

## **I. INTRODUCTION**

### **A. PURPOSE AND NEED**

The purpose of this Environmental Assessment (EA) is to evaluate the environmental and social impacts of controlling bear damage in plantations. The need for this project stems from the fact that black bears have been damaging young Douglas-fir trees in plantations for more than 20 years on the Reservation. The percentage of trees damaged or killed is substantial within many plantations, especially those which have been pre-commercially thinned. This damage is expected to reduce future timber volume and to impact the Tribe's annual allowable cut which could have a direct effect on the Tribe's economy. Two additional needs exist. The Tribe's Forest Management Plan stated as an objective that "the Forestry department shall actively manage black bears to reduce impacts to growth. The control program shall be evaluated in an environmental decision document and implemented to control bears...". The Smartwood/FSC Certification of the Tribe's FMP has a condition to be met within three years which states that the Tribe must develop a plan to deal with the bear damage issue.

### **B. PLANNING AREA DESCRIPTION**

The Planning area encompasses all of the managed stands (39,858 acres) within the Reservation boundary and between Section 23 T9N, R3E at the northwest corner, Section 34 T10N, R5E at the northeast corner, Section 30 T8N, R6E at the Southeast corner and Section 17 T7N, R4E at the southwest corner.

### **C. ISSUES, CONCERNS AND OPPORTUNITIES AND PUBLIC SCOPING**

Tribal member and public comment was solicited by the inter-disciplinary team (IDT) in several different ways: Several Cultural Committee meetings were held to review the proposed alternatives and to discuss the black bear population and genetic studies. A draft project initiation letter (PIL) was sent to tribal departments, Hoopa Forest Industries, the Bureau of Indian Affairs, and the Tribal Council on January 4, 2000. A revised PIL was sent to tribal departments on 2/14/2000. Legal Notices were published in the Kourier two weeks in a row starting on 2/2/2000 and in the Hoopa Valley People "Na tini Xwe" Tribal newspaper in the 2/8-2/21/2000 edition. A public service announcement was aired on KIDE beginning on 2/1/2000. A newspaper article was published in the Hoopa Valley People "Na Tini Xwe" in the 3/21-4/4/2000 edition. IDT meetings were held on July 7 and 23, 1997 and January 21, 2000.

No public or Tribal member comments have been received at this time.

Cultural Committee meetings were held on the following dates: July 18, 1997, September 10, 1998, and December 15, 2000.

The Cultural Committee identified the following:

1. There is a concern about the possible impacts to the black bear population (July 18, 1997).

The Interdisciplinary Team (IDT) has identified the following Management Concerns:

1. There is a concern that bear damage is causing substantial reductions in growth, stocking and future volume production.
2. There is a concern that bear damage will impact the annual allowable cut.
3. There is a concern direct population control of bears (killing) will be unacceptable to the Tribal membership.
4. There is a concern that due to the lack of information regarding effective bear damage control, implementation of any alternative will require long term effectiveness monitoring.
5. There is a concern about the speed with which the selected alternative can be implemented.
6. There is a concern about how to dispose of any bears which may be killed.

The following Management Opportunity has been identified:

1. There is an opportunity to develop a bear hunting program to generate revenue for the Tribe.

## **II. ALTERNATIVES**

The interdisciplinary team first developed the alternatives at the July 1997 IDT meetings and these alternatives were modified at the January 21, 2000 IDT meeting. Alternatives were developed after reviewing literature on the subject, discussions with experts in the Pacific Northwest and discussions among the IDT.

### **A. ALTERNATIVES CONSIDERED IN DETAIL**

#### **ALT. 1. No Action Alternative**

Under this alternative pre-commercial thinning would continue in areas with bear damage, in plantations of suitable age and density.

#### **ALT. 4. Stop Precommercial Thinning in Bear Damage Areas**

Under this alternative, Forestry would stop pre-commercial thinning in areas of heavy damage, or in adjacent areas where bears would begin feeding. Only pre-commercial thinning would stop. Site prep, planting, and early release would still be practiced in harvested units. Money for pre-commercial thinning would be targeted to areas without damage.

## ALT. 5. Direct Population Control Without General Hunting

Under this alternative, problem bears would be killed using bait, snare or trap and kill methods. No attempt would be made to implement a general hunting season or to draft a bear management plan, the objective would be to kill problem bears damaging Tribal plantations.

