	-
17c. Valley Urban tribal trust	3,135	6,184	2,108.1
17b Valley assignments, leases	351	-	-
17a. Valley urban fee and allotments.	2,078	2,766	2,138.4
16. Allotments outside of URBAN)	233	883	439.5
15. Riparian (No Cut Stream zones) D/	9,672	7,753	3,508.4
14. POC reserve # 1, 2 (ac. in POC #2)	73	73	47.3
13. De No To Trail	2,286	2,286	1,565.8
12. Box Camp	330	330	294.5
11. Yew reserve	36	36	35.8
10. Soctish Redwood grove	16	16	5.1
9. South Reserve (Tish Tang)	1,889	776	544.2
8, NSO activity centers	3,320	3,320	2,712.5
7. Extreme Geohazard	12,097	10,193	9,003.2
6. Non commercial	2,226	2,226	903.5
5. Non regenerable	2,802	2,802	2,169.5
4. Woodland (strata clo, serpentine on non	516	516	516.0
3. Archaeological sites A/	31	42	40.5
2. Non Tribal Fee outside of Urban areas	378	410	347.1
1. Ceremonial areas (includes ½ mile deerskin	1,252	1,253	1,253.0

A/ Normally no harvest, but occasionally timber may be removed to protect archaeological site such as potential windthrow or firewood cutting.
B/ No shelterwood. MMR allows only single tree & group selection
C/ Shelterwood with overwood removal not allowed (i.e. intensity level 3 is excluded).
D/ Modeled as modified clearcut on high MEHR, on-the-ground mgmt = 3 on very high LSEH, and 4 on high LSEH. (See section 10, objective 6 in all alternatives).

Table 6 - Riparian Zone Acres

STREAM MANAGEMENT CLASSIFICATIONS			
	Acres	Alt 1	Alt 2
Land Base	Total	Extracted	Extracted
Priority A Domestic Streams			
Class 1	1336	276	439
Class 2	1528	694	826
Class 3	739	739	517
Priority B Domestic			
Class 1	69	8	42
Class 2	90.2	20	33
Class 3	43.1	43.1	18
Priority A Non Domestic Streams			
Class 1	1267	197	479
Class 2	1056	428	537
Class 3	556	556	415
Priority B Non Domestic			
Class 1	445	62	145
Class 2	1896	540	854
Class 3 1/	699	699	417

2. Comparison of Logging Practices Between Alternatives

The **Logging Practices Comparison** table which follows is a comparison between the logging practices which would be used under the various alternatives. For more detail about the practices please refer to Section 6, Overall Reservation Wide Objectives, Standards and Guidelines for Timber Management within any of the alternatives as described in Forest Management Alternatives for the Hoopa Valley Reservation, October 8, 1993.

Logging practices are based on the existing Pacific Regional Office, USDI Bureau of Indian Affairs (hereafter PRO) guidelines and California State Forest Practice Act guidelines. ALL ALTERNATIVES WAIVE THE CURRENT PRO LOGGING PRACTICES GUIDELINES AND REPLACE THOSE PRACTICES WITH MORE DETAILED PRACTICES. The PRO may be found in Appendix A.

A comparison of the group two logging practices by alternative follows:

Table 7 - Comparison of Logging Practices to the Pacific Regional Office

Practice	**Alt 3C Current Alt 1 – no action**	**Alt 2 Preferred**
Reforestation (new)	requires adequate stocking before next entry	Same as Alt 1
Stocking standards (new)	300 free to grow countable trees	Same as Alt 1
Felling practices	Same as PRO (Appendix A)	Same as PRO
Tractor operations (mostly same)	no operations over 40%, except pitches less than 200' to 55% can be long lined.	Same as Alt 1
Cable operations (same)	Same as PRO	Same as PRO
rigging	combined into cable operations	Same as Alt 1
Landings (replaces)	no larger than 1/4 acre, no more than 5% of block and remove unstable sidecast on slopes > 65%	Same as Alt 1
Waste disposal (new)	same as CDF	same as CDF
Erosion control (replaces)	winter period is 11/1 - 4/15, except erosion control features to be installed by 10/15.	Same as Alt 1
Logging roads (replaced by road specifications)	replaced by road specifications, generally H specs.	Same as Alt 1
Reduction of soil lost (new)	800 sq. ft. treatment areas by 10/15. but winter period as described above	Same as Alt 1
Road drainage (mostly the same)	culverts, 50 year storm frequency	culverts, 100 year storm frequency
tractor skid roads (same)	Same as PRO	Same as PRO
Site prep and slash disposal (new)	Same as CDF	Same as CDF
Traditional Plants of special concern (new)	defines species of concern and size of population to identify but traditional plant sites will be avoided to extent possible, not tractor piled.	redefines species of concern and size of population to identify but traditional plant sites will be avoided to extent possible, not tractor piled.
Traditional Wildlife of special concern (new)	defines species of concern, may not knowingly "take" species of concern	redefines species of concern, may not knowingly "take" species of concern
Practice	Alt 1 – no action	Alt 2 Preferred
Cumulative Effects (new)	cumulative effects analysis guidelines for CE's and EA's, ERA method in EA's but requires establishment of threshold of concern for ERA's and modifying practices.	Same as Alt 1
Permit system (new)	5-10% of ASQ in permits	Permit for firewood cutting is Tribal Membership card.
Sale duration (new)	one year sales or longer if justified in EA	Same as Alt 1
Merchantability standards (new)	8' 6" 25% sound conifers, hardwoods designated in EA or FOR	Same as Alt 1
5 and 10 year sale plan (new)	prioritized with a combination of dispersal of wildlife impacts and reducing cumulative effects	Cluster proposed units to mimic natural stand changing events, like fire, for benefit to wildlife.
ASQ monitoring (new)	relatively even flow, 3.3 year carryover to next third but not two thirds. 1/7 limitation applies	Same as Alt 1

Cross drains (PRO guideline)	replaced by erosion control structures above	Same as Alt 1
Erosion control winter period (PRO guideline)	replaced by erosion control structures above	Same as Alt 1
Timber harvesting winter period (PRO guideline	replaced by erosion control structures above	Same as Alt 1
Permanent Stream crossings (PRO guideline)	replaced by erosion control structures above	Same as Alt 1
Temporary stream crossings (PRO guideline)	replaced by erosion control structures above	Same as Alt 1

3. Evaluation of Variations between Alternatives.

Section II

The Water Quality Control Plan for the North Coast Plan (NCWQCP) was removed since it is superseded by the Tribal Water Quality Control Plan.

The Northern Spotted Owl Recovery Plan has been revised by the Forestry Wildlife Biologist, updated from the 1990 Recovery Plan referenced in the previous version.

Section III Objectives

Plan goals #13 is changes from "develop" to "Maintain" management standards. #14 is changed from "Support" to "Continue" efforts to reduce Arson fires. And #18 is added which states:

Provide Continuing education to Tribal members about the activities undertaken under the Forest Management Plan. (Old pg 11, new pg 12)

The Federal Minimum Management Requirements (MMR) were reorganized, but were not changed except for the following references. The New Section B MMR #1 *NEPA* was revised to reference the newest NEPA CE list. New MMR #2 *Sustained Yield* was rewritten for clarity. New MMR #6 *Water and Land Resources* was revised to remove the WQCP removed above, and to remove the reference to CDF watercourse protection measures as the FSC Standards are to be incorporated. New MMR #8 *T&E Species* the T&E Species list is updated. New MMR #9 *Cultural Resources* the Cultural Resource tables is updated. New MMR #10 *Wild and Scenic Rivers* was revised to reference the need to make Tribal standards comparable to Federal Standards. New MMR #11 *Wildland Fire* was to correct the outdated mutual aid map.

Section C was inserted to separate tribally committed constraints from the federal constraints. These are labeled Tribal Management Constraints of TMC's. #5 *Tribal Reserve* is revised to allow a portion of the Tribal reserve to be removed from protected status to intensive management. #10 *Firewood cutting* was revised to meet the current Firewood policy. #11 *Closed Range* has been altered slightly to address new grazing concerns.

Section D is a new creation breaking up operational measures from objectives. Although this breaks each section up into two areas, it was used to separate the objectives from the measures so that when one is looking for specific measures, the objectives would not interfere. This section is the objectives portion of the Plan. Although objectives were culled from throughout the previous version of the plan, most of the verbiage is directly from the previous version. The Verbiage in some of these objectives underwent some minor updates approved by the IDT. Some were a bit more than editing comments however. Under Road objectives, a switch is being made from the blanket 4 miles per square mile limit to a more water-system

related measure. Also the LSEH classification is being replaced by the Geohazard survey throughout the FMP. The Biological section is broken up into wildlife, fisheries, and botanical subsections. Fire Management has been revised in a hope of bringing the section up to date.

No changes are proposed to several sections including objectives for Cultural Resources, Non-Forest Resources, Scenic Viewsheds, and Stream Protections.

A few of new sections are proposed for addition. These are Urban Development and Hardwood Management, and under Other, Grazing and Prairie Restoration subsections.

Section IV Guidelines
Management is updated and the no cut buffer adjacent to fee parcels will be downgraded to a partial cut buffer.

Silviculture has changes to further define leave tree specifications and to add commercial thinning to the list for second growth stands. There is also a provision that cable units should be restricted to a single entry as often there is insufficient timber remaining to warrant a second entry. This will change the way some units are laid out. TSI is being revised to reflect the impact of bear damage.

Logging has been altered to be clearer and to specify when certain practices, such as Yumming, are appropriate. Yum Logging, for example, would be used for Biomass collection. Also, there are minor edits to erosion control, tractor piling, site preparation, and slash burning.

Roads and landings have a moderately significant change in upgrading culverts from a 50 year to a 100 year storm event rating, as requested by TEPA, Fisheries, and FSC. However, in order for this not to become an overly burdensome measure, there will be a definition placed on when a replacement is required.

There were no significant changes to the watercourses. The minor changes that the IDT brought up were to standardize the Class B measures so that they are not dependant on slope. Also it was discussed to incorporate the typical NMFS conditions into the FMP. Since that time, it has become desirable to standardize the Class B Watercourse RPZ's with the FSC requirements. Appendix G

The Geological measures were all converted from an LSEH basis to a Geohazard rating. This cleans up the unstable ground a bit and makes the section more workable.

Wildlife was completely rewritten by the Wildlife biologist. The most significant is the creation of a Murrelet Zone to preclude having to continually conduct murrelet surveys. Also the species list is updated. An additional map was created to show FSC wildlife corridors. However, these corridors have no restrictive measures and are only for FSC reference. The botanical section is also completely new. The species lists are all revised.

The Non-timberlands discussion is unchanged. However a hardwood management section has been created to give guidelines on potential future utilization of the Tribe's Tanoak stands. This includes cultural, wildlife, firewood, biomass and carbon sequestration provisions.

The Scenic corridors and viewsheds are not altered, except where scenic river viewsheds unnecessarily exceed federal standards.
Tribal Forestry and TEPA/realty have worked together to produce a set of guidelines for urban clearing that should make home site development similar to the CDF Forestland Conversion Exemption process. This should ease some of the urban expansion constraints.

Pest management was greatly expanded to list many invasive plants and proposed reduction measures, and to list invasive animals that need to be dealt with and measures on how to deal with them.

Because fire prevention and protection measures have developed over the past 17 years, the FMP no longer contains an adequate amount of information to comply with the requirements of a Fire Management Plan. However, since Wildfire Treatment provisions are a necessary part of forest management, this plan adopts the National Wildland Fire Policy, which shall guide fire management until the Tribe can complete a Fire Management Plan.

Emergency rehabilitation and trespass are unchanged, except for changes in firewood permits as a result of the 2007 council action.

Again grazing and prairie restoration subsections have been added.

Other proposed changes:
One thing that changes with the FMP is the status of the Forest Management Plan to qualify as a Fire Management Plan. The specifications required for a Fire MP exceed the capacity of the Forest MP. This will require Wildlands Fire to develop a Fire Management Plan. However, that Plan must conform to both the FMP and the Fuels Management Plan. This was to be discussed in the IDT meeting that Wildlands Fire did not attend.

III. Affected Environment

A. Land Resources

The Hoopa Valley Indian Reservation is the largest forested Reservation in the State of California. The reservation was created through an agreement between the Hoopa Tribe and the US Federal Government. The Reservation was described as an area 6 miles on either side of the Trinity River from the point where the river enters the Hoopa Valley to mouth of the Klamath River. This then created the 12 mile square, since the distance from the upriver end of the Hoopa Valley to the Klamath River is almost twelve linear miles. Originally, a portion of the designated Reservation was left out by the Surveyor at the instruction of the US Army commander stationed in the Valley at that time. However, that land was returned to the Tribe in 1999.

Also, the Tribe acquired two parcels north of the reservation boundary. These acquisitions and returns brought the Reservation acreage to its present level of 90,766 acres. Of this, approximately 88,513 acres are forested. The forests of the Hoopa Reservation have been utilized by the Hoopa tribe for thousands of years. These lands were the hunting and gathering grounds for the Hupa people and these cultural activities continue today. The forest grows an abundance of culturally useful plant species, such as bear grass, hazel stick, and ferns. In the past, the Hupa people used fire to maintain the understory composition to favor not only gathering material, but also to maintain habitat favorable to the animal species they hunted for subsistence and for cultural uses, such a regalia.

With the coming of European development and the fire suppression mentality, the forestlands of the Hupa people slowly began to change. Harvesting began to reduce the late seral stands, but more importantly, the suppression of fire has allowed stands that the Hupa people have maintained to transition to climax species and to reduce the presence of the desired understory plants useful to the Tribal gatherers. Also, some natural oak woodland maintained by use of fire were treated with heavy equipment and planted to conifer. Other oak woodlands without the benefit of fire are facing the slow invasion by shade tolerant Douglas-fir.

B. Soils and Hydrology

The Hoopa Valley Indian Reservation lies on the western side of the Klamath Mountains physiographic province. The major streams have cut deep canyons in the middle and lower parts of the watersheds due to persistent geologic uplift of the regional landscape. The valley bottom along the Trinity River is primarily alluvial soils. The steeper areas contain many rockslide zones and headwall areas. Historic landslides are widespread on lower slopes, especially where inner gorges are present, and they have delivered much fine and coarse sediment to streams. Considerable coarse sediment has also been generated and delivered from the steeper, rocky slopes along these canyons.

The Tribe adopted water quality standards for all waters within the exterior boundaries of the Reservation (Hoopa Valley Tribe 1997). California's Porter-Cologne Water Quality Control Act and the Federal Water Pollution Control Act as amended by the Clean Water Act of 1977 require water quality control plans for the waters of the State as well as public review of the plans. The North Coast Water Quality Control Plan identified the Trinity River as impaired because of sediment. Sediment sources include logging and road construction. The State's plan prohibits the discharge of soil, silt, or organic materials into any stream where it will affect beneficial uses.

C. Water Resources

The Reservation is divided nearly in half by the Trinity River, since the original boundaries were based on the river. The elevation starts at 240 ft along the river to over 4,500 feet on the higher mountain tops. Because of this, the forest type and rainfall levels vary from the east side to the west side. The more

coastal western side of the Reservation has the Port Orford cedar and redwood patches whereas the higher elevations along the eastern edge of the Reservation support the higher elevations true firs and pines.

The affected stream area includes approximately 17 miles of the Trinity River from the point where it enters the Hoopa Valley to within one-half mile of the confluence with the Klamath River. The River, as mentioned above, splits the Reservation into two roughly equal halves. There are seven class I tributaries of the Trinity River that are used for management watershed within the Reservation. Four of these, Bull Creek, Hostler Creek, Soctish Creek, and Beaver Creek are entirely within the Reservation. The other three, Mill Creek, Tish Tang Creek, and Supply Creek begin beyond the Reservation boundaries. There is an additional Class I Creek, Campbell Creek, which enters the southern edge of the Reservation and promptly empties into the Trinity River. There are also two Class I streams that flow out the northern border of the Reservation and flow into the Klamath River. Hopkins Creek is in the northeast corner of the Reservation and Pine Creek runs nearly the entirety of the west edge.

Watersheds are divided into Priority A and Priority B categories based on anadromous fish use. The watersheds are also divided into Domestic and Non-domestic based on water use. Priority A Domestic Watersheds are Mill Creek, Tish Tang Creek, and Supply Creek. Hostler Creek, Pine Creek, and Hopkins Creek are Priority A non-Domestic Watersheds. Soctish Creek, Beaver Creek, and Bull Creek are Priority B non-Domestic Watersheds. Campbell Creek is the only Priority B Domestic Watershed.

D. Air Quality

All of the Reservation is within the California North Coast Air Basin. Air quality on the Reservation is very good, with all Federal standards consistently achieved (including those for ozone, carbon monoxide, particulate matter, and nitrogen dioxide). The Tribe's EPA Department is responsible for protecting values and resources affected by air quality in Class I areas, designated under the Clean Air Act. There are no Class I areas on the Reservation, or on adjacent USFS lands. The entire Reservation is designates as a Class II area.

The Reservation uses prescribed burning for slash reduction, fuels management, and cultural purposes on up to 1,000 acres per year. Effects of smoke from prescribed burning can be annoying, but tend to be of short duration and low intensity. The lack of pollution sources within the vicinity of the Reservation has allowed the Tribe to maintain high air quality standards, except during periods where wildfires on neighboring USFS lands have severely degraded air quality.

E. Vegetation

The forests on the Hoopa Reservation are a wide variation of Klamath Mixed Conifer stands in various stages of development. As such, it creates some complications in classifying the stands to get an accurate projected volume. Experience with timber typing for the 1996 CFI indicates that stands were lumped into polygons that at times had more variation than is preferable. However, recent satellite images and computer generated stand typing has given a more accurate sampling of the timber stands and the total forest condition present on the Reservation.