### B. ELEMENTS COMMON TO ALTERNATIVES

The following actions would be incorporated into each alternative, including the No Action alternative, and are detailed below:

- 1- **Monitoring of damage:** Tribal Forestry would continue to monitor damage each year, including success of the chosen alternative at reducing damage, extent of damage across the Reservation, spread into new areas, and status of damage within plantations already damaged.
- 2- **Modified Silvicultural Practices:** Tribal Forestry would begin experimenting with methods of pre-commercial thinning that may decrease bear damage. Current research indicates increased conifer density after thinning, earlier thinning, and pruning may decrease black bear damage. Keeping conifer density above 250-300 trees per acre is shown to decrease damage in several studies. Pruning every other tree such that 50% of the trees in a thinned plantation are pruned has also been investigated as a way to decrease damage. Initial findings indicate that bears will damage un-pruned trees and leave the pruned trees alone. In selected tree release, all competing vegetation is removed for a set distance around 250-300 trees per acre. Remaining brush and trees are untouched. Variations of the above treatments will be implemented on test plots in areas with bear damage to determine their effectiveness prior to wide spread implementation.

### C. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The following two alternatives were originally developed in July 1997 when the IDT was first convened for this project. They were subsequently dropped from detailed analysis following the January 21, 2000 IDT meeting.

#### ALT. 2. Supplemental Feeding Program with killing of problem bears using bait-snare(trap)-kill and/or Sport Hunting.

Under this alternative, a supplemental feeding program would be used to reduce damage to plantations during the spring season. Feeders are placed in areas of heavy damage to provide bears with a high carbohydrate food source during the feeding season (March to June). Forestry would pursue development of a tribal game management plan for the Reservation. The plan would address bear control through bait-snare-kill methods, general sport hunting using a permit system, or other population control methods. Since implementation of a game management plan is beyond the scope of this EA, direct population control would begin with or without the plan in three years. This is required

to avoid increasing the population to un-natural levels, requiring an increase in the feeding program to support it. Direct control would be accomplished using bait-snare-kill technique. Bait is placed in areas of heavy damage to attract the bears, with a spring snare set to snare the bear. The bear is then killed.

Alternatives 2 was considered and dropped from further analysis at the January 21, 2000 IDT meeting. This alternative was dropped because of two main factors: long term cost and questionable effectiveness of supplemental feeding based on results from similar programs in Oregon and Washington. There are no published reports in peer reviewed journals which quantify the effectiveness of supplemental feeding. There are mixed reviews of this practice reported in news paper articles and by personal communication with people involved with these programs. Some say that it works well while others say that it tends to inflate the local bear population and does not reduce damage long term.

### **ALT. 3. Direct Population Control using Bait-Snare(trap)-Kill with Sport Hunting**

Under this alternative, Tribal Forestry would implement a snaring program where problem bears are snared and killed in areas of heavy damage as in alternative 2. The snaring program would be conducted in the spring during the tree stripping season. Forestry would pursue development of a Tribal Game Management Plan for the Reservation to address black bear population control. After implementation of the game management plan, sport hunting using a permit system could begin. In the absence of a game management plan, direct population control would continue.

Alternative 3 was dropped at the January 21, 2000 IDT meeting because it overlapped substantially with Alternative 5 and the IDT decided that implementation of a sport hunting program was outside the scope and capabilities of Tribal Forestry. It is also suspected that a relatively small percentage of the bear population is responsible for the damage based on recent genetics work conducted on the Reservation. If that is the case, general sport hunting might do very little to reduce damage to plantations and may, in fact increase damage by opening up territories so that more bears might move into the reservation which exhibit the tree stripping behavior.

## **III. AFFECTED ENVIRONMENT**

### **A. CURRENT CONDITIONS**

Bear damage was first documented on the Hoopa Valley Indian Reservation in 1978 when damage was discovered in the northwest corner of the Reservation. Damage spread through the northern portion of the Pine Creek management unit and into the Bald Hill Management unit by the mid 1980's. By 1988 bear damage had become a major concern. By 1990 damage had spread to the south end of the Pine Creek management unit. By the mid 1990's damage was found throughout all four of the management units west of the Trinity River. Damage was first reported from east of the Trinity River in May of 1998. The damage east of the river was suspected to have begun in 1994-96.

Black bears have cultural significance to the Hupa people and other local tribes. Generally no hunting of bears occurs on the Reservation however, many people are not apposed to killing bears when they are damaging personal property and it is estimated that between 10 and 20 bears are killed annually for this reason.