The Hoopa Forests are typical of the Klamath Mountains Province, comprised almost exclusively of Klamath Mixed Conifer forest type dominated by either Douglas-fir or tanoak, with alder being prominent in the riparian areas. Other conifer species in the riparian areas are western hemlock, Port Orford cedar, and Pacific yew.

In the higher elevations, the Douglas-fir gives way to Ponderosa pine, white fir and red fir. There are scattered sugar pines throughout the Reservation. The large areas of serpentine soil have knobcone pine, digger pine, and incense cedar. There is even a small patch of coastal redwood within the Reservation boundary. The dominant hardwood species is tanoak, with madrone being the next most common

hardwood species. However, there are patches of red alder and maple along the riparian areas, and tracts of east facing slopes with bay trees in the understory. Oak woodlands are scattered across the hillsides.

The project area is within a transition zone between the Coastal and the California Klamath Physiographic Provinces. Biologically it is most similar to the Klamath Province except in the Pine Creek watershed which exhibits some coastal characteristics. Approximately 85,300 acres are forested, generally with Douglas fir (*Pseudotsuga menziesii*), tanoak (*Lithocarpus densiflorus*) and madrone (*Arbutus menziesii*). Other forested areas include Oregon white oak (*Quercus garryana*) and California black oak (*Quercus kelloggii*) stands and white fir (*Abies concolor*) dominated mixed conifer at higher elevations along the eastern boundary of the Reservation. Within riparian areas and scattered sporadically through the forest many other species occur such as big-leaf maple (*Acer macrophyllum*), incense-cedar (*Calocedrus decurrens*), Port Orford cedar (*Chamaecyparis lawsoniana*) (west side only), chinquapin (*Chrysolepis chrysophylla*), Jeffrey pine (*Pinus jeffreyii*), sugar pine (*P. lambertiana*), western white pine (*P. monticolia*), knobcone pine (*P. attenuata*) ponderosa pine (*P. ponderosa*), Pacific yew (*Taxus brevifolia*), mountain dogwood (*Cornus nuttallii*), willow (*Salix sp.*), and canyon live oak (*Quercus chrysolepis*). The shrub layer within mature stands (when present) is generally dominated by evergreen huckleberry (*vaccinium ovatum*) or salal (*Gaultheria shallon*). The vegetation on approximately 2500 acres is influenced by serpentine soils, mostly in the Supply Creek watershed but also scattered throughout the reservation in smaller patches. The vegetation on these soils is generally dominated by mixed conifer forests to open chaparral.

The top five associations on the Reservation are: Tanoak/Spotted Coralroot (*Lithocarpus densiflorus/Corallorhiza maculata)* @9.3% of the EA acres, Douglas-fir/Oregon Grape (*Pseudotsuga menziesii/Berberis nervosa)* @ 8.5%, Tanoak/California ground cone *(Lithocarpus densiflorus/Boschniakia strobilacea)* @ 8.1%, Tanoak/Evergreen Huckleberry (*Lithocarpus densiflora/Vaccinium ovatum)* @ 7.1%, and Douglas-fir/trail plant *(Pseudotsuga menziesii/Adenocaulon bicolor)* @6.9%. Tanoak and Douglas-fir account for 32.4% and 32.2% (respectively) of the overstory canopy on the Reservation. Other primary tree species (accounting for 15% of the Reservation Stands) are canyon live oak, California black oak, red alder, Pacific madrone, big-leaf maple, ponderosa pine, incense cedar, chinquapin, white fir, Port-Orford cedar, California bay, and white alder.

There has never been a Federally Listed T&E plant species found within the 24 7.5' quadrangles that surround and include the Hoopa Valley Indian Reservation (CNPS 2003, CDF&G 2004). A official "species list" was obtained from the USFWS on May 5, 2011, which indicates the Threatened and Endangered species to be addressed in Consultation with the Service. There were no plant species contained on the list. Therefore, T&E plant species are not addressed in extensive detail in this report.

Traditional plants of special concern are relatively widespread, but few of these species are "dense" at any one location. These plants are considered to be of special concern because their abundance is in decline due to timber management. "Abundant traditional do not require special protection measures, or regenerate sufficiently after timber management that their Reservation wide abundance is not threatened (HVTC 1994)."

F. Wildlife

The FMP will continue to reduce the percent of old growth forest cover across the Reservation. Although important old growth structural elements will be retained in all harvested units, the overall quality and value of the harvested old growth stands will be reduced. Therefore, the species of wildlife that use, select or are associated with old growth habitats are the most appropriate species to monitor the overall impacts of the Tribe's forest management. We have chosen 4 species to represent a cross section of old growth associated species and the likely impacts to these species from implementation of the FMP 2011-2026. Two of these species are federally listed as Threatened and one is a culturally important species and candidate for listing. These 3 species are the northern spotted owl (*Strix occidentalis caurina*),

marbled murrelet (*Brachyramphus marmoratus*) and fisher (*Martes pennanti)* respectively. In addition, the pileated woodpecker, a very important cultural species has been chosen for analysis of baseline conditions.

The baseline conditions have been calculated by thoroughly mapping first, stand structural stages and then further stratification into habitat categories for each of these 4 species. The data used to map the stand structural stages represents the conditions within the Reservation as of January 1, 2011 and will be updated annually during the life of the FMP, so comparisons between the starting baseline and the effect of each year's timber sales, urban development, road construction and other disturbances (such as wildfire) can be tracked. Please reference the MetaData from the HupaVeg coverage in the Tribe's GIS database for more information on the specifics of the habitat typing for each species. Below, reservation wide baseline habitat conditions for each species has been summarized. For the Biological Assessment (BA), habitat conditions will be further described down to the territory level for both owls and fishers. However, Pileated woodpeckers will not be covered in the BA and marbled murrelet habitat will only be reported within the Reservation portion of zone 1.

Marbled Murrelet

The Fish and Wildlife Service and Tribal Forestry personnel have met several times to discuss the BA and Programmatic Consultation for the FMP. There is one marbled murrelet critical habitat unit (CHU) which overlaps the south boundary lands (Annex) which were recovered from the U.S. Forest Service in 1997. CHU 11-d is proposed to be dropped from critical habitat designation by the Service, but for now we will report that the FMP will impact critical habitat for this species as we had done in our programmatic BA in 2003. The Service agreed at that time that our impact to CHU-11-d would not be significant and rendered a BO (Dec. 29, 2003 (1-14-1997-3.3). The Tribe has long contended that marbled murrelets likely are not occupying any habitat within the Reservation. However, in 2005 and 2006, we conducted radar surveys at three of the highest potential areas within the Pine Creek watershed, and detected murrelet-like targets. Within the FMP we now have a network of reserved stands in the vicinity of the detections which the Service has found acceptable. These reserved stands are also important for spotted owls, fishers and woodpeckers. In addition, there are approximately 31 other reserved owl core areas which will protect patches of some potential murrelet habitat. Otherwise most of the potential habitat will be rendered un-suitable within the next 10 years under the FMP.

We have identified three categories of potential marbled murrelet habitat within the Reservation. Our designations are meant to describe the habitat potential in relation to other stands on the Reservation and not necessarily in relation to redwood stands closer to the coast. We have designated stands as "Excellent Potential" if they have dense canopy cover of the largest old growth Douglas fir and are within the Pine Creek watershed. "Good Potential" includes moderate density old growth Douglas fir and is within the Pine Creek watershed and dense stands throughout the remainder of zone 1. "Fair Potential" includes moderate density old growth throughout zone 1 outside of the Pine Creek watershed. All moderate to dense stands of large old growth in zone 2 has been designated as "Marginal Potential" and will not be included in the BA analysis describing baseline conditions or impacts to marbled murrelets, since the Service has agreed that those areas are highly unlikely to be potential murrelet habitat. Only 12.6% of the reservation currently supports fair to excellent potential habitat stands for marbled murrelets (Table 8).

Northern Spotted Owl

The Tribe's long term spotted owl demographic monitoring program (1992-present) has provided has provided a great deal of insight into spotted owl habitat use and selection via, night time call surveys (which suggest actively used habitats) and daytime walk-in surveys (which provide data to estimate roosting and nesting habitat selection). A draft scientific paper was included in a final report for our first Tribal Wildlife Grant (submitted to the Service in February 2008) which describes spotted owl habitat fitness potential. Our recently completed baseline condition for spotted owls, reservation wide, suggests a

landscape that might support a healthy population of spotted owls if it were not for the invasion of barred owls based on the results from the above mentioned paper/report. The reported results show that a mix of nesting-roosting-foraging habitat with prey habitat results in the highest fitness potential, especially when prey habitat is not pre-commercially thinned. Nesting-roosting-foraging and roosting-foraging habitat currently total to approximately 51% of the Reservation landbase (Table 9). Roosting-foraging habitat has been separated from nesting-roosting-foraging because we have only rarely documented successful nesting within residual structures in previously harvested stands while often finding pairs or singles roosting in such stands. These types of stands would be high quality nesting habitat on private lands to the west of Hoopa which have little or no old growth remaining.

Table 8 - Potential Marbled Murrelet Habitat

Marbled Murrelet Habitat Potential	Acres	Percent
Excellent Potential	1096.7	1.2%
Good Potential	4967.9	5.5%
Fair Potential	5374.5	5.9%
Marginal Potential (Non-habitat)	4474.6	4.9%
Un-Suitable	74852.9	82.5%

Potential marbled murrelet habitat within the Hoopa Valley Indian Reservation as of January 1, 2011 (baseline condition), Humboldt County, CA. Note, marginal potential is considered non-habitat because it is in zone 2.

Foraging-dispersal habitat primarily represents previously harvested stands which lack suitable nesting structure but provide moderate to dense canopy cover and plenty of flight space. Stands designated as meeting only dispersal needs are generally cutover sites where stem exclusion (dense canopy cover) was reached recently and flight space is present but somewhat limited due to the stands young relatively young age. The combination of the top three habitat strata from Table 9 total over 78% of the reservation landbase. The highest quality prey habitat is represented by 2 stand structural stages which both include a sapling brushy pole component and they total to approximately 8.5% of the landbase. The Understory-reinitiation/sapling brushy pole (UR_sbp) stand structural stage is included in the foraging/dispersal category in Table 9. The UR_sbp structural stage likely has very high value to foraging spotted owls and it generally results from the silvicultural practices used in the FMP where substantial amounts of large trees are retained in cut units and then the developing stand below reaches a dense brush and sapling condition.

Although continued cutting of old growth will reduce nesting/roosting/foraging habitat it will ensure that high quality prey habitat will continue to be produced. This coupled with the owl core area reserves should provide fairly high fitness potential habitat during the planning period at least until large scale regeneration logging of the second growth begins. Unfortunately, unless a barred owl removal experiment is implemented we will not really be able to determine the affects of the FMP on spotted owls. Barred Owls have exploded in numbers since 2005 and are occupying much of the suitable spotted owl habitat and there is no reason to suspect that they will not eventually fill it all, leaving no room for spotted owls.

Fisher

Although our fisher demographic monitoring has only covered the last 7 years and we have not yet investigated any relationships between habitat conditions and measures of survival, reproduction or over-all fitness, we still have the best data for describing habitat use and selection for this species compared to the other 3. This is due to a very large sample size of animals monitored with the use of radio telemetry. Fisher habitat strata were derived from the Stand Structural Stage Attribute field and based on intensive

radio telemetry monitoring of 80 animals (24 males, 56 females) and over 6,900 independent radio telemetry locations including 284 rest sites, and 179 unique den sites. Intensive habitat selection and demographic analysis is pending. However, for describing what fishers are using for which behaviors, the raw data has been more than adequate.

Table 9 - Northern Spotted Owl Habitat

Spotted Owl Habitat Quality	Acres	Percent
Nesting/Roosting/Foraging	29490.8	32.5%
Roosting/Foraging	17619.8	19.4%
Foraging/Dispersal	24079.3	26.5%
Dispersal	3624.1	4.0%
Un-Suitable	15952.7	17.6%

Northern Spotted Owl habitat within the Hoopa Valley Indian Reservation as of January 1 ,2011 (baseline condition), Humboldt County, CA

The reservation wide habitat conditions are currently very good (Table 10) and will likely remain that way at least until large scale regeneration harvest begins in the second growth stands. Over 74% of the reservation landbase supports habitat suitable for resting/foraging or denning/resting/foraging (Table 10). In the final analysis we may be able to describe landscape configurations that result in higher fitness, but that remains to be seen. For now we know what they use and we have been somewhat conservative in identifying strata that meet denning requirements. For example, we included only 5 of the 10 structural stages that were used for denning in the denning strata, since nearly 94% of all of the dens fell within the top 4 strata and we added old forest single storied (OFS) as denning habitat even though we had found zero dens in that strata. This strata is rare on the reservation and we had very few animals that included any OFS stands in their home ranges. Outside of the reservation OFS stands are used extensively for denning.

Implementation of the Tribe's FMP will reduce denning habitat quality but should maintain a high level of overall fisher habitat with adequate denning opportunities. Overall habitat fitness will likely decline especially after large scale second growth regeneration harvest begin. However, it is quite likely that the Reservation will continue to support a higher density of fishers than nearly anywhere else in the west. The biggest threats to fishers on the reservation at this time are wildfire, sudden oak death and illegal marijuana grows. All of these threats if realized would likely have far more impact to fishers than the implementation of the FMP. Of the activities proposed under the FMP the prairie restoration will have the largest and longest negative impact to fisher. However, the reestablishment of prairies will not likely ever get to the amount of area that existed historically.

Table 10 - Fisher Habitat

Fisher Habitat Quality	Acres	Percent
Denning/Resting/Foraging	48614.6	53.6%
Resting/Foraging	19087.3	21.0%
Foraging/Dispersal	5036.2	5.5%
Dispersal	5924.0	6.5%
Un-Suitable	12104.6	13.3%

Fisher habitat within the Hoopa Valley Indian Reservation as of January 1 ,2011 (baseline condition), Humboldt County, CA.

Pileated Woodpecker

The pileated woodpecker is an extremely important cultural species and one in which we have little data. We completed a reservation wide occupancy survey in 2006 and have mapped pileated detections from

the surveys and also those detected incidentally. We have attempted to find nest sites with intensive effort in 2006 and 2007 with some success. We have also monitored one male with radio telemetry for nearly a full year before he was eaten by a fisher. Pileateds clearly do very well in old growth forest conditions throughout their range in the west but they are not old growth dependant necessarily. They forage on dead and dying trees with infestations of carpenter ants and other insects. They nest and roost in cavities of trees which they either excavate entirely (most nests) or create an opening to access an existing hollow (most roost sites). Generally they make two or more cavity openings for roost sites while nest sites have just one opening. Four of the 9 nest sites we have discovered have been in madrone trees and two of those were in the same tree two years in a row. All but two of the nests have been in old growth stands. The second most used tree species was Douglas fir. Pileateds are quite often heard and seen using cut units immediately after cutting and for years to come. Therefore, the cutting prescriptions used under the FMP appear to maintain some habitat value for this species. Past timber harvest, especially pre-Tribal FMP, have probably impacted the reservations pileated population more than both the owls and fishers simply because large old trees provide the woodpeckers with all of their life requisites. Smaller, younger trees can also provide some of the requisites but not generally until 40-60 years of age and then never at the quantity provided in old growth stands. Still habitat conditions are still relatively good for pileateds (Table 11) and the occupancy surveys indicated that approximately 60% of the sites surveyed were used by pileateds.

Table 11 - Pileated Woodpecker Habitat

Pileated Woodpecker Habitat	Acres	Percent
Nesting/Roosting/Foraging	37578.9	41.4%
Roosting/Foraging	15607.9	17.2%
Foraging/Dispersal	22016.4	24.3%
Un-Suitable	15563.5	17.1%

Pileated woodpecker habitat within the Hoopa Valley Indian Reservation as of January 1 ,2011 (baseline condition), Humboldt County, CA.

G. Cultural

Various archaeological and cultural surveys have been conducted on the Reservation. A complete discussion of the cultural resources (prehistoric, ethnographic, and historic) can be found within these reports. Based on these studies, the Reservation is known to contain all types of significant resources. The most significant cultural resource is the De-No-To Trail, which is listed on the National Register of Historic Places with its associated cultural preserves. Other types of cultural resources include: traditional gathering places and ceremonial areas. Natural forces, urban development, road development, and past fire suppression efforts have impacted a few of these resources. However, the cultural importance of most sites to Tribal elders has protected the majority of cultural sites on the Reservation. Cultural activities such as gathering of plants, and traditional dances are still performed on a regular basis and protection of cultural resources is one of the highest priorities for the majority of the tribal members as surmised from yearly unscientific surveys taken during a tribal celebration.

Cultural resources on the Reservation span a time period of at least 6,000 years and contain prehistoric, ethnographic, historic and contemporary resources. There are about 160 recorded cultural resources. These recorded cultural resources include ceremonial areas, cultural areas and sites, and traditional gathering areas.

Historically, the Hupa people used the Trinity River from the confluence with the Klamath River, upstream to its confluence with the South Fork of the Trinity River (Origer 1976). Prehistoric resources are those human made sites, structures, features or objects that pre-date a written record. Prehistoric sites include: lithic scatters, ground stones, villages, dance areas, and midden.

Ethnographic resources include culturally important natural resources (e.g. basket materials such as hazel, bear grass, and tan oak mushrooms) and cultural areas and sites. Cultural sites include ceremonial areas such as White Deerskin Dance Grounds, trail from the Trinity River to the Dance Grounds, Jump Dance Pole Area, and the top of Telescope Peak. Cultural areas include:

- South Tribal Reserve,
- Box Camp,
- Port-Orford Reserve #1 and #2,
- Rudolph Soctish Redwood Grove,
- Yew Reserve, and
- De-No-To Trail.

The De-No-To Trail has been listed as a Traditional Cultural Property on the National Register of Historic Places (February 25, 1986). As a National Register property there may be additional restrictions on activities within that area.

Historic resources are those human-made sites, structures, features or objects, which date from the time from the written record forward. Historic sites within the Reservation include: blazed trees, trails, farmsteads, ditches, mines, cemeteries, cabins, remains from a fire lookout, and historic debris.

Previous archaeological investigations were conducted pursuant in compliance with the statutes and regulations of the following legislation: Antiquities Act of 1906; Historic Sites Act of 1935; National Historic Preservation Act of 1966; Archaeological and Historic Preservation Act of 1974; American Indian Religious Freedom Act of 1978, Archaeological Resource Protection Act of 1979; Native American Graves and Repatriation Act of 1990, and the Archaeology and Historic Preservation, Secretary of the Interior's Professional Qualifications Standards. Specifically, given that this project is considered to be a federal undertaking; the Bureau of Indian Affairs must comply with Section 106 of the National Historic Preservation Act of 1966.

Section 106 requires an identification and evaluation of historic properties; assessment of the effects of the project on properties that are eligible for the National Historic Register; consultation between the Bureau of Indian Affairs and the State Historic Preservation Office (SHPO); and development of a memorandum of agreement (MOA) if there are historic properties and there is an adverse effect to those properties to addresses the treatment of the historic properties.

National Environmental Policy Act requires an assessment of all projects that are federally funded or permitted. Minimum management requirements for cultural resources include archaeological surveys, recordation of significant sites, and identification of sensitive areas. Follow-up Consultations on a project level will occur as needed. Since the Archeological Report is on a programmatic scale, future consultations with the State Historic Preservation Office regarding effects on cultural and archeological resources will occur on a project level basis.

IV. Environmental Consequences

The environmental consequences considered here are those consequences that have resulted from implementing the 25 amendments above and beyond those consequences discussed in the previous FMP EA. For instance, the consequences of Prairie Restoration need to be addressed.

A. No Action Alternative

The Current Management is the "No Action" Alternative. Therefore the impact of this alternative is as described in the 1994 Environmental Assessment for the Forest Management plan, and echoed in the 2000 Amendment to the Forest Management Plan. This Alternative does not vary from those Assessments.

Determination of significance

Because the Impacts were evaluated in the above mentioned NEPA documents and determined to have no significant adverse impact on the human condition, this Alternative continues that condition and the "NO Action" Alternative will have no significant adverse impact.

B. Preferred Alternative

1. Lands Resources

Adjacent Lands buffer

The original Draft of the FMP required a half-chain (33 ft.) buffer around all fee kinds. This buffer was made a "No-cut" zone. However, the acreage was not taken from the AAC calculations. This is an adverse effect on the Tribe as landowners can, and typically do, harvest right to the boundary and in instances where a buffer exists, a trespass can occur due to a simple misunderstanding of where the property line is located. To avoid this in the future, it is desired to allow partial harvesting up to the property line so that it is clear that the trees were left as a buffer, and not because the property line is moved. This returns a minimal amount of wood back to the AAC, but the overall impact is so miniscule that it does not rise to a level of significance.

Determination of significance

Partial harvesting of timber in buffers adjacent to non-tribal forestlands is not a significant issue. It has been a courtesy of the Tribe in the past. However, the potential for perceived property line adjustments due to the cut boundaries is a common occurrence. This potentially adds 366 acres (Less than 0.5% of the Reservation) to partial harvesting. However, not all of these acres are forested and the actual number of acres upgraded from No-cut to Partial cut is less than 366 acres. By retaining a partial buffer, the Tribe will adequately protect adjacent forestlands from the impact of intensive management. This provision does not create a significant adverse impact to the human environment.

South Tish Tang Reserve

Between the two forks of Tish Tang Creek in the southeastern corner of the Reservation is an area that was harvested in the late 60's and early 70's. This 146 acres was later included in the Tish Tang Wilderness. The purpose of this FMP classification was achieved when the USFS Wilderness boundary was brought to the Reservation Boundary in 2009. As a result, there remains no longer a desire to maintain the Wilderness between the Forks of Tish Tang Creek. However since most of this ground is steep, unroaded and virtually inaccessible, the IDT has determined only to bring the previous units and the approximately 19-acre strip of previously unmanaged timber along Tish Tang Creek back into intensive management. This is subject to other FMP factors such as the "No cut" RPZ designation of Tish Tang Creek. However, this brings 165 acres of productive timber back into active management.

The impact of this inclusion is not expected to be significant. By limiting the inclusion to previously operated stands, it will allow previous roads and landings to be used. The inclusion of the previously uncut lands along Tish Tang Creek is merely for continuity. This acreage accounts for 13% of the Tish Tang Reserve. Being intensively managed by the previous management it is unlike the remainder of the Reserve acres. This reduction of 165 acres of Tribal wilderness does not break up continuity of wildlife corridors due to the current FMP practices of maintaining residual characteristics throughout the harvest process, and the proximity of the De NO TO Trail buffer. Therefore, the release of the plantations in the Tish Tang Reserve will not create and adverse impact to any of the resources of the Tribe.

Determination of significance

The creation of the South Tish Tang Reserve between the forks of Tish Tang Creek was a political move to put pressure on the USFS. The intent was to stop timber harvest activities on the adjacent USFS lands leading up to Trinity Mountain, which has cultural significance for Tribal members. Now that this area has been designated wilderness, the objectives of the Reserve have been met. Brining this land back into management will not result in a significant amount of timber harvest activities, since much of the ground is steep and there is no access to the upper portions of the hillside. Of the 776 acres which would be brought back into management, less than 100 acres are proposed for harvest units in the next decade. As these acres are confined to the lower slopes accessible by existing roads, there will not be a significant level of disturbance associated with this management. As a result, the alteration of the management of the south Tish Tang Reserve will not result in a significant adverse impact.

Road mile versus Sediment modeling

The FMP 96/2000 included results of the cumulative watershed effects analysis for road planning. Within this analysis, road densities of 4 miles per square mile became a relatively established threshold where cumulative watershed effects would take place. This value is simply the length (miles) of roads in the planning area or on the reservation versus the area (square miles) of the planning area or reservation. The idea for developing these standards was to reduce road construction where possible thus reducing sediment impact. However, sediment is not quantified using this method.

A standard of 4 miles per square miles for reducing sediment does not hold enough value when deciphering road conditions and proposed road placement. For example, 4 miles of road can be placed in a high density area of watercourses with high potential for erosion or 4 miles of road can be placed on ridgetops with low density of watercourses and low potential for erosion. Therefore, impacts on the former would be much greater than the latter concluding those 4 miles per square mile of road as a standard is not effective.

An alternate model for understanding and developing standards for sediment reduction of roads is the SEDMODEL2 program. The SEDMODEL2 program is designed to evaluate sediment changes from road construction, activity and usage, cut bank height, bench height, geology and soils, and slope. The model categorizes roads segments into high, medium and low priorities based on sediment production. This model quantifies road sediment pre-construction, during construction and post-construction therefore demonstrating impacts or improvements of road work. The GIS map developed from this model displays road segments in selected colors to identify locations and lengths of road that would need to be rebuilt, graded or remain the same. The SEDMODEL2 program allows for planning for future timber harvest areas where Forestry can plan for type of road work needed to be completed along existing roads.

New road construction does have adverse impacts on the land including increased road sediment production that effectively change the slope structure, increase landslide potential, and therefore increased sediment production potential to nearby streams. Reusing old roads to access timber lands is preferred over building new roads. Reusing old roads will reduce the potential for sediment erosion compared to new road construction. The SEDMOD2 program will assist in evaluating which roads will be reconstructed and where new roads construction will be located based on timber sale unit location and sediment production.

This change in the FMP allows for better estimation of the potential sediment delivery to the watercourses. Through this change, Hoopa Tribal Forestry will be able to manage roads and sediment. The proposed change will have a positive impact on the forest and water sources of the Reservation.

Determination of significance

As methods of determining potential impacts advance, old methods, such as "miles of road per square mile" become less able to accurately predict potential sediment delivery. By switching to a more condition based model, the Tribe can more accurately predict sediment delivery. This will allow the Tribe to concentrate restoration activities in areas where it will have the most positive impacts. This revision is expected to have a minor positive impact on sediment reduction activities.

LSEH versus Geohazard Mapping

Landslide Erosion Hazard rating was designed to estimate reservation areas that produce sediment or the ability to produce sediment through slope failures including landslides, debris slides, and creep. Also, LSEH takes into account inner gorge and torrent track features where sediment production increases with seasonal water flows. The model is based on surface soil erosion by soil type characteristics. Because hazards associated with landslides are not entirely based on surface soils, the LSEH model is not completely accurate.

The geohazard layer was developed using current aerial photo maps. Unstable features are prioritized based on feature types, activity, and vegetation amounts. These features are labeled as extreme, very high, high, moderate, and low for hazards values. This characterization is similar to the LSEH/MEHR layer used for hazard mapping; however, the geohazard layer takes into account deep seated landslide features that have very high sediment production rates. Additionally, the geohazard layer provides locations, potentials for failure, and sizes and types of unstable features located within timber sale units. This allows the proposed new mapping to be more adaptive to changing conditions. There will be no adverse impact by this change. Rather there will be a positive impact by allowing the FMP to be more adaptive to changing conditions as well to currently existing features.

Determination of significance

The LSEH model used general soil and slope classifications to predict erosion potential, and the resulting instability. However the Geohazard mapping has been done through aerial photo analysis and in-field observation. The mapping gives a much more accurate picture of instability and potential instability. As a result, this change in the FMP allows better management and reduces the acres removed from operations to protect potential instabilities to actual instable areas. With the retention standards of the FMP, this practice will not have an adverse impact on Reservation lands, and may in fact have a minor positive impact.

2. Water and Air Resources

Abandon the NCWQCP

Because the Tribe enjoys a sovereignty relationship with the US Government, it is not under the jurisdiction of the State of California. The Tribe has developed a Water Quality Control Plan which has been approved by the US EPA and complies with the measures of the NCWQCP. Because these

are equivalent documents, there is no reason to keep the redundancy of a state document that has no jurisdiction over Tribal activities. Therefore the NCWQCP coordination is being dropped from the FMP. Because of the stands of the Tribes WQCP, there will be no impact on the environment as a result of this change.

Determination of significance

The North Coast Water Quality Control Plan is a large area plan without specifics for the Reservation. With the completion of the Tribe's Water Quality Control Plan, the tribe is in a position to monitor it waters outside of State jurisdiction. Since the state has no authority over the Tribes Water Quality Program, there is no need to include the State plan in the FMP. This removal will not have an adverse impact on the human environment.

FSC Stream Standards

Stream zones in the FMP vary between Priority A and Priority B watersheds. Priority A watersheds are Anadromous of Domestic Watersheds. Priority B watersheds are not. Priority A watersheds have fixed RPZ widths of 200 ft for Class I Streams, and 100 ft for Class II streams. Priority B watersheds have variable width RPZ's. For the purpose of this analysis, the center RPZ width was used. For Class I streams, the 100 ft width was used. For Class II streams, the 75 ft RPZ was used. The total acreage of RPZ for Class I and II streams across the Reservation is 8,165 acres.

Under FSC protocol, the stream buffers are standard. For Class I streams (which FSC labels Category A) the RPZ width is 200 feet. For FSC Category B and C, both of which fall into FMP Class II the stream widths are 100 ft and 75 ft respectively. For the purposes of this analysis, a standard 100 ft width was used. The total acreage of RPZ for Category A, B, and C streams across the Reservation is 8, 901.

The RPZ acreage difference between the two RPZ schemes is 736 acres or a 9% .increase in RPZ acres if the Tribe goes to the FSC standards. The volume difference is the next comparison. For unlike FMP Priority A watersheds, the RPZs for FSC are all open to limited harvest operations.

The table on the following pages shows a side by side comparison of the impacts of the two RPZ's. The first set of columns shows the volumes and acres of the RPZ's under the two management schemes. Obviously as the acreage goes up, so does the total volume within the RPZ. It should be noted here that this table lists only the volume for Douglas-fir timber. It is curious that although the acreage only rises by 9%, the total volume of Douglas-fir in the RPZ's increases by 12.9% from 120.5 MMBF to 136.0 MMBF. The majority of this increase is in the Priority B watersheds where the total volume in Class I RPZ's raises 5,837 MBF, or 147%, and the volume of Class II RPZ's rises 9,565 MBF, or 33.8%.

When looking at the middle column, first thing that becomes apparent is that because the FSC regulations do not prohibit any cutting within the RPZ's the available RPZ harvest goes up. This is especially true in the Priority A watersheds. Currently the Class I RPZ's have a 100' no cut buffer followed by a 100' partial cut buffer. The FSC rules allow partial cutting throughout, but with more restrictive cutting in the first 50'. In the Priority A Class II RPZ's, which according to the FMP are "no Cut" zones, FSC allowed harvesting would allow an average of 7 MBF per acre to be harvested, while maintaining roughly 9 MBF per acre.

The third column shows what would hypothetically be retained in the RPZ's. The Priority A RPZ's have significantly more (51%) in the FMP RPZ's than the FSC RPZ's. This is reversed in the Priority B RPZ's mostly due to the larger size of the RPZ's.

Table 12 – FSC Stream Zone Comparison – All Zones

Comparison of FSC Stream Zones to FMP Stream Zones (Including all RPZ acres)

(Volumes are MBF of Douglas-fir)

Priority A Watersheds

	Total Volume (MBF)		Acres		Available for Harvest		Acres		To be Retained		Acres	
	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP
Class I	44,834	44,708	3,835	3,825	20,848	15,896	3,835	1,717	23,986	28,812	-	2,108
Class II	43,571	43,572	2,600	2,600	19,702	-	2,600	-	23,870	43,572	-	2,600
Total	88,405	88,280	6,435	6,425	40,550	15,896	6,435	1,717	47,856	72,384	-	4,708

Priority B Watersheds

Class I	9,793	3,956	499	248	4,561	-	499	-	5,232	3,956	-	248
Class II	37,846	28,281	1,968	1,482	17,062	16,968	1,968	1,482	20,784	11,312	-	-
Total	47,639	32,236	2,467	1,730	21,624	16,968	2,467	1,482	26,016	15,268	-	248

All Watersheds

Class I	54,627	48,664	4,334	4,073	25,410	15,896	4,334	1,717	29,217	32,768	-	2,356
Class II	81,418	71,853	4,567	4,082	36,764	16,968	4,567	1,482	44,654	54,884	-	2,600
Total	136,045	120,516	8,902	8,155	62,173	32,864	8,902	3,199	73,872	87,652	-	4,955

This table, however only works if the RPZ is the only factor governing harvest. In the second table, the FMP factors were impressed on the RPZ's. Roughly 60% of the available RPZ acres have other considerations that prevent harvesting. These include NSO owl cores, Geohazard Restrictions, ownership and cultural restrictions. The drop in acres has a corresponding drop in total volumes. The FSC and FMP RPZ's have a 58% and 59% drop in acres, respectively, but both have a 54% drop in total Douglas-fir timber.

Table 13 - FSC Stream Zone Comparison – Zones without other restrictions

Comparison of FSC Stream Zones to FMP Stream Zones (excluding FMP restrictions)

(Volumes are MBF of Douglas-fir)

Priority A Watersheds

	Total Volume (MBF)		Acres		Available for Harvest		Acres		To be Retained		Acres	
	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP	FSC	FMP
Class I	20,664	20,600	1,341	1,337	9,870	7,406	1,341	840	10,793	13,194	-	497
Class II	21,935	21,937	1,376	1,376	10,018	-	1,376	-	11,917	21,937	-	1,376
Total	42,599	42,536	2,717	2,713	19,888	7,406	2,717	840	22,711	35,131	-	1,873

Priority B Watersheds

Class I	3,525	899	177	58	1,700	-	177	-	1,826	899	-	58
Class II	16,478	11,438	874	611	7,560	6,863	874	611	8,917	4,575	-	-
Total	20,003	12,337	1,051	669	9,260	6,863	1,051	611	10,743	5,474	-	58

All Watersheds

Class I	24,189	21,499	1,517	1,395	11,570	7,406	1,517	840	12,619	14,093	-	555
Class II	38,413	33,375	2,250	1,987	17,578	6,863	2,250	611	20,835	26,512	-	1,376
Total	62,602	54,873	3,768	3,382	29,148	14,269	3,768	1,451	33,454	40,605	-	1,931

Acres and volumes available for harvest also have a similar reduction. The Priority A watersheds drops from 40,550 MMBF and 15,896 MMBF in FSC and FMP RPZ's, respectively, to 19,888 MMBF in the FSC RPZ's and 7,406 in the FMP RPZ's. With a corresponding drop in Volume available for harvest, it makes the transfer to FSC standards for Priority B Watersheds much less of a benefit or concern. The addition of 2,397 MBF to the available inventory is insignificant, (less than a 1% increase in total available volume).

After an IDT review, it was decided that there would be no change proposed to the Priority A Riparian Protection Zones. Priority B watercourses are subject to change to meet the FSC standards. For Priority B Class I watercourses, this will be in average increase that will effectively double the zone width to a standard of 100 feet. However, the only effected acreage of 119 acres is insignificant. On the Class II watercourses, the average increase would be 25 to 50 feet. Again after taking out all the other FMP restrictions that impact these watersheds, the effective increase is 263 acres. Again, this is not a significant increase. Presently Priority B Stream Zones are partial cut and that will remain. In practice, it will probably not matter as most Priority B Stream zones are incorporated into shape groups. So the change to FSC standards is an insignificant change that could provide a very slight beneficial bump in available timber if operations are allowed in the RPZ's, but may also bring a much greater concern about stream protection.