## B. VEGETATION

The majority of the 90,765 acre Hoopa Valley Indian Reservation is dominated by forested habitats consisting of old growth (39.8%), natural young growth (7.6%), cutover (43.9%) and hardwood dominated (5.8%) stands (Table 1). Of the 39,858 cutover acres, 6,565 (16.6%) acres have been pre-commercially thinned (PCT). Bear damage has occurred extensively within thinned plantations but has also affected other cutover stands and natural young growth stands. Of the PCT acres, at least 51.1% have been impacted by bear damage as of August 1999 (Table 2).

| TABLE 1. VEGETATION IN PLANNING AREA |        |                  |
|--------------------------------------|--------|------------------|
| Type of Vegetation                   | Acres  | Percent of Total |
| Old Growth                           | 36,134 | 39.8%            |
| Young Growth                         | 6,868  | 7.6%             |
| Hardwood                             | 5,277  | 5.8%             |
| Cutover Thinned                      | 6,565  | 7.2%             |
| Cutover not Thinned                  | 33,293 | 36.7%            |
| Non-Forested                         | 2,627  | 2.9%             |

## C. BEAR POPULATION

The Reservation's bear population is estimated to be approximately 428 bears or 3.0 bears/square mile. The density of bears appears to be significantly higher west of the Trinity River with 4.4 bears/sq. mi. (95% CI, 3.3-5.0) reported as compared to the east side with 2.1 bears/sq. mi. (95% CI, 1.4-2.6)(Mathews unpub. data). The age class and sex ratio data collected indicates that the Reservation bear population is well balanced at this point in time. The fact that the overall sex ratio was nearly 50/50 was somewhat unexpected. As expected males tended to be in better physical condition than females. Data collected on radio collared and ear tagged bears indicate that Reservation bears move on and off of the Reservation periodically and sometimes travel 20+ miles from their trapping locations.

| TABLE 2. DAMAGE CLASS, ACRES AND PERCENT OF TOTAL PRE-COMMERCIALY THINNED STANDS AS OF AUGUST 1999. |                    |        |                    |
|-----------------------------------------------------------------------------------------------------|--------------------|--------|--------------------|
| Damage Class                                                                                        | Class Description  | Acres  | % of Total Cutover |
| None                                                                                                | No damage detected | 3213.1 | 48.9%              |
| Low                                                                                                 | <=15% of trees     | 1107.9 | 16.9%              |
| Moderate                                                                                            | 16-30% of trees    | 670.6  | 10.2%              |
| High                                                                                                | 31-50% of trees    | 1034.2 | 15.8%              |
| Extreme                                                                                             | >51% of trees      | 539.6  | 8.2%               |
| Total                                                                                               | PCT Units          | 6,565  |                    |

## **IV. ENVIRONMENTAL CONSEQUENCES**

### **A. CONSEQUENCES FROM ISSUES RAISED BUT NOT CONSIDERED SIGNIFICANT**

Analysis has shown that the following resources or opportunities are not likely to have a significant adverse impact on the environment. Detailed analyses of these resources or opportunities are contained in Appendix A of this EA.

A-1 Impacts due to the lack of information regarding effective bear damage control, implementation of any alternative will require long term effectiveness monitoring.

A-2 Impacts due to the disposal of any bears which may be killed.

### **B. CONSEQUENCES CONSIDERED POTENTIALLY SIGNIFICANT**

B-1 Impacts of bear damage on growth, stocking and future volume production.

B-2 Impacts of bear damage on the annual allowable cut.

B-3 There is a concern direct population control of bears (killing) will be unacceptable to the Tribal membership.

B-4 There is a concern about the speed with which the selected alternative can be implemented.

B-5 Impacts to Wildlife, Black Bear Population

B-6 Impacts to Vegetation

B-1 There is a concern that bear damage is causing substantial reductions in growth, stocking and future volume production.

Ninety four plots were installed in 1999 within pre-commercially thinned units on the Reservation to measure growth impacts from bear damage. The plots were used to project growth over time and to calculate expected volume at the age of 90 years both with bear damage and without bear damage within thinned plantations. Projected volume loss due to bear damage ranged from 5.4% to 38.7% and averaged 21.7% across all the strata which were surveyed. The percent reduction in live trees per acre ranged from 5.6% to 39.4%.

It is felt that the projections may substantially under estimate the loss of volume because the growth model seems to shift growth from the trees which are killed, to the remaining trees. This would occur ordinarily and is one of the premises of pre-commercial and commercial thinning. However, within the units surveyed which had moderate to extreme damage levels, the undamaged trees not only had smaller diameter and crown ratios but they also had other factors which would make them less vigorous and less likely to respond. These trees seem less likely to respond to release, either through pre-commercial thinning or loss due to bear damage, than adjacent dominant trees. These factors included severe sweep, twists and corkscrew effects. Bears tend to strip dominant, full crown trees, which are growing very fast.