Determination of significance

The Hoopa Tribe enjoys their FSC certification. As a condition of a recent audit, this analysis was completed. The implementation of this analysis is pending a NMFS review. If that review determines that the Tribe's Watercourse protection measures are equivalent to the FSC protection measures, this will not be implemented, there will be no change from the "No Action" Alternative and there will be no significant impact to the streams. However, if the FSC standards are implemented then the new standards will be as protective as the current action and this will result in a positive impact to the human environment.

Wild and Scenic River Boundaries

Federal regulation requires a ¼ mile buffer from the high water mark on the Trinity River. The prior FMP had included this buffer, but the Trinity River Viewshed was extended far beyond this buffer. The revised viewshed buffer will be reduced to the ¼ mile boundary set by federal law. This will have a minor impact on the resources of the area. However, because much of this land is in the Trinity Gorge and is below highway 96 on the east side of the River, it is not expected to significantly change the way the forestlands in the lower part of the river are managed. However for management purposes, the buffer will be set at the ¼ mile level and allow intensive management beyond that. This will open another 225.7 acres to intensive management. This is a 14.9% reduction in acres. With the slopes involved and the provisions of the Trinity Gorge and Klamath Viewsheds, there will not be any significant openings created by harvesting activities. Therefore, there will be no insignificant impact to the aesthetic quality of either the Scenic River Boundary, or the Viewsheds for the Rivers as a result of this change. Therefore the change is minor in score and does not create an adverse impact.

Determination of significance

The national standard was put in place to protect the aesthetic quality of the designated rivers. By increasing the width of the buffer, the Hoopa Tribe has not significantly increased this protection. This reduction in the buffers to the national standard will meet the requirements of the national policy, deemed not to create an adverse impact. In practical purposes, it will do very little to change the management, but is will allow the Tribe more flexibility in areas closer to the Trinity and Klamath Rivers. This proposed Revision will not create a significant adverse impact since it meets the national standard.

3. Living Resources

Determination: Implementation of the proposed action alternative, following the guidelines of the Tribe's FMP, will likely result in adverse, but not significant effects to T&E wildlife species, particularly northern spotted owls, and to the culturally important species such as fisher (also a candidate for listing) and pileated woodpecker. A detailed assessment of the impacts to marbled murrelet, northern spotted owl and fisher can be found in the Biological Assessment for the FMP.

2010 NSO Recovery Plan

The Tribe follows the National Plan for the recovery of Listed Species. The 2010 Plan as originally proposed was potentially detrimental to Tribe's, however the wording has been changed to remove the adverse impact to Tribes.

Determination of significance

Habitat for northern spotted owls, fisher and pileated woodpeckers will be reduce in quality or temporarily rendered unsuitable across much of the remaining old growth stands of the Reservation. However, the tribe's silvicultural practices ensure that structural elements for these species are retained in all regeneration harvest units. None of these species are wholly dependent on virgin old growth forest in this region. In fact, spotted owls benefit from forest practices that retain patches of old growth in amongst vigorously growing second growth stands along with at least some early seral stands which provide abundant prey. The modeling of spotted owl demographic data (1992-2002) with habitat covariates clearly demonstrated that a mix of stand conditions as described above resulted in the highest fitness potential for the species within the Reservation. Implementation of the FMP 1994-2008 has had relatively little adverse impact to spotted owls as demonstrated by our long term demographic monitoring data and reported in the most recent meta-analysis of 11 study areas where the Hoopa study area was one of four with a "stable population". However, leading up to the last analysis conducted in January 2009 we were concerned that the population was in decline and since that time it has become more and more apparent that it is in fact declining. Interestingly, spotted owl survival rates had been stable up to 2004 and have shown a decline since that time which corresponds with a rapid increase in barred owl detections on the reservation. We are convinced that implementation of a barred owl removal experiment will show that barred owls have been the main cause of the decline and that tribal forest management has been relatively compatible with spotted owls.

Murrelet Zone

Although it is unlikely that murrelets are using Reservation forests for roosting and nesting sites, there have been some inconclusive radar sightings that indicate a possibility for murrelets to be entering the Reservation. The proposed murrelet zone has been designated in the area where the detections were recorded as a way to protect potential roosting and nesting habitat for this species.

Determination of significance

Potential marbled murrelet habitat will be reduced, however, impacts to murrelets are expected to be negligible because intensive surveys have not found murrelets occupying any of the potential habitat on the reservation. Radar surveys in 2005 and 2006 did detect "murrelet like" targets potentially using stands in Pine Creek. These stands were previously considered for entry but have been included in the Wildlife Reserve land classification under the proposed alternative. Impacts to marbled murrelet Critical Habitat Unit 11-d is expected to be minimal and ultimately a non issue once the USFWS completes the revised Critical Habitat designation process, since CHU 11-d is proposed to be dropped.

Threatened, Endangered and Cultural Wildlife

Fishers clearly can use and reproduce in landscapes that have little or no old growth so long as structural elements are present at "adequate levels". However, habitat fitness potential has yet to be determined anywhere throughout their range and it is quite possible that areas with large expanses of old growth may have higher fitness than areas with little old growth and higher fragmentation. Female fisher home ranges generally contain very little (<5%) non-forested or open seedling habitat. However, regenerating stands on the reservation quickly develop a dense layer of brush and small trees and generally achieve a sapling brushy pole condition (which provides over fisher cover and high prey density), thought to be of some use to fishers, within approximately 10-15 years. These stands reach stem exclusion by approximately 30-35 years of age, which is a condition known to provide denning habitat conditions for fishers so long as structural elements are present. Implementation of the FMP will likely further reduce habitat quality for fishers but will retain structural elements across the landscape as well as patches of high quality old growth which will mitigate the overall impact to fishers and ensure that the landscape will provide habitat for this species into the future. Once the available old growth has been exhausted and the tribe shifts to regeneration harvests of second growth impacts to fishers may change. This will be a very important issue to consider when the FMP is revised again in 2026.

Pileated woodpeckers may be the most heavily impacted species of the four considered for analysis simply because all of their life requisites are tied to large diameter, old trees with decay. Of course, on the reservation we have witnessed that they also use young smaller trees, especially intermediate and suppressed trees which have been infected with various fungi and declined in health or died. These types of trees are common in old growth stands and relative abundant in second growth stands with residual structure and which have not received stand improvement treatments. Pileated woodpeckers are still widely distributed throughout their historic range and are present in many areas with little or no old growth forests. Still, in the west, most studies of pileateds demonstrate that they select forested stand conditions and individual structures that are common in old growth and relatively rare areas cut with intensive regeneration methods. The FMP mitigates the impact of cutting in old growth stands by retention of substantial amounts of residual large live and dead trees and logs. We have also confirmed pileateds using sites that have been cut under the FMP from 1994 until present and in fact have confirmed nesting in such stands. Therefore, we are uncertain what the overall effect will be to this culturally important species, but are sure that it will be negatively impacted due to the loss of old growth structure but still retained in a relatively healthy population levels because of the mitigating silvicultural practices.

Botanical Provisions

The cultural plants list in the previous FMP has been determined to be inadequate for the number of plant species important to the Tribal members. This list has been updated and a handful of measures have been set apart as a botanical section.

Determination of significance

This does not result in any now protection measures or any impact to the AAC. There is not a negative impact on the Tribe or the AAC by the inclusion of this section. This revision will not create an adverse impact on the human environment.

Pest Management

Sudden oak death (*Phytophthora ramorum)* (SOD) is a fungus with potential to have a devastating impact on the Tribe. In anticipation of the arrival of this fungus onto the Reservation, The Tribe has developed a protocol for dealing with confirmed infestations within the Reservation Boundary. The provisions contained in the FMP are similar to those proposed for management on lands under the jurisdiction of the State of California. Because of the destructive nature of this pathogen, any and all

efforts to halt its spread are less impactive than allowing further infestation. This treatment could result in the clearing of areas in excess of the ten acre limit for modified clearcut, if the pathogen gets afoot-hold before being detected. However, the potential loss of thousands of acres of tanoak as a result of its spread makes any clearing insignificant by comparison.

Determination of significance

The provisions to remove infected plants and nearby susceptible plants, despite the FMP restriction are the least impactive alternative. Although the clearing of lands to remove the pathogen has potential to create and adverse impact, the impact of these operations will be less than leaving the pathogen untreated. Therefore, these provisions are deemed to be less than a significant adverse impact.

Invasive Species Removal - Botanical

Preservation of native plants is the desire of not only the Tribe, but most forest managers. Travel corridors and urban development have allowed for the introduction of numerous plants that are able to proliferate in a new environment. Because these plants have invaded the forestlands and pose a threat to regeneration efforts or other forest resources, it becomes a necessity to introduce removal and prevention measures. When conducted properly, as outlined in the FMP. These measures create a beneficial impact on the human environment. Because of the Tribe's current management, there are no large open areas where removal would create large disturbances. Invasive Species removal in large areas such as prairies is covered under the Prairie Restoration discussion.

Of the species listed in the FMP, none have a beneficial use to the Tribe. Even the Himalayan Berry replaces local berries and has become a fire hazard which far outweighs the benefit of the berries produce. The removal of the invasive species is a positive environmental impact as it returns the plant community to the native components which are most suited for the environment of the Hoopa Valley. Removal will consist of pulling, cutting, limited burning and, in one instance, covering with black plastic are the methods prescribed for treatment. Heavy equipment and significant ground disturbing activities are generally ineffective for treatment of invasive species and are therefore not proposed.

Determination of significance

Although invasive plants have become an issue, there removal will not create large areas of bare soil. The efforts to re-establish native plants will have a beneficial impact. The light hand on the land approach the Tribe has chosen to removal and the beneficial impacts of restoring native plants, combine to ensure that this activity will not produce and adverse impact to the Human environment. The anticipated return of native vegetation is expected to have an overall beneficial impact.

Invasive Species Removal – Animal

Preservation of existing animal communities is the desire of the Tribe. Changing conditions and the introduction of exotic animal species to the North American Continent has allowed for the encroachment of numerous animal species that can proliferate in a new environment and drive out resident species. Because these species have invaded the Reservation's forestlands and pose a threat to native species, many of which have cultural importance, it becomes a necessity to introduce removal measures. The FMP has included measures that allow for the removal of invasive animals. Although these measures create a severe adverse impact on individual members of a species, it does not adversely impact the population as a whole, other than potentially limiting, or reducing its spread.

The most pressing of these species is the barred owl. With the detrimental impact the proliferation of this species is having on the northern spotted owl, and the potential implications that has on forest management, it has become advisable to initiate the manual removal of barred owls from the environment. This will have some adverse aspects as the destruction of live animals can be unpopular. However the preservation of the native spotted owl outweighs the minor impact of termination of the

invasive barred owls. The IDT has discussed this matter in depth and has presented it to the Tribal Council and the Tribe's Cultural Committee on more than one occasion and has received concurrence that the proposed treatment is necessary.

Determination of significance

The removal of invasive species has been determined not to create a significant adverse impact on the environment. Dogs in the forest could have an adverse impact on owners, but not considered significant when compared to the damage the dogs are doing. The treatment of barred owls will commence once the FMP is approved. This is not expected to have a significant adverse impact. There may be some minor adverse reactions, these can be most likely countered through and education program which is the first component of any eradication effort. Removal of other invasive species should create a positive impact on Listed Species and may have a generally positive impact on the overall diversity of wildlife on the Reservation.

Commercial thinning

Of the various levels of harvest commercial thinning ranks at the same level as single tree selection. The use of commercial thinning provides the Tribe with the ability to better manage the second growth stands. By capturing mortality in advanced stands the Tribe can recover the value that would normally be lost as suppressed and understory conifers drop out of the stand. It also allows the Tribe to "groom" its stands by removing the defective trees so that growth is concentrated on the potential crop trees. Adding this silvicultural prescription to the tools available to the tribe is a positive impact.

Determination of significance

Commercial thinning is a much less impactive method to gather a return on forestlands than any final harvest method, including the Tribe's FSC certified harvest methods. Applied once, a commercial thinning can enhance tree growth while maintaining a forested condition for wildlife. The low level of operations generally does not negatively impact soil conditions, when conducted in a proper manner as required by the FMP. The addition of this section to the silvicultural tools will provide a positive impact to the Tribe by allowing the Tribe to manage the second growth stands before entering them for a final harvest. This measure will create a minor positive impact on the Tribe's Forest Management and the human environment.

Bears and Pre-commercial thinning

As the problem with bear striping the bark from coniferous trees continues to spread across the reservation, it has become apparent that the current management is ineffective. The current pattern of pre-commercially treating young conifer stands merely invites more bear damage. By shifting the treatment to a single earlier treatment should give the trees the needed boost to stay at least even to the height of the brush layer, and should slow the growth enough to reduce the favorability of trees to bears. Trapping bears and terminating confirmed or even highly suspected tree strippers is not keeping up with the population of bears engaging in this activity. There appears no solution other than to slow the growth of the young conifers. The ideal stand is one where a thick canopy of conifers remains at stem exclusion levels. However, allowing conifers to complete with brush and hardwoods may also slow growth sufficient to keep from the high growth production that makes them favored by bears. It is hoped that by making the trees less inviting that eventually the bears will find other easier, tastier alternatives. Therefore although the alteration of the pre-commercial thinning schedule will have a small to moderate adverse economic impact, the alternative of having plantations decimated by bears is more of an impact. The chosen alternative does not create a significant adverse impact on the environment.

Determination of significance

Shifting the timing of young plantation management will not change the level of impact. These treatments will be the same as the no action alternative. Changing the timing of Timber Stand Improvements will not have an adverse impact on the human environment.

Yarder Overwood ban

There are few units with a standing overstory where overwood removal is a possibility. However, where these units are in cable settings, it is uneconomical to remove this wood. This has been the proven in recent units where removal of the overstory was proposed. This change has a minor impact on available timber as overwood will no longer be available in yarder units. However, to overall impact of this alterative is insignificant due to the very low number of units where it might be proposed.

Determination of significance

Maintaining overstory trees in a shelterwood or seed tree setting may impact the growth of the plantation slightly, but the cost of removing these trees, especially on grounds to steep for tractor operation is financially prohibitive. This measure will not have an adverse impact on the human environment.

Yumming

The practice of Yarding Unmerchantable Materials (YUM) logging has been a part of the FMP since the 1994 drafting. However, the practice is mostly uneconomical and therefore not used. As the Tribe begins to look at alternative forest resource uses, the practice may come into favor as a way to generate material for things like Biomass production. Therefore the change in logging practice to encourage Yum activities under certain situations has been included.

Determination of significance

This will not have a significant impact on the forestlands of the reservation. There may be some future nutrient loss due to the removal of slash, but this will be offset by the reduction of carbon release from burning of units. The financial impact of YUM logging should be offset by the minimal return for the sale of the product, or may be compensated for by site preparation moneys. Either way, YUM logging in specific situations as outlined in the FMP will not create and adverse impact on the environment, AAC, or the economic return of the Tribe.

4. Cultural Resources

Cultural Resources

Because this is a programmatic document for planning purposes only, and does not identify specific projects, there is no federal undertaking as defined under 36 CFR Part 800.16(y) requiring BIA-PRO compliance with Section 106 of the National Historic Preservation Act (NHPA), as amended. Accordingly, no significant impacts to cultural resources will result from approval of this document. However, BIA-PRO will consult with the State Historic Preservation Office (SHPO), as needed, and afford the SHPO the opportunity to comment on project level NEPA documents tiered to this EA, specifically with concern for a project to have the potential to affect significant cultural resources eligible for inclusion to the National Register of Historic Places (Historic Properties). For those projects where Historic Properties are identified, the Tribe will apply avoidance measures whenever possible to ensure a BIA determination of *No Adverse Effect to Historic Properties* as the result of its Federal undertaking. Additional consultation may be required on projects where avoidance is not feasible. Under these circumstances it may be necessary to develop a Memorandum of Agreement (MOA) and Historic Properties Treatment Plan (HPTP) to include mitigation measures implemented by the Tribe that will limit or reduce impacts to Historic Properties.

Determination of significance

Protection of cultural does not create and adverse impact on the human environment.

Hardwood Management

The Hoopa Valley Indian Reservation has approximately 11,890 acres of hardwood dominated stands in the 86,700 acres of Forestland. This accounts for approximately 14% of the Forestlands. Hardwoods are a moderate to significant portion of the sire on another 10,528, making a total of 22,418 acres that area available for some type of hardwood treatment. The challenge comes with balancing the cultural importance of acorn producing hardwoods such as tanoak, with the firewood needs of the Tribal members. Also in order to maintain the AAC, there is a need to treat stand to promote conifer production.

There are also resource considerations that are pressing on hardwood stands. Mast producing vegetation is important to the wildlife on the reservation. Large hardwoods also are valuable for the cavities and whirls that provide nesting platforms. Acorns produced are a traditional food supply for the Tribe and are still utilized for traditional and cultural purposes. Root fungus in tanoak stands produce edible mushrooms that are also a traditional staple for the Tribe that is still relished, and also provides a potential commercial revenue source if developed.

Hardwoods have the potential to be used for carbon sequestration, which is not incompatible with the resource values. However, hardwoods also have a significant firewood potential. Use by individual tribal members is a common occurrence. However, the commercial opportunities of tanoak firewood production have not been extensively explored and are a potential alternate forest revenue source. With the nation's desire for green energy, tanoak for biomass is another alternate forest revenue source.

To manage the numerous potential activities hardwood management can take, a list of six (6) objectives have been drafted in order of importance. They are as follows:

a. Production of acorns for cultural purposes
b. Production firewood for tribal members
c. Stand diversity for enhanced wildlife habitat and resiliency to fire
d. Production of firewood for tribal commercial firewood cutters
e. Production of wood fiber for a potential biomass utilization project, and
f. Healthy growth for potential inclusion in carbon sequestration.

Each of these objectives brings a different potential to impact other resources of the Tribe and will be discussed individually.

Cultural Purposes

The importance of tanoak and all the associated resources are integral to the culture of the Hoopa Tribe. Any plan attempting to bring this resource under management must conform to the cultural needs of the Tribe. To accomplish this, there are a number of provisions to minimize the impact to Tribal Cultural Resources. This includes designating mature stands for protection and keeping potential acorn trees adjacent to roads. Some older tanoak stands would be subject to limited operations to reduce stocking levels and enhance the growth of the trees, but for the most part, these older stands will remain untouched. Also fuels treatments, like understory burns may be utilized to protect and maintain these older stands. The exclusion of these stands from intensive management has some limited potential to impact the potential tribal revenues. However, the break-even nature of hardwoods harvesting under current and expected market conditions indicates that the expected adverse economic impact of cultural retention will be minimal.

Tribal Membership Firewood

The right of Tribal members to cut firewood on the reservation is nonnegotiable. Firewood cutting will occur in hardwood stands. Although this most often targets madrone, it can also include tanoak. By managing individual firewood gathering, the FMP can have a generally positive impact on the forest Resources. There are many resources that are adversely impacted by firewood cutting. However, these can be mitigated through education. In the past, all tribal members needed to come to the Forestry Department for wood permits. However, recent changes by the Tribal Council have made those permits obsolete. Be beginning a program of information as outlined in the FMP, Tribal Forestry can mitigate some of the impact of individual firewood harvesting. Done properly, there will be no adverse impact to the Forest Resources due to individual firewood harvesting.

Stand Diversity

On industrial timberlands, the creation of monocultures has dramatic impacts on wildlife and non commercial plant resources. The mixture of hardwoods into the landscape brings a diversity that has numerous benefits. Mature hardwoods provide potential cavities and nesting structure that might otherwise be absent from a stands. The mast produced by hardwoods is a nutritional source for wildlife. And the diseases affecting Douglas-fir monoculture stands can be avoided by including hardwoods. The loss in economic return due to the presence of hardwoods in a conifer stands are heavily outweighed by the benefits. Maintaining hardwoods for stands diversity has no adverse impact and in fact provides a great position impact to the forest resource.

Commercial Firewood Cutters

Similar to individual firewood cutters, commercial firewood cutting has potential to cause a significant adverse impact on the environment. However, it is an activity that some tribal members believe should be their right. Therefore this activity will continue, whether under permit, or by trespass. The council has designated Tribal Forestry at the issuers of commercial permits. This allows Tribal Forestry to manage commercial production and to monitor the amount of wood taken by commercial cutters. The issuance of a commercial permit is required for a tribal member to sell of barter their firewood, and these are available from the Forestry Department. Like individual firewood cutting, education and information can help commercial firewood cutters be responsible. The issuance of a permit allows Tribal Forestry to designate where commercial cutters operate and Forest can choose sites with a low potential for and adverse impact. Through these mitigation measures, commercial firewood operations will not result in an adverse impact to the forest resources.

Biomass Utilization

Use of hardwoods for non-traditional uses, such as power generation, is an opportunity that is developing. This has potential to change the management of thousands of acres on the Reservation. The FiMP limits hardwood utilization for biomass purposes to existing plantations, but also allows wood taken in older stands treatments to be utilized. With the option of creating electricity from wood products available, there is the potential that up to a thousand (1,000) acres per year could be harvested. This will require a careful rotation of hardwood plantations to accomplish. By adhering to the FMP, the Tribe can ensure that the harvest would not impact and listed species or cultural, historical, or archaeological resource. Site preparation and regeneration will be relatively simple as most of the slash will be utilized in the biomass operation and the tanoaks and madrone so prevalent on the Reservation will both stump sprout. Conducting archaeological, ESA animal, and botanical surveys will protect critical resources. The hardwoods units will follow all the FMP requirements, except there will be no unit size limitations, and the use of modified clear-cut prescription will not be used. However, the coppice nature of the hardwoods will regenerate the stands much quicker that conifer stands. It is anticipated that with the retention standards of the available silvicultural prescriptions that the stands will only be in an unforested condition for a very short time. This will mitigate the potential impact of hardwood management for biomass utilization and ensure that this activity does not create and adverse impact on the Reservation resources.

Carbon Sequestration

Should the opportunity arise for the Tribal to be compensated for the amount of carbon the Reservation forests absorb on a yearly basis, then this will become a revenue tool for eth tribe. Even though the purpose of this activity is to sequester carbon in the stems of trees, some treatment of the stands may occur to protect the stands form the potential of carbon releasing fires. Otherwise no activities would occur on these hardwood stands. There is no adverse impact on maintaining stands for their carbon sequestering ability. By limiting the length of carbon contracts the FMP limits the potential for the Tribe to get locked into a contact that could create and adverse economic impact on the Tribe.

Oak Woodlands

Though different in composition that tanoak stands, these stands will be protected as set forth in the FMP. Management will focus on reducing fire hazard and removing invasive Douglas-fir trees. As most of these stands border the Hoopa Valley Floor, aesthetics are important. Through adherence to the FMP and the 2008 Fuels Management Plan there will be no adverse impact to the Hoopa Reservation by the treatment of oak woodlands.

Determination of significance

The range of potential activities and the adaptation of treatment to specific stands will allow for the most beneficial use of hardwood stands. The current practice of overlooking these stands is not good forest management. By including these provisions, the Tribe will be able to utilize some stands for the betterment of the human environment. Stand diversity and carbon sequestration, protection for cultural uses and retention of oak woodlands are all positive methods of maintaining hardwood stands. Biomass Utilization and firewood cutting, private or commercial, both will negatively impact hardwood stands. However, implementation of FMP restrictions will mitigate these impacts to an insignificant level. The inclusion of Hardwood Management in the FMP will not create a significant adverse impact to the human environment.

Prairie Restoration

The Prairies of the Hoopa Reservation have been dwindling since the restriction of burning was enforced on the Tribe by the BIA. This has led to the decrease in some meadow dependant species on the Reservation. The proposal to restore prairies is supported but the Tribe's Cultural committee. However, since many of the prairies were some of the first places assigned out, no all are available for restoration. However, Tribal Forestry will work with Fee land owners and assignment holders to obtain permission to conduct restoration activities.

Restoration activities have potential to impact a number of resources, including: air quality, fire hazard/risk, invasive plants, listed wildlife species including northern spotted owls and Pacific fishers, and traditional gathering of Tribal members.

The effects of meadow restoration are unlikely to adversely impact these resources for the following reasons.

Design of the project is such that only the historic boundaries of the prairies will be used for project boundaries. This will limit the size and scope of the project.

Vegetation removal will target invasive species, such as the Douglas-fir that has overrun much of the former prairieland. These prairie encroachment trees are typically not high quality trees, although the understory tree following the pioneer trees can be much better quality. However, these stands are

typically not used by either Pacific fishers or spotted owl for critical habitat. The increase of prey from the increased grasslands may produce some benefits to these and other predators.

Every prairie restoration activity will incorporate a plan to re-vegetate the operation area with native grasses to reduce the introduction of invasive plants. Through surveys and the reapplication of fire, it is intended that the invasive plants will be kept in check and that natural plants will capture site dominance. This will improve some gathering resources for some tribal members.

Impacts to soils and watercourses are not expected due to adherence to other current FMP requirements.

Prior to implementation of a prairie restoration project, a project level NEPA evaluation will occur. This will allow and site specific issues to be addressed.

Determination of significance

Prairies have a beneficial impact on the environment by creating vegetative diversity and enhancing conditions for certain wildlife species. The inclusion of prairie restoration activities is not a significant change from the "No Action" Alternative which includes the goal of restoring prairies. Some portions of these activities have potential to create and adverse impact. These include burning and tree removal. However, by following national standards for burning the smoke can be managed to prevent becoming an adverse impact. Tree removal has a potential to open bare areas and compact soil. Proper timing of operations and regeneration of native grasses will mitigate these potential impacts. These provisions will not create an adverse impact on the Human environment.

5. Socioeconomic Conditions

Continuing Education

Continuing education is a desire of Tribal Forestry to help the Tribal membership become more attached to the Reservation's forestlands. There is no environmental impact of adding this provision to the list of Tribal goals.

Determination of significance

This goal does not create an adverse impact on the Human environment.

Opening the Closed Range and Grazing

In 1988 the Tribal membership enacted a referendum banning open grazing and free roaming livestock on the Reservation. This was mostly a reaction to roaming livestock on the valley floor, which were a health and safety issue. However, at the time the Land Management Personnel were in the process of identifying areas outside the valley floor where open grazing could occur. In keeping with this the areas selected in the FMP Revision is an extension of the Pumpkin Camp area which was one of those sites. Until another Tribal referendum reverses or eases the previous action, the Reservation shall remain closed to open range.

In order to make the FMP adaptive, the IDT has considered the possibility of the easing of the Open range restriction. To that end, an area has been designated for open range. This is the Bald Hill, Bloody Camp area which has a number of potential prairies that would provide suitable range. In conjunction with planned prairie restoration activities, the relaxing of limited grazing on the Reservation is a high probability. The selected area is a mountainous region where vehicular traffic is at a minimum and where the safety of persons traveling through the area will not be significantly impacted.

The re-introduction of open grazing in a portion of the Reservation has a potential impact on many of the resources of the Tribe. Table 10 is a list of the potential impact to Tribal Resources, followed by a more in depth discussion of those resources with a potential to be negatively impacted.

Residential properties
The ownership classifications (Allotment, Bald Hill Assignment, Bald Hill Urban, Fee, Urban Fee and Allotment) are all grouped as different ownerships for residential ownerships, since they tend to be 20 acres or more in size. These residential properties are not the primary areas where cattle are expected to range. In fact, it will be the responsibility of the cattlemen to keep open range cattle out of these areas, even though prairie lands produce suitable grazing areas. Though this restriction, livestock will be kept in the remote prairies where they will not create and adverse impact to rural residential properties. This includes all of the land leases within the proposed open range grazing area.

Ceremonial Lands
The Ceremonial grounds in this area are encompassed by the Residential lands that cattle will be excluded from. These residential lands provide a buffer and protection for the ceremonial lands within the proposed open Grazing area and will prevent open range livestock from creating an adverse impact on the ceremonial lands within the proposed open grazing area.

Full Protection Creeks and Partial Harvest Creeks
Creeks are highly susceptible to degradation due to cattle grazing. This has been one of the greatest concerns about grazing. However, because of the elevation of the proposed open lease area, it is expected that this will mostly be used as a winter range, where the quest for water will not be as important to cattle. There are no provisions to fence off streams in the FMP. Most of the prairies where grazing is expected to be concentrated around are on or near ridgetops. Therefore the creeks are not abundant. And although there will be some impact to the areas where water is available, the winter grazing and ridgetop location will minimize the typical cattle gathering around wet areas, including streams, as is typical in the hotter summer months. Following these conditions, it is expected that the limited open grazing that will occur will not create and adverse impact on the watercourses of the project area.

Wetlands
Like stream zones, wetlands are gathering places for cattle in hot summer months. In the project area, wet areas can also become bear wallows. The same limitations that will keep cattle from needing to cluster around streams will keep cattle from clustering around wet areas. Those wet areas which are deemed critical habitat components for any listed species or species of concern can be fenced off to keep cattle out. Following these conditions, it is expected that the limited open grazing that will occur will not create and adverse impact on the wet areas of the project area.

Domestic Water Supplies
The recent efforts by Hoopa Public Utilities Department to provide water to residences in the Bald Hill Area will eliminate many of the domestic water supplies in the planned open range area. Those few who choose to keep domestic water supplies will be forced to install barriers around those supplies to keep cattle out. This will be a minor to moderate inconvenience to the water users, but will prevent cattle from adversely impact domestic water supplies. Although there are currently no special provisions to keep cattle away from domestic water supplies, that may become a part of the permit process. Whether barriers are installed by domestic water users or by permit holders, the result will be the same, to keep cattle from adversely impacting domestic water supplies within the project area.

Table 14 - Grazing Area Impacts Assessment

Grazing Area FMP Factors List			
Resource	Not Present	Present - Not likely to be affected	Present Likely to be affected
Allotment			✓
Archaeology		✓	
BH Assign			✓
BH Urban			✓
Box Camp	✓		
Campground		✓	
Ceremony			✓
DeNoTo	✓		
Extreme LSEH		✓	
Fee			✓
Full Creek			✓
Gorge Viewshed		✓	
Inaccessible	✓		
Klamath Viewshed	✓		
No Cause		✓	
Non Commercial		✓	
Non Regenerate	✓		
Nonurban Tribal	✓		
Part Creek			✓
POC	✓		
Redwood Grove	✓		
ESA Species		✓	
Tanoak		✓	
Tish Tang Reserve	✓		
Traditional species		✓	
Urb Fee/Allot		✓	
Valley Assign	✓		
Valley Urban	✓		
Valley Viewshed	✓		
Valley NC	✓		
Woodland	✓		
WSR		✓	
Yew Reserve	✓		
Wetlands			✓
Soil Conservation		✓	
Air Quality	✓		
Open Range		✓	
Land Leases			✓
Domestic Water Supplies			✓
Non Domestic Water Supplies			✓

Non Domestic Water Supplies

Non domestic water supplies are used for purposes such as agriculture. These activities are not inconsistence with open range. By carefully separating domestic and non-domestic water supplies,

there will be no adverse impact to these supplies. For those sites where a potential impact can be identified by the user, then protection measures similar to the domestic supplies would be put in place. This will require an agreement between the user and any permit holder.

Listed Species

The listed species within the project area do not use the open areas where range livestock will be found. There will be no adverse impact on listed species by the creation of open range in the project area.

All other Resources

Other resources, such as viewsheds, tanoak mushroom gathering, and traditional species areas are forest related resources. Because grazing livestock congregate in open areas where grass is abundant, it is not expected that they will be found in forested areas for periods long enough to create and adverse impact. So although many of these sensitive forest classifications arte within the project area, they are not expected to be adversely impacted by the opening of grazing. Of greater impact is the creation of grasslands. However, this will be addressed in the Prairie Restoration discussion.

Determination of significance

Grazing of commercial cattle has potential to adversely impact the environment in the various ways listed in the preceding items. However, each of these mentions mitigations or conditions that limit the potential impact of this activity. Through adherence to these conditions, protection measures and mitigations, the proposed activity can be conducted without adversely impacting the resources of the limited grazing area. The development of a Grazing Plan prior to the implementation of this activity will allow for a project level NEPA analysis to ensure that proper mitigation measures are in place. This will allow the activity to occur, or may prevent it from occurring should an immitigable adverse impact be discovered. But for this document, the measures here and in the FMP will ensure that these provisions will not result in a significant adverse impact to the human environment.

Urban Development

One of the greatest needs on the Reservation is urban space for development of housing for the younger generations. Currently the Urban Zone is 6,184 acres. However, much of this has already been assigned or leased out. A minor portion is taken up by Trinity River and associated gravel bars. The remaining unassigned or available lands are along the edges of the valley floor where the slopes are beginning to steepen. However, at the present time there are only 748 acres of land that are less than 40% in the designated Urban Zone.

Tribe Forestry and the Tribe's Land Development subdivision of the TEPA department have created a list of provisions that would allow for development of properties without a lengthy EA review process. These provisions have been included in the FMP. The FMP estimated that approximately 20 to 30 new land parcel allocations each year over the life of the FMP. Each parcel will be approximately 0.5 to 1 acre in size on slopes less than 30% and up to 2 acres on slopes between 30% and 45%. This will provide lands for the next 7 to 10 years. Once this land is utilized, additional acreage will need to be assigned, potentially requiring an amendment to the FMP.

Determination of significance

These potential parcels are near the valley floor and there are no listed Wildlife Species that will be impacted by clearing of these properties. Much of the valley floor has been surveyed for archaeological resources and the proposed operations will not be allowed on archaeological sites, as stated in the FMP. Strict conformance with the provisions of the FMP will ensure that the development will not result in a significant adverse or even cumulative adverse impact on the environment.

Because these lands have been designated as Urban Zone, they are taken out of the AAC calculations and are not managed by Tribal Forestry. However, in order for commercial timber to be removed from these lands for installation of a house site, NEPA documentation is required if the new landowner wishes to receive monetary value for the timber. In the past this has required a NEPA review, which can be lengthy. The intent of this inclusion in the FMP is to expedite the NEPA review. When a designated property conforms to the limits in the FMP, then the landowner can receive clearance from the Tribe and commence development.

Because these lands are within the Urban Zone, the residential development is within the targeted purpose. Therefore the creation of home sites under the limitations of the FMP will not create a significant adverse impact for any parcels within the designated Urban Zone.

6. Other Values

Firewood Permits

In October of 2007 the Tribal Council put a resolution to make a Tribal Membership Card equivalent to a wood cutting permit to gather firewood out for LPA review. At the time, the Forestry Department opposed the resolution owing to the past abuses, trespasses, and wood removal buy both Tribal and non-tribal individuals. Despite the Forestry Departments counsel, the Tribal Council acted on Resolution 07-61 and on October 9, 2007 the resolution was passed. This amendment of the FMP is to make the FMP compliant with the Tribal Resolution. The effect of the action in some ways makes wood cutting more restrictive as Tribal members are not allowed to have designated cutters gather wood for them and plainly states that anyone without a Tribal membership card cannot cut firewood on the Reservation.

Over the past couple of years, there has not been a significant impact by this decision. Although poaching of firewood is occurring it is difficult to determine if this is a result of the permit change, or a lack of enforcement. Poaching levels have not been compared to historic levels to determine if it has significantly increased. In an effort to prevent inadvertent poaching by uneducated Tribal members, the notification measures have been added to the FMP. This should mitigate any impact of the council decision and ensure that the Tribal Membership card is a wood cutting permit resolution does not result in a significant adverse impact.

Determination of significance

The goal of Continuing Education pushes Tribal Forestry to educate the membership and council on matters such as proper firewood cutting. Through these actions, the proposed revisions to the firewood permit system have been mitigated into a less than significant adverse impact.