## Alternative 1

The no action alternative would continue to pre-commercially thin (PCT) in all areas in anticipation of increased growth rates and improved survival of crop trees. Bear damage would likely continue unchecked and would likely become worse based on the historic trend. Future volume loss within each PCT unit would likely be 5 – 40% or more and would likely average greater than 20%. On average sites, the impact of bear damage is likely to reduce future stocking from 27.2 MBF/acre on an 80 year rotation to 21.3 MBF/acre. There is a high degree of confidence this volume loss will be at least this high given the likely underestimation of the impact of bears on precommercially thinned plantations. This loss of projected volume is a **substantial and potentially significant effect** to future stocking, reservation wide forest growth and stand vigor and health.

## Alternative 4

The elimination of pre-commercial thinning has some promise for reducing bear damage however, expected volume production would be substantially lower than that predicted when pre-commercial thinning is used because of the loss of growth due to not thinning. This alternative would eliminate PCT activity from areas with high bear damage, but because of the recent expansion of damage to the east side it appears that bear damage will soon be high nearly everywhere on the Reservation and that PCT activity would be essentially eliminated entirely. There is a moderate degree of confidence that the elimination of PCT activities will substantially reduce, but not eliminate bear damage. The volume loss due to the elimination of PCT practices would have a high impact to future stocking, volume and growth in cutover stands, and **would likely be a significant impact**. Volume at the end of an 80 year rotation is expected to be about 14.6 MBF/acre compared to 27.2 MBF/acre if precommercial thinning was used.

## Alternative 5

Alternative 5 would actively attempt to capture and kill the bears which are doing damage to plantations. This activity is expected to result in at least a short term reduction of damage and may have long lasting effects. There is a moderate to high degree of confidence that the killing of problem bears will substantially reduce, but not eliminate bear damage. This would result in less volume loss to bear damage and essentially no volume loss due to the elimination of PCT activities. This alternative would likely substantially reduce the negative impact on future volume production due to bear damage and volume at the end of an 80 year rotation is expected to be about 27.2 MBF/acre.

B-2 There is a concern that bear damage will impact the annual allowable cut.

Modeling the annual allowable cut (AAC) has proved to be very difficult with the limited data which were available. The biggest problem has been the masking effect of thousands of acres of older harvest units which have poor conifer stocking.

Alternative 1: Because of the continued spread of bear damage and continued increase of damage severity within damaged units over time, this alternative is estimated to have a moderate to high negative impact to the AAC. It is likely that within 10-20 years the intensity of damage will be so high that the extensive network of Continuous Forest Inventory plots will be substantially affected by bear damage and AAC calculations will begin to decline. **We have a moderate degree of confidence that the AAC will be moderately to substantially impacted by bear damage under this alternative and could result in a significant impact.** Based on growth projections the AAC might have to be lowered by 15% to 8.5 MMBF/year from its current level of 10 MMBF/year.

Alternative 4: The elimination of PCT treatments and their expected increase of growth coupled with the uncertainty of the level of bear damage within un-thinned units results in the highest negative impact to the AAC under this alternative. The AAC would likely have to be reduced 28% from 10 MMBF/year to 7.2 MMBF/year if precommercial thinning were eliminated on the Reservation. **We have a moderate degree of confidence that this alternative will result in a high impact to the AAC, and would likely be considered a significant impact.**

Alternative 5: The selective removal of suspected tree stripping bears coupled with silvicultural experiments aimed at reducing risk factors is likely to control bear damage within the next decade minimizing the long term impact to the AAC. Past and future bear damage will have a low to moderate impact on the AAC, but the spread and increase in severity is expected to be controlled under this alternative. **We have a high level of confidence that implementation of this alternative would have the lowest negative impact to the AAC and would result in no significant long term impact to the AAC.**

B-3 There is a concern direct population control of bears (killing) will be unacceptable to the Tribal membership.

Alternative 1: There would be no bears killed under this alternative.

Alternative 4: There would be no bears killed under this alternative.

Alternative 5: It is expected that 15 to 30 bears might be killed annually for two to four years and fewer than 20 per year thereafter. Several cultural committee meetings have been held to discuss all of the proposed alternatives and many discussions have involved this concern. The first meeting was held in July 1997 at which time the committee voiced their concern about killing bears. In particular, they were concerned about the impact to the bear population on the Reservation and they requested that a population study be conducted. Tribal Forestry obtained funding from the BIA and implemented a bear population study between July 1998 and August 1999. Ultimately, the Cultural Committee stated that implementation of any of the five proposed alternatives would be acceptable, including alternatives which proposed killing bears. Killing bears would likely have a moderate, but not significant effect to the Tribal membership.

B-4 There is a concern about the speed with which the selected alternative can be implemented.

Alternative 1: The No Action Alternative is currently being implemented in part, however, two additional