Fire Plan

With the changes in fire protection and prevention measures and the evolution of the requirements of a Fire Management Plan, it has become necessary for the Fire Management Plan to become a separate document. However, until a Fire Management Plan is created through an Interdisciplinary Team, fire provisions need to be included in the Forest Management Plan. To that end, the National Wildland Fire Policy measures have been incorporated into the FMP. There is no significant result of this change. The National Policy requires suppression of all fires and this is in keeping with past FMP measures and with current Forestry requirements. Because the Tribe has a Timber based economy, the only management of fires can be suppression. Any other management creates and adverse impact on the tribe, both economically, and in the destruction of natural resources including ESA protected habitat. The addition of the National Wildland Fire Policy into the FMP then protects more resources and prevents an adverse impact to the Reservation's forestlands. This does not prohibit the use of fire for the treatment of slash generated from forestry activities or the buildup of fuels in the forestlands.

The Tribe has a Fuels Management Plan and any Fire Management Plan which governs the treatment of fuels; both those generated in Forestry activities and those accumulating in the Tribe's forestlands. The pending Fire Management Plan must be developed to coordinate with both the Forest Management Plan and the Fuels Management Plan. Air Quality standards from use of fire from manipulation of fuels has been addressed in the Fuels Management Plan and the associated EA and FONSI.

Determination of significance

Wildfires are a significant adverse impact. The inability of the Forest Management Plan to qualify as a Fire Management plan creates confusion about how wildfires should be handled, which creates and adverse impact. By tying the FMP to the National Wildland Fire Policy, this impact can be mitigated. The creation of a Tribal Fire Management Plan that is tiered to both the Forest and Fuels Management Plans will result in a positive impact to the Tribe by governing any wildfire to meet Tribal goals. This change in the FMP will not result in a significant adverse impact to the human environment.

Culvert re-sizing

The original FMP 2000 allotted for 18 inch culvert as a minimum at stream crossings to accommodate for 50-year flood events. The newly amended FMP states that culverts will be upgraded to accommodate 100 year flood events and will be no smaller than 24 inches. Culverts will be upgraded as roads are reconstructed for current timber sale areas. Eighteen-inch culverts are not suitable for accommodating 100 year flood events and shall be replaced as the roads are redeveloped for timber sales. Replacing culverts that are not suited for 100 year flood events on roads that will not be reused at the time of culvert replacement is not economically feasible.

This has a potential negative impact on Tribal revenue generated from timber harvest income. To reduce this impact, the replacement will take place over a period of time as timber sales occur in areas with undersized culverts, or as outside project funding (such as NRCS CCPI or EQIP funds) can be obtained. The replacement of these culverts has a positive impact on the environment of the Hoopa Reservation. This replacement will decrease the possibility of culvert failure in the event of a large storm, and will have a potential positive impact on Tribal economics as it will decrease the costs associated with the failure of undersized culverts. The short term economic impact is outweighed by the long term environmental impact.

Determination of significance

Although viewed as a potential adverse economic impact, the upgrading of culverts should in the long term decrease the cost of repairing failed crossings. This will result in a potential positive impact. Also, the reduction in failed crossings will reduce sediment delivery and stream degradation. This will result in a positive impact on the human environment. .

V. Cumulative Impacts Assessment

The following Assessment is prepared in conformance with Appendix C of the Tribe Forest Management Plan (FMP).

(1) Do the assessment area(s) of resources that may be affected by the proposed project contain any past, present, or reasonably foreseeable probable future projects?

Yes _X_ No___

If the answer is yes, identify the project(s) and affected resource subject(s).

There are numerous past, present, or reasonably foreseeable probable future projects within the boundaries of the Reservation, and on adjacent forestlands. However, these should be more appropriately identified and discussed in project level NEPA reviews. This Management Plan sets for the harvesting of timber for commercial return, but also provides mechanisms for regeneration and Timber Stand Improvement activities as well as manipulation of hardwood stands, and the potential return of grazing activities. The associated Fuels Management Plan outline fuel reduction projects over the next several years. There are USFS Lands that are being treated for fuels reductions and Forest Stand Improvements. Adjacent private landowners will be conducting logging activities and potential development.

The Management Plan contains provisions for doing Project level NEPA Evaluation. It is during this phase that the impacts that past, present, or reasonably foreseeable probable future projects can have on specific management actions. Therefore, these projects should be covered in regard to project level NEPA Review.

(2) Are there any continuing, significant adverse impacts from past land use activities that may add to the impacts of the proposed project?

Yes __ No_X__

If the answer is yes, identify the activities, describing their location, impacts and affected resource subject(s).

This project is a programmatic level NEPA Review to assess the impact of the Forest Management Plan over the next fifteen years. Although there are continuing significant adverse impacts occurring on the Reservation, these impacts affect individual projects, not the general management as a whole. The Forest Management Plan is structured to treat continuing impacts without adding to those impacts with proposed projects. Because this project is a programmatic level project is will not ass to any existing adverse impact.

(3) Will the proposed project, as presented, in combination with past, present, and reasonably foreseeable probable future projects identified in items (1) and (2) above, have a reasonable potential to cause or add to significant cumulative impacts in any of the following resource subjects?

	Yes after mitigation (a)	No after mitigation (b)	No reasonably potential significant effects (c)
1. Land Resources			X
2. Water Resources		X	
3. Air Resources			X
4. Living Resources		X	
5. Cultural Resources			X
6. Socioeconomic Conditions			X
7. Resource Use Patterns			X
8. Other Values			X

a) Yes, means that potential significant adverse cumulative impacts are left after application of the Forest Management Plan and mitigations or alternatives proposed by the plan submitter.

b) No after mitigation means that any potential for the proposed timber operation to cause or add to significant adverse cumulative impacts by itself or in combination with other projects has been reduced to insignificance or avoided by mitigation measures or alternatives proposed in the EA, or BA and application of the Forest Management Plan.

c) No reasonably potential significant cumulative effects means that the proposed operations do not have a reasonable potential to join with the impacts of any other projects to cause, add to, or constitute significant adverse cumulative impacts.

(4) If column (a) is checked in (3) above describe why the expected impacts cannot be feasibly mitigated or avoided and what mitigation measures or alternatives were considered to reach this determination. If column (b) is checked in (3) above describe what mitigation measures have been selected which will substantially reduce or avoid reasonably potential significant cumulative impacts.

As discussed in the Affected Environment and Environmental Consequences sections, the resources most at risk ate watercourses and biological resources. Much of the impacts to watercourses is tied to anadromous fisheries and the anadromous streams are fully addressed in the "Biological Assessment For Southern Oregon/Northern California Coasts Coho Salmon For The FOREST MANAGEMENT PLAN 2011 REVISION For The Period 2011 TO 2025" which was submitted to NOAA/NMFS in March of 2011. A copy of this document is found at the BIA Pacific Region Office in Sacramento. The protection measures to mitigate potential adverse impact to anadromous fisheries will also protect watercourse integrity. The Analysis of the FMP Riparian protection measures to the FSC Stream

Protection measures found previously in this document indicated the minimum levels of protection for watercourses. These protection measures are the mitigation needed to prevent and adverse impact on the Water Resources of the Reservation.

Living Resources can be subdivided in categories that include: Wildlife, Vegetation, Biological Communities, and Agriculture. The proposed project will not impact agricultural resources of the Reservation, and maintains a range of Biological Communities on the Reservation. Botanical provisions, such as the proposed removal of invasive weeds have been incorporated in the Revision of the FMP to mitigate the potential adverse impacts of forest use, for Forestry and recreational uses. There are no listed plants or plant communities found in the vicinity of the Reservation.

Wildlife is subject to adverse impacts due to forest management activities. The Tribe's Forestry Wildlife Department has prepared a Biological Assessment of the potential impacts of forest management on listed species on the Reservation. This document has been submitted to the USFWS and a copy is found at the BIA Pacific Region Office in Sacramento. The Forest Management Plan has numerous protection measures to mitigate the potential to adversely impact any listed wildlife species. As a result of this protection measures, the impacts to wildlife will be kept to a less than significant level.

Land, Air and Cultural Resources, as discussed previously, do not have conditions which have potential to cause or add to significant cumulative impacts due to the restrictions and management parameters of the Forest Management Plan. Socioeconomic conditions and Resource use Patterns will not be adversely impacted by the implementation of the FMP. There are no other values that were identified by the IDT that have potential to be adversely impacted by the implementation of the FMP.

VI. Consultation and Coordination

1. The Hoopa Valley Tribal Council

The Hoopa Valley Tribal Council has reviewed this environmental assessment and has determined that this project will not have a significant effect on the human environment and is therefore exempt from requirements to prepare an environmental impact statement. The Hoopa Valley Tribal Council furthermore advises the Regional Director of the Bureau of Indian Affairs to approve Alternative one as proposed. The Council requests that the Regional Director issue a Decision Notice and Finding of No Significant Impact.

2. U.S. Fish and Wildlife Service

The Hoopa Valley Tribe will initiate a formal consultation for the proposed FMP revision. This should result in a programmatic Biological Opinion from the U.S. Fish and Wildlife Service. This Opinion should cover all Forest Management Plan activities from 2011 through the next expected revision of the FMP in 2025.

3. Bureau of Indian Affairs

The Bureau of Indian Affairs (BIA) will review the draft of this document and may approve this project through the signing the Finding Of No Significant Impact (FONSI). In addition, the Bureau will consult the State Historic Preservation Officer in preparation to receive a concurrence on their determination of No Adverse Effect. The Bureau, upon receipt of the Biological Opinion from NOAA on anadromous Fisheries and the Biological Opinion from the USFWS on listed species and upon approval of the project, will provide the FONSI to the Hoopa Valley Tribal Council.

4. State Historic Preservation Officer

Because this is a Programmatic Document, the BIA will not consult with the State Historic Preservation Officer (SHPO) with respect to impacts to archaeological and historic sites. However, on each project level NEPA document tiered to this EA, the BIA will consult with SHPO, as needed.

5. National Oceanic and Atmospheric Administration

The Tribe will formally consult the National Oceanic and Atmospheric Administration (NOAA) on the proposed action with respect to impacts on listed or candidate anadromous fish. This request will be accompanied by a biological assessment (BA) prepared by the Tribal Forestry since the watersheds of the project area are not anadromous watersheds. It is likely that the consultation for this timber sale will occur in conjunction with a consultation for the revision of the Tribe's Forest Management Plan. NOAA will forward a copy of its formal opinion and incidental take permit to the BIA

VII. List of Preparers

Tribal Council members

Current
Leonard Masten Jr., Tribal Chairman
Byron Nelson Jr., Tribal Council, Vice Chair
Margaret Dickson, Tribal Council
Joseph LeMieux, Tribal Council
Leroy Jackson, Tribal Council
Oscar Billings, Tribal Council
Marcellene Norton, Tribal Council
Ryan Jackson, Tribal Council

Past
Clifford Lyle Marshall, Chairman 2007-2008
Benjamin Branham, Jr., Council 2007-2008
Elton Baldy, Council 2007-2008
William J. Jarnaghan, Sr., Council 2007-2008
Leonard Masten Jr., Council Rep. 2007-2008
Hayley Hut, Council 2008-2009

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Fisheries
Andrea Davis, Fisheries Department
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Hoopa Forest Industries (HFI)
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Tribal Offices
Daniel Jordan, Self Governance Officer

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Appendix A
Environmental Assessment of
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Alternatives for the Period 2011 – 2025
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Pacific Region Logging Practices

The following is the list of logging practices contained in the BIA pacific Region handbook. The logging practices of the Hoopa Tribe conform to these practices in most instances, except where the Tribe's FMP is more restrictive than the Pacific Region Practices.

PACIFIC REGION
LOGGING PRACTICES

OBJECTIVES
The purpose of these guidelines is to maximize forest resource utilization on Indian lands within the Pacific Regional Office's jurisdiction, while minimizing environmental disturbances such as erosion and mass soil movement through proper logging techniques.

FELLING PRACTICES
Trees will normally be felled across the slope. All attempts should be made to fell trees to tractor leads allowing efficient skidding and providing protection for reproduction and leave trees. Mechanical shears or other tractor mounted felling equipment shall not be used on slopes exceeding 30 percent without written permission from the OIC to the Regional Director. This written proposal should give justification, equipment limitations and specifications on the particular mechanical shear that will be used on a site-by-site basis.

On slopes exceeding 55 percent or on broken or rocky ground, the Forest Officer-In- Charge should consider the use of jacks or pulling to reduce falling breakage. Trees should be felled to lead away from watercourses, lakes and bird nesting sites should also be considered. Stump heights should be kept at a minimum (rule of thumb: not to exceed ½ the tree diameter on the high side of the tree) or as safety provides.

TRACTOR YARDING
The following standards are applicable to tractor yarding:

1. Spur roads shall be located prior to construction, so that no side-cast from construction will be deposited in or near dry or live streams and so that damage to residual trees shall be minimized.

   Skidding through ephemeral or intermittent streams shall be kept to minimum, subject to approval by the Officer in Charge.

2. Slash and other debris shall not be bunched or bulldozed adjacent to residual trees required to be left standing during and after construction of logging truck roads, tractor roads, tractor skid trails, landings, fire breaks, or in locations where such debris could be likely transported into streams.

3. Construction of new Tractor roads, skid trails, and tractor yarding will not be allowed on slopes steeper than 40 percent unless specifically justified, and approved, in writing, by the Approving Officer. Skid trails shall be planned and laid out to take advantage of ridges, skidding at angles and shall avoid skidding straight up and down slopes. Trails shall be planned to stem off of one main trail when practical (i.e. "herring bone" system). Under no circumstances will tractors be allowed on slopes exceeding 55 percent.
4. Desirable residual trees and reproduction will be protected from damage or destruction in skidding operations while breaking out logs to tractor roads or while operating on tractor roads.

5. Ground based equipment shall not be operated on known potential or active unstable areas unless approved in advance and in writing, by the Approving Officer and he/she specifies protective measures that will be taken. The Approving Officer will be responsible for ensuring the recommended specific protective measures are followed.

TRACTOR SKID TRAILS

Tractor skid trails shall not be allowed in environmentally sensitive or unstable soils areas unless specifically flagged by the Forest Officer-In-Charge and approved by the Approving Officer. Tractor skid trails shall be limited to the number and width necessary for removal of logs and shall not be allowed on slopes greater than 40 percent unless specifically justified by the Forest Officer-In-Charge and approved by the Approving Officer. In no circumstances will a 55 percent slope be exceeded.

CABLE YARDING

When cable yarding is employed, the following standards shall be followed:

1. The installing, hanging, and operating of cable lines shall not excessively damage residual trees, seedlings, or vegetation within Stream Protection Zones or in any other reserved or partial cut areas.

2. Residual trees shall not be used for rub trees, corner blocks, or cable ties unless protected from damage by effective protective devices. Extra blocks along cable lines or other measures shall be used to insure that cables do not excessively damage residual trees, and seedlings.

3. The practice of tight-lining for the purpose of changing location of cable lines is not allowed unless such practices can be performed without excessively damaging or destroying residual trees, seedlings, or vegetation within a Stream Protection Zone or in any other reserved or partial cut areas and approved by the OIC.

4. In any sections of a cable corridor that have been scoured by log yarding, cross-drains shall be constructed within 15 days of cessation of the use of the corridor or by October 15, whichever occurs first.

5. When tractors are used in conjunction in cable yarding operations, tractors shall be limited to the following conditions unless approved by the Approving Officer; pulling logs from a watercourse, yarding where deflection is low, using the tractor as a tailhold, and constructing firebreaks or layouts.

RIGGING

Hanging guy lines and other rigging on residual trees is not allowed unless these trees can be protected from excessive damage and approved by the OIC.

SLOPE STABILITY

A geologic analysis of slope stability must be conducted prior to logging on slopes greater than 55 percent or on any unstable slopes on which more than 50 percent of the timber is expected for removal. The OIC may request the geologic analysis be waived by one of two ways. A letter must be sent to the Regional Director, justifying that the proposed action(s) will not adversely affect soils, watershed, etc. or succinctly address geology in the Forest Officers Report (FOR).

A preliminary Erosion Hazard Rating (EHR) of the proposed logging area should be calculated and assessed by using Illustration 1a., "Estimated Surface Soil Erosion Hazard Form".

LANDINGS

Landings shall not be perched on slopes of over 55 percent, located in unstable areas, or within Stream Protection Zones. Landing construction shall not occur on saturated soils.

Landings shall be no larger than 1/4 acre in size in all timber types except redwood and no larger than 1/2 acre in redwood timber type. Landings should be sloped or ditched to prevent water from accumulating and drainage structures should be installed where necessary. Side-cast from landing construction shall not be allowed to enter any Class I, II, or III stream. At the completion of logging operations, landings shall be ripped to a depth of 12 inches or mulched. Activity slash shall not be included in any landing fill.

EROSION CONTROL

Logging roads, tractor roads, landings, firebreaks, and falling layouts shall be designated, located, and constructed in a manner which will control erosion. Excavation and movement of soil shall be consistent with sound forest management practices to fully utilize the timber resource, protect water quality, minimize displacement of surface soil, and control erosion while maintaining the productivity of Indian forestlands.

LOGGING ROADS

Unless guided by an approved Forest Management Plan the following standards for logging roads are to be adhered to:

Planning:

1. Prior to construction, the Forest Officer-In-Charge must approve the location, on the ground, of all logging roads to be constructed for timber operations. The location of these roads shall conform to the overall plan for road construction and development on the reservation if available. The objectives of the road plan should enhance and protect forest resources by employing proper yarding techniques while maintaining economic feasibility. The plan shall also protect fish and wildlife species while sustaining high water quality standards.

Construction:

2. Logging roads shall be laid out and constructed to maximize the use of land contours and minimize cuts, fills, steep road grades, and stream crossings. Whenever possible, roads should be constructed on top of ridges, flatter slopes and on stable soils. Road construction should be avoided in steep canyons, around marshes, watercourses or wet areas, and near existing nest sites of threatened or endangered species. Road density should also be kept to a minimum through effective road planning. Roads shall generally be constructed to single-lane width with turnouts at intervals consistent with traffic density. Both roads and turnouts shall not be wider than required to permit safe passage of logging trucks and equipment. New logging roads shall not exceed a grade of 15 percent, except that grades that do not exceed 500 feet in continuous length may be allowed to reach 20 percent. These grades and distances are not to be exceeded unless approved by the Regional Director. Road construction shall include drainage structures that will accommodate at least the 100-year maximum storm frequency. Road location shall avoid, whenever possible, soil areas with high erosion characteristics and evidence of slope instability, as identified by a qualified geologist or soils scientist and mitigation measures shall be instituted if it is impossible to avoid.

3. The location and specifications of all drainage culverts and bridges shall be shown on the sale area maps. These locations shall be marked on the ground by the Forest Officer-In-Charge prior to advertisement.

4. Logging roads shall be constructed with no overhanging banks. Any trees over 12 inches d.b.h. made obviously unstable by road construction shall be felled concurrently. Activity slash will not be included in road fill and will be disposed of as required by the Officer-In-Charge.

5. Unstable side-cast material from road construction that has access to a stream or lake shall be end-hauled to a stable location away from water or stabilized in place. Where feasible, roads shall be constructed where the cut and fill material are reasonably balanced.

6. All fill areas created by permanent road construction shall be compacted in lifts no greater than one foot and shall be free of woody debris.

7. During timber operations, road running surfaces in the logging area shall be treated for stabilization and dust control to prevent loss of road surface material and as a safety precaution. When using a dust palliative, use mitigations per product specifications around watercourses and other water sources to minimize the product entering the water system.

8. Special planning and construction techniques to protect water quality and slope stability shall be required for all roads constructed across slopes of 50 percent and greater or where there are unstable areas, highly erodible soils, rock, or large areas of site disturbance.

9. Logging roads which are not permanent shall be restored to timber production by such methods as removing culverts, out sloping, ripping, mulching, and planting the roadbed.

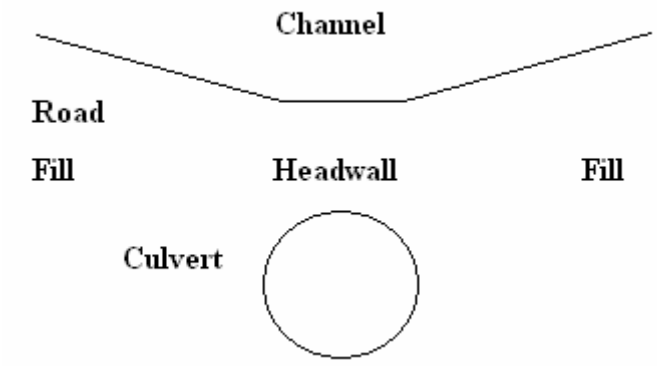
10. All roads constructed shall be classified as seasonal, temporary or permanent and subsequent treatment shall be as prescribed, including decommissioning at the end of the sale.

ROAD DRAINAGE

All permanent drainage facilities required to control erosion shall be installed concurrently with construction of the logging road. These facilities shall be installed according to land contour, drainage patterns, and road design and shall be engineered to minimize erosion or washout of the logging road as determined by at least 100-year maximum frequency storm. Culvert outflow shall not be discharged on erodible fill material and shall have rocks, downspouts, or other suitable structures placed to dissipate water velocity and reduce erosion. In fish bearing streams, culverts shall be designed for unrestricted fish passage. All berms not intentionally constructed for road grade fill protection shall be breached or removed from logging roads and all other erosion control work shall be kept current immediately preceding expected periods of precipitation and/or runoff. The road grade shall be rolled so that outsloped sections with slight dips allow drainage at least every 300 feet and at draws.

Permanent watercourse crossings, fills and approaches should be constructed in a manner which, should the culvert became plugged, allows water to flow over the road through a slight channel, minimizing water diverting down the road, minimizing road bed and fill erosion. (see Figure 1).

Figure 1. Cross-section of water diversion structure



TRACTOR SKID ROADS

Tractor skid trails shall not be allowed in environmentally sensitive or unstable soil areas without prior approval of the Approving Officer. If approved, such trails shall be flagged only by the OIC. Tractor skid trails shall be limited to the number and width necessary for the removal of logs and shall not be allowed on slopes greater than 40 percent unless specifically justified by the Forest Officer in Charge and approved by the Approving Officer. In no circumstances will slopes over 55 percent be exceeded.

CROSS-DRAINS

1. Cross-drains on tractor roads, tractor skid trails, cable roads and all other roads and landings, which do not have acceptable permanent drainage facilities, shall be constructed within 15 days of cessation of use or by October 15, whichever occurs first. Waterbreaks shall also be installed on all constructed skid trails and tractor roads prior to the end of the day if the U. S. Weather Service forecast is a "chance" (30 percent or more) of rain before the next day and prior to weekend or other shutdown periods outside of the winter period. Cross-drains on firelines shall be constructed with the construction of the firelines.

   The following table gives the recommended spacing for cross-drains on temporary roads, tractor roads, skid trails, cable corridors and firelines. (Use these spacing guidelines also for permanent roads when drainage facilities for permanent roads are lacking.)

TABLE 2
MAXIMUM DISTANCE BETWEEN CROSS DRAINAGES 1/ FOR TEMPORARY ROADS, TRACTOR ROADS, SKID TRAILS, CABLE CORRIDORS AND FIRE LINES

Estimated Hazard Rating (EHR) 2/	Road or Trail Gradient (in percent, %)			
	10 or less	11-25	26-50	> 50 3/
	Feet	Feet	Feet	Feet
Extreme	100	75	50	50
High	150	100	75	50
Moderate	200	150	100	75
Low	300	200	150	100

1/ Above spacing is to be measured on the slope.
2/ EHR's based on general area around road or trail, not on bare area itself.
3/ May require handwork instead of angle dozer.

2. Effective cross-drains shall be constructed at all natural water-courses, regardless of the specified minimum distances, except where culverts or bridges are provided.

3. Cross-drains shall be cut diagonally at 30 degrees from a line normal to the road, shall drop 2 degrees (approximately 4 percent) or more to the road grade, shall be cut a minimum of 6 inches into the firm roadbed, skid trail, or firebreak surface, and shall have a continuous firm embankment of a least 6 inches in height immediately adjacent to the lower edge of the cross-drain cut.

4. Cross-drains shall provide that water be discharged and spread into the adjacent area in such a manner that there will be minimum erosion in the discharge area. Water shall be discharged into vegetation or non-erodible areas to dissipate energy and reduce erosion whenever possible.

5. Cross-drains shall be maintained to assure continued proper function during the life of the contract.

6. Deeply cut cable roads diverting water from natural drainages for more than 100 feet shall have cross drains installed at 100 foot intervals.

PERMANENT STREAM CROSSINGS

Stream crossings shall be kept to an absolute minimum and shall be consistent with the overall plan for road development. All permanent stream crossings will be either log stringer bridges, concrete bridges, railroad cars, or metal culverts and shall be designed to accommodate at least the 100-year maximum frequency storm. Metal culverts used as permanent stream crossings shall be properly installed below stream grade and backfilled with compacted fill. Fish bearing streams shall have functional fish passage structures installed. Culvert outlets shall be installed where sufficient length does not permit water to spill into the fill portion of the road. All permanent stream crossings shall be maintained throughout the succeeding Winter Periods during the life of the contract to assure continued proper functioning.

TEMPORARY STREAM CROSSINGS

Temporary stream crossings shall be kept to an absolute minimum. Preferred structures for this purpose shall be either log stringer bridges or railroad cars installed to maintain stable stream banks. Culverts may be installed as temporary crossings, if stable stream banks are not excessively excavated and if all fill is removed with the culvert. Where temporary crossings are necessary, removal of all structures not designed to accommodate the 100-year maximum frequency storm is to be accomplished prior to the completion of the contract. No temporary crossings may be installed during the winter season. Log culverts are not to be used as temporary crossings at any time on Class I or II streams when the contract will extend into the winter season.

MISCELLANEOUS LOGGING PRACTICES

Improper handling of fuels, paints, solvents and lubricants can cause soil and water contamination. Handle these with care and report all incidences of spillage. Remove all litter when leaving the logging site and dispose of it properly.

Always employ the highest safety standards.
All OSHA standards apply to all BIA approved forest operations and all contractors will comply with these standards.

WINTER OPERATIONS GUIDELINES

Winter operations are defined as any operation performed between October 15th and April 1st of the following year unless defined otherwise in an approved forest management plan. This pertains to all forestry related activities.

1. Regional Director Approval of Winter Operations Plan - If a Purchaser/Contractor intends to perform any contract work during the winter operations period, the Agency/Tribe must submit a winter operations plan to the Regional Director requesting approval of winter operations at least two weeks prior to October 15. The plan must describe why it is advantageous for the Tribe or for the Tribes' Contractor to be working during this period. Any additional mitigation measures that will be required should be detailed in this plan.

2. Officer in Charge (OIC) Approval - After the Regional Director has approved the winter operations plan, the OIC shall give approval to the contractor on a daily basis for operations to continue. This must be in writing with a copy faxed to the Pacific Regional Office. The OIC shall shut down operations (for any length of time necessary) where weather conditions make it environmentally inappropriate to continue operations. The OIC shall ensure that all required mitigation measures are followed.

The following standard mitigation measures will be implemented where winter operations guidelines have not been described in an approved Forest Management Plan.

1. Timber Falling- No additional requirements will normally be required for timber falling. No mechanical harvesting will be used during the winter period unless approved in the winter operations plan.

2. Tractor Logging & Mechanical Site Preparation- During the winter period, tractor logging or mechanical site preparation shall not be conducted except during dry, rainless periods where, in the best judgment of the OIC, an unacceptable amount of soil compaction or erosion will occur. Erosion control structures shall be installed on all constructed skid trails and tractor roads prior to the end of the day if the U. S. Weather Service forecast is a "chance" (30 percent or more) of rain before the next day and prior to weekend or other shutdown periods. The OIC will inspect all work on a daily basis to verify that unacceptable soil disturbance and compaction is not taking place.

3. Cable Yarding - Cable corridors that are gouged sufficiently to divert and carry water away from natural drainage patterns shall have water bars installed as detailed in Table 2 of the Pacific Region Logging Practices or other appropriate erosion control measure as directed by the OIC. Erosion control structures shall be installed on all corridors prior to the end of the day if the U. S. Weather Service forecast is a "chance" (30 percent or more) of rain before the next day and prior to weekend or other shutdown periods.

4. Roads and Landings- During the Winter Period, loading and hauling shall not be conducted except during dry, rainless periods where, in the best judgment of the OIC, an unacceptable amount of road damage or road resource damage will occur. A road bed is considered to be experiencing significant damage when the travel way deforms to the point that surface runoff is being diverted into the deformation or when vehicles have to use traction devices (chains) or four wheel drive to safely operate in muddy conditions. Significant damage to resources resulting from road use is considered to be occurring when road surface runoff has the potential to impact water quality in any class stream and/or when road graded material cannot be contained in equipment blades until it can be deposited in an approved disposal area. Roads shall not be constructed during the Winter Period, unless approved in the winter operations plan. Drainage features and erosion control structures shall be maintained on all roads and landings throughout the life of the current contract to assure proper functioning.

   Logging practices that will increase road longevity should be used (for example, driving slower, lower tire pressure, offsetting tracks, intermittent rocking, back blading, temporary suspension of hauling, etc.)

5. Liquidated Damages- Violation of any of the winter operations guidelines may subject the operator to liquidated damages as described in the standard provisions part B of the timber sale contract or other appropriate contract agreements. A statement to this effect should be included into the contract.

6. Endangered Species/Threatened & Endangered Species - In addition, mitigations as set forth by the USFWS, NMFS, and the BIA PRO concerning wildlife protected under the ESA will be followed when operating within the Winter Period. All consultations and protocols will be conducted prior to the start of any operations.

ESTIMATED SURFACE SOIL EROSION HAZARD RATING FORM

SOIL FACTORS FACTOR				RATING BY AREA		
A. SOIL TEXTURE	Fine	Medium	Course	A	B	C
1. DETACHABILITY	Low	Moderate	High			
Rating	1-9	10-18	19-30			
2. PERMEABILITY	Slow	Moderate	Rapid			
Rating	5-4	3-2	1			

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	High			
	1"-19"	20"-39"	40"-60"			
Rating	15-9	8-4	3-1			

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES

	Low	Moderate	High				FACTOR RATING BY AREA		
	(-) 10-39%	40-70%	71-100%						
Rating	10-6	5-3	2-1				A	B	C
SUBTOTAL									

II. SLOPE FACTOR

Slope	5-15%	16-30%	31-40%	41-50%	51-70%	71-80%(+)			
Rating	1-3	4-6	7-10	11-15	16-25	26-35			

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High			
	0-40%	41-80%	81-100%			
Rating	15-8	7-4	3-1			

IV. TWO YEAR, ONE-HOUR RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-) 30-39	40-59	60-69	70-80 (+)			
Rating	1-3	4-7	8-11	12-15			
TOTAL SUM OF FACTORS							

EROSION HAZARD RATING

<50	50-65	66-75	>75			
Low (L)	Mod (M)	High (H)	Extreme (E)			
THE DETERMINATION IS						

Appendix B
Environmental Assessment of
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High Conservation Values Forests of the Hoopa Reservation

In 1998 the Hoopa Valley Tribe (HVT) was approached by the Forest Stewardship Council with an invitation to have the Reservation's Forestland certified by the SmartWood Program as ecologically managed. The Certification was finalized on April 15, 1999. Since that time, HVT has maintained its FSC certification. Through careful management of its forests, HVT has operated on old growth forests in accordance with FSC policy. The following is a discussion of the Tribe's Forest and the monitoring efforts to maintain High Conservation Value Forests on the Reservation.

With the adoption of **FSC-US Forest Management Standard (v1.0)** This FSC has set its classification of Old Growth Forests as follows.

Old growth: *(1) the oldest seral stage in which a plant community is capable of existing on a site, given the frequency of natural disturbance events, or (2) a very old example of a stand dominated by long-lived early- or mid-seral species The onset of old growth varies by forest community and region. Depending on the frequency and intensity of disturbances, and site conditions, old-growth forest will have different structures, species compositions, and age distributions, and functional capacities than younger forests. Old-growth stands and forests include:*

> ***Type 1 Old Growth:*** *three acres or more that have never been logged and that display old-growth characteristics.*
> ***Type 2 Old Growth****: 20 acres that have been logged, but which retain significant old-growth structure and functions.*

Based on these definitions, HTF has classified its forests. Out of the 87,500 acres of commercial forestland, there are approximately 27,380 acres of Type 1 Forests and 11,690 acres of Type 2 Forests. Type I and II forests make up 31% and 13% of the Reservations Forestlands, respectively. The total of Type I and II forests is 39070 acres, or 44% of the Reservation.

The Hoopa Valley Tribe does manage and harvest Type I forests in accordance with Section 6.3.a.3, which states: "On American Indian lands, timber harvest may be permitted in Type 1 and Type 2 old growth in recognition of their sovereignty and unique ownership." However, this is subject to 7 provisions, which shall now be addressed.

1. Old growth forests comprise a significant portion of the tribal ownership. For the past 40 years harvesting has taken place on the Tribe 87,500 acres. And yet, Type I and type II forests make up over four-tenths of the reservation. This is mostly due to the change in forest management over the past 20 years. The use of modified silvicultural practices to maintain old growth characteristics in harvest units has resulted in an increase in Type II stands. However, available Type I stands are becoming a scarce commodity for the Tribe and it is anticipated that only a decade of available stands remain. When this barrier it hit, there will remain in reserves and traditional areas approximately 22,700 acres of Type I forests, or 26% of the reservation. The FSC will need to determine whether this meets the standard of a "significant portion," but under the Tribe's consideration having one-quarter of their land locked up in reserves is a boon to many and a hindrance to those looking at the forest merely for revenue. Either way, from a Tribal point of view, it is a significant portion.

2. A history of forest stewardship by the tribe exists. As mentioned above, the Tribes timberlands have been managed for the past 60 years. However, it was not until the Tribe exerted control over its lands that true stewardship began. The timber cut dropped from unsustainable levels like 20MMBF per year to a reasonable 10.5MMBF per year. And when areas like the East Side of the Valley Viewshed were made off limits to harvesting, the Annual Allowable Cut (AAC) dropped even further to 9.853 MMBF. With the last CFI survey, the cut was once more dropped to account for the damage and loss due to problems with tree-stripping bears and the impacts of fires. The past 16 years of operations under the Tribe's Forest Management Plan (FMP) show their track record of stewardship.

3. High Conservation Value Forest attributes are maintained. The Tribe maintains 1,250 acres of ceremonial Reserves, a 1,550 acre reserve around the culturally important De NO To Trail, and 40 acres around nearly 120 archaeological sites. Also, there are cores areas for the Northern Spotted owls, a listed species, amounting to 2,190 acres. Another 1,675 acres are in reserve for plant communities with cultural importance. The 3,410 acres of no Cut Creek buffers are for the protection of the listed SONCC Coho and chinook salmon runs. These among others make up the 24,665 acres of reserves on the Reservation for High Conservation Value Forests. More information on High Conservation Value Forsts follows this section.

4. Old-growth structures are maintained. All harvests of Type I forests are designed to maintain Old Growth Characteristics. Although shelterwood is a common practice for regenerating stands, the Tribe has switched to a modification of this called a Group Shelterwood. The FMP contains the following description of a Group Shelterwood.

   Under the group shelterwood system leave trees will be left in compact aggregations ranging from 1/10th to ½ acre. The main objective under this system will be the amount of acreage left in groups instead of basal area per acre. Leave trees should generally be windfirm, need not necessarily be overly healthy, and need not be able to put on good volume growth. However, markers should look for leave trees without exposed roots, and which are free from cat faces or fire scars.

   The groups typically make up at least 30 percent of the unit and are centered around critical habitat components, or other important features on the landscape that take precedent over

economic benefits. Many of these save groups are combined with other feature, like stream protection zones and account for the increase in Type II forest stands. Even the modified clearcuts have the following provision to maintain old growth characteristics.

> *A combination of conifers and hardwoods should be left such that approximately 2-5 trees remain after site preparation treatments are complete. Vertical structure components should generally be cull trees or otherwise be high wildlife value trees. All merchantable material should be removed, unless the number of retained trees stated above cannot be fulfilled, then leave a combination of good growing or cull trees.*

The Tribe is proud of its ability to maintain Old Growth Structure throughout the Reservations Forestlands.

5. Conservation zones representative of old growth stands are established. Of the 24,665 acres of reserves, currently 8,445 acres contain Type I forests and another 6,770 acres contain Type II forests. These 15,215 acres will increase over time as stands cut before the introduction of the FMP develop into Old Growth Stands.

6. Landscape level considerations are addressed. The Tribe manages each year's timber harvest on a watershed by watershed basis. This landscape level management allows for the innovative management the Tribe has.

   For example, one of the tools that Tribe has developed is the use of a complex of adjacent units in large stands to mimic the natural occurrence of stand replacing fires. This has been developed by the wildlife department to provide a change in forest conditions closer to what the wildlife of the area is adapted to accept. This has proved useful in maintaining Old growth characteristics across the landscape adjacent to high productivity plantations with their abundance of prey species.

   Large scale wildfires are a concern fo the Tribe, so the Tribe is working with the adjacent USFS to treats USFS lands similar to Tribal lands in creating fire breaks and defensible points along roads and ridges. This includes a Forest Stewardship agreement with the USFS that has been in place for a handful of years, and more recently a prairie restoration Stewardship Agreement with the BLM on the western side of the reservation.

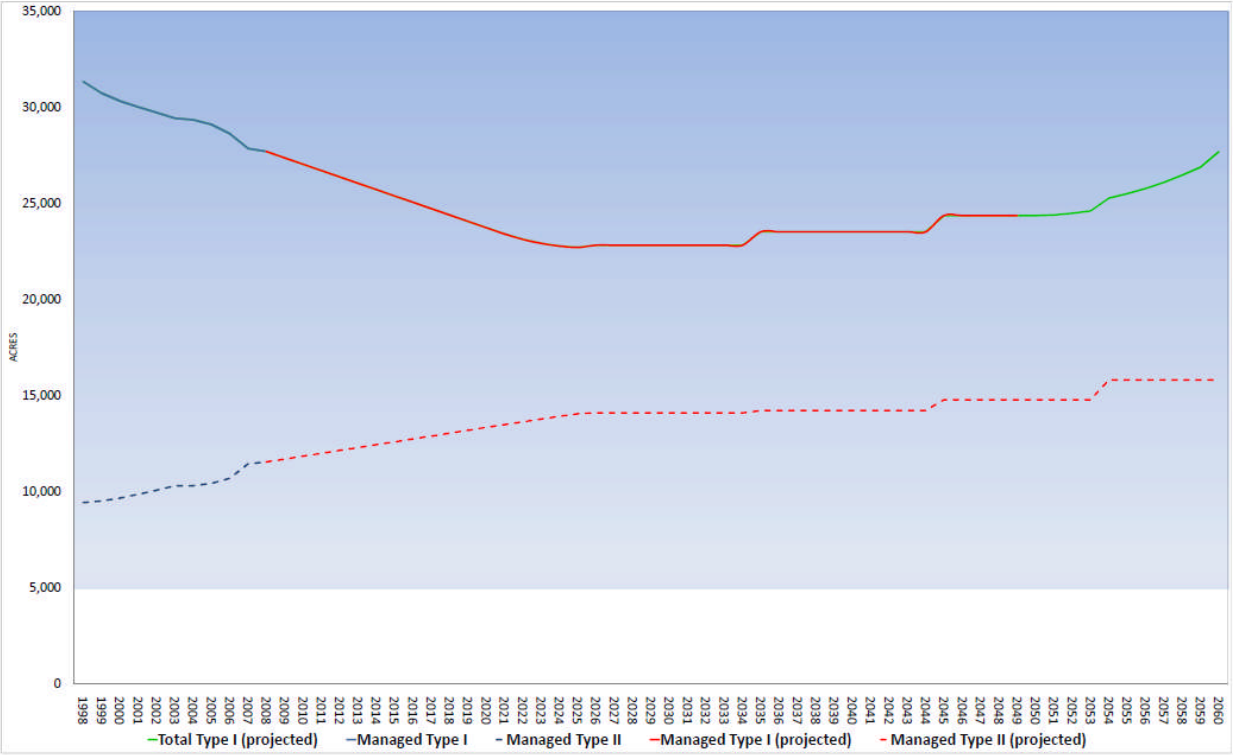
   These are just two examples of the many landscape level practices the Tribes management addresses.

7. Rare species are protected. This has been already demonstrated in the reserves and High Conservation Value Forest discussions.

Because the Tribe is in compliance with the provisions of Section 6.3.a.3, they continue the practice of harvesting Type I forests. This is, as stated before, a practice that has a definite close. The following graph and table show the current practice of Type I harvesting, and the resulting increase of Type II forests. It also shows that in 2020, the harvest of Type I stands lessens and ends by 2025. From there the development of stands in the reserves begins to raise the level of

both Type I and Type II forests. Due ot the complexity of the calculations, these increases were marked in decade level increases, thereby creating the stairstep appearance of the graph's increase. At the latter end of the Type I line, there is an increase in acres. This is in anticipation of the increase in growth from leave groups and protection zones in plantation that were harvested prior to the implementation of the FMP. As these plantations are brought under management, there will be save groups and protection zones that will ultimately develop into projected Type I stands.

The solid line shows the Type I forests and the lower dashed line shows the Type II forests in terms of acres. The graph projects the harvest out to the year 2060, which is the projected end of the second complete rotation of the Tribes Forestlands.



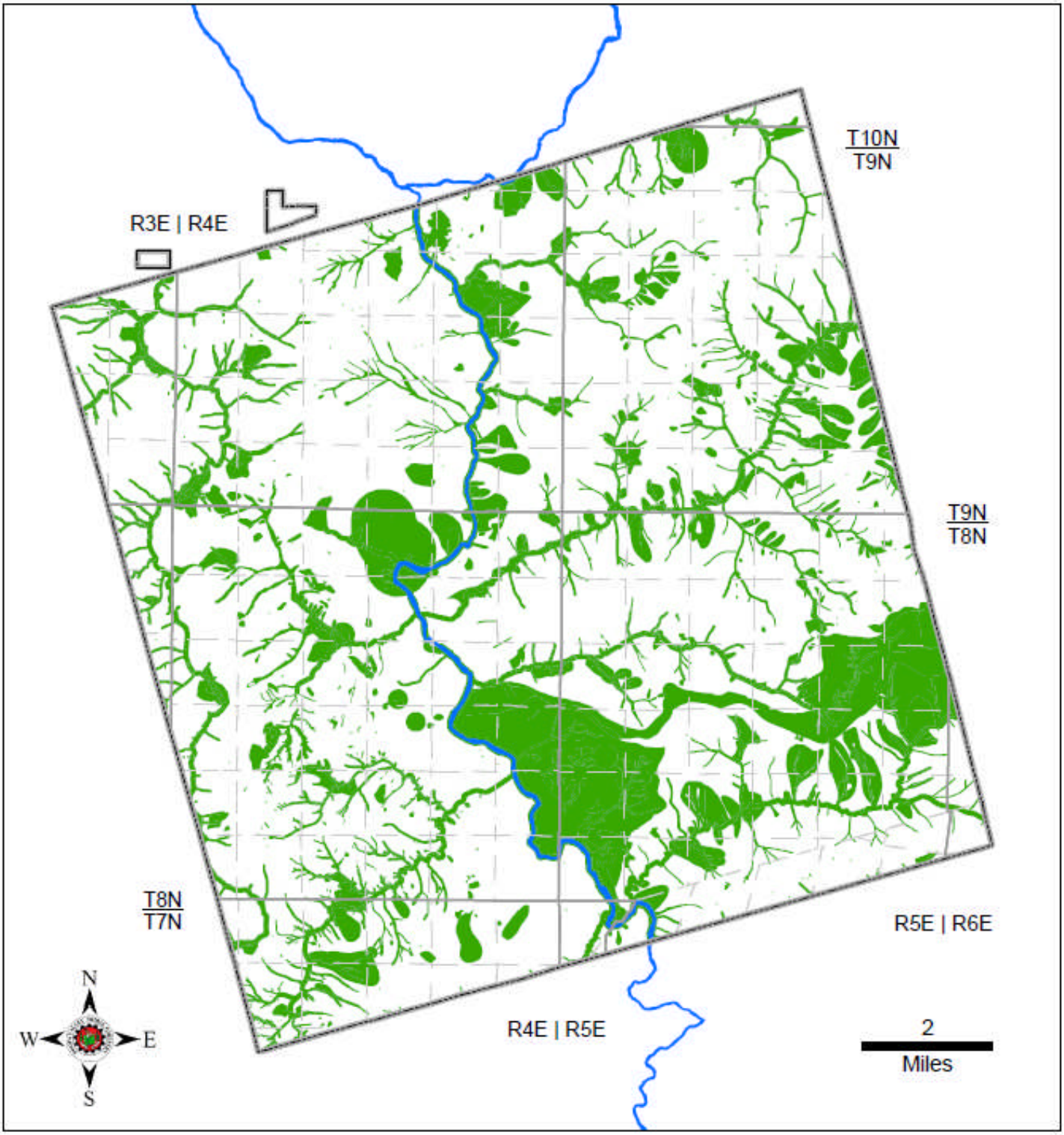
The following is a table documenting the levels of harvest over a ten year period starting back from 2008. This shows the average level of cut used to make the projections, and represents the blue lines on the graph above.

	Type	Acres	Type 1 stands Change	Type 2 stands Change	Net loss of Old Growth
1998	1	31,362.45	0 ac		0 ac
	2	9,426.92		0 ac	
1999	1	30,761.52	-600.92 ac		-515.27 ac
	2	9,512.57		85.65 ac	
2000	1	30,349.01	-412.52 ac		-268.02 ac
	2	9,657.07		144.50 ac	
2001	1	30,041.04	-307.97 ac		-106.77 ac
	2	9,858.26		201.19 ac	
2002	1	29,747.40	-293.64 ac		-79.29 ac
	2	10,072.62		214.35 ac	
2003	1	29,444.10	-303.30 ac		-74.01 ac
	2	10,301.91		229.29 ac	
2004	1	29,365.55	-78.55 ac		-75.32 ac
	2	10,305.14		3.23 ac	
2005	1	29,128.40	-237.15 ac		-123.58 ac
	2	10,418.71		113.57 ac	
2006	1	28,652.87	-475.53 ac		-205.64 ac
	2	10,688.60		269.89 ac	
2007	1	27,868.99	-783.88 ac		-24.68 ac
	2	11,447.80		759.20 ac	
2008	1	27,711.73	-157.26 ac		-64.34 ac
	2	11,540.72		92.92 ac	
Total Change			-3,650.72 ac	2,113.80 ac	-1,536.92 ac
Average change per year			-365.07 ac	211.38 ac	-153.69 ac

Thus at the present time there is an average 365 acre reduction in Type I stands, of which 211 drops into a Type II classification. Harvesting Type I stands results in a net loss of 154 acres of Old Growth Forests, or a 1.3% reduction in Type I stands each year.

As mentioned previously, the following is a discussion of the monitoring process for High Conversation Value Forests on the Reservation: In discussion with FSC and HVT have come to an understanding that old-growth characteristics are not necessarily the only factor that creates a High Conservation Value for the Hoopa Tribe. Certainly there are a number of Old-Growth dependant features that create a high conservation value, but the size and density of the trees is not necessarily what creates the conservation value of the forest.

For the purposes of this discussion, there are 24,665 acres of designated "No-Cut" stands on the Reservation outside the urban areas, and excluding Fee lands. These are acres that are set aside for one of many reason including: 1,250 acres of ceremonial Reserves, a 1,550 acre reserve around the culturally important De NO To Trail, 40 acres around nearly 120 archaeological sites, 2,190 acres of Northern Spotted owls cores areas, 1,675 acres for sensitive plant communities, and 3,410 acres of no Cut Creek buffers. This also includes oak woodlands, viewshed acres, and tribally designated wilderness acres. All of these acres are High Conservation Value Forest Acres. However, only 15,215 acres of the 24,665 "No-Cut" acres have old-growth characteristics. The remainder is in growing forests, oak woodlands, or previously impacted riparian protection zones. The "No-Cut" areas are shown on the map on the following page.



HOOPA VALLEY INDIAN RESERVATION

High Conservation Value Forest

H.C.V.F | Public Land Survey | Township & Range

This does not necessarily mean an absence of operations, but is does mean a preservation of the overstory canopy. Activities such as sanitation harvest, brush removal and understory thinning can and do take place within these designated "No-Cut" areas. The most common example of this is shaded fuelbreaks where the fuels specialist has all understory ladder fuel removed within the fuelbreak area, but leaves all vegetation over 10" DBH untouched, or merely pruned to the height a person with a chainsaw can reach.

There is no formal annual monitoring of the "No-cut" old-growth characteristics. However, the "No-cut" acres are informally assessed through every activity that takes place in and around such stands. For example, when a plantation crossing the De-No-To Trail buffer is to be treated, the buffer boundary becomes the treatment boundary and only the area outside the buffer is treated. Through this process, any old-growth characteristics within the designated "No-Cut" areas are preserved.

Also the initiation of harvest operation planning begins with an assessment of the stands available, by removing all designated "No-Cut" areas. Through this process, only old-growth stands without the HCVF designation are made available for further harvest consideration.

The actual monitoring process becomes more of an office exercise as the HCVF areas are not subject to harvest management. As stated above, this does not exclude operations which do not impact the overstory conditions. The following is a table showing for ten years change in old growth stands and in HCVF stands. Old growth stands The HCVF , the number of old growth stand acres in non HCVF stands, both Type I and Type II, and the number of HVCF acres, broken up into Old Growth and non-old growth (plantation) acres.

Year	Non HCVF Old growth		H.C.V.F	
	FSC Class I Acres	FSC Class II Acres	Old Growth Acres	Plantation Acres
1998	38,131.70	18,271.83	19452.49	8793.82
1999	37,530.77	18,357.48	19452.49	8793.82
2000	37,118.26	18,501.98	19452.49	8793.82
2001	36,810.29	18,703.17	19452.49	8793.82
2002	36,516.65	18,917.52	19452.49	8793.82
2003	36,213.35	19,146.82	19452.49	8793.82
2004	36,134.80	19,150.05	19452.49	8793.82
2005	35,897.65	19,263.62	19452.49	8793.82
2006	35,422.12	19,533.51	19452.49	8793.82
2007	34,638.24	20,292.71	19452.49	8793.82
2008	34,480.98	20,385.63	19452.49	8793.82

As mentioned previously, there are HCVF acres outside the "No-Cut" acres, but these are in places where old-growth characteristics are currently absent. One of the primary locations is the oak woodlands. These stands are of high value to the tribe, and have anciently been maintained through periodic burning. With the advent of the fire suppression mentality, this landscape burning was prohibited. The Hoopa Tribe is diligently working to re-

establish these cultural burns back into the forest management. This will result in the removal of invading conifers in the oak. However, these conifers are typically not old-growth trees.

Another severely impacted High Conservation area within the Hoopa Ancestral lands is the prairies. Like the oak woodlands, these prairies have been adversely impacted by the fire suppression/prevention mentality. The Hoopa Tribe has planned and will soon be implementing the restoration of these prairies. This too will require the removal of conifers. Where historic boundaries can be established, this might result in the cutting of some pre-dominant overstory trees and removal of old-growth characteristics from areas with a high conservation value. But since that value is in the prairie grasslands, the removal of those old-growth characteristics will improve the High Conservation Value of those acres. Granted this is a rare instance as most designated prairie encroachment removal is young growth trees, but it will occur.

A consideration in creating a high conservation value is the gathering potential of the understory. Where bear grass or hazel stick or medicinal herbs are adversely impacted by old-growth conifers, treatment will occur. Typically treatments are restricted to the understory vegetation, but may require some sanitation removal, or even a canopy thinning operation. At no time will these stands be altered to the point where the old-growth characteristics will be lost.

There is also an HCVF issue occurs in stands with a Port-Orford cedar (POC) understory. Because of the cultural significance of this species, there is a Tribal moratorium on cutting POC. However, that does not preclude operations in a stand with POC. In these stands, the POC is protected and sufficient canopy is retained to maintain the shaded condition the POC desires. Through the selective harvest, the POC is protected and old growth characteristics are maintained in the stand by retaining overstory old-growth trees for shade. Also, this moratorium does not preclude cutting a POC for ceremonial purposes.

Because the Tribe manages old-growth timber, there will continue to be a general removal of old-growth characteristics from many stands. However, these are stands in the active management areas and are not High Conservation Value Forests. The drafting of the FMP designated the stands with High Conservation Values and these where incorporated in the "No-Cut" areas. Where high conservation values are discovered in these manageable stands, Special Management Zones are created. These are reviewed at the end of each year's operation through a Timber Sale Review. In this way, the Tribe monitors the HCVF characteristic and old-growth characteristic preservation. No additional monitoring will be implemented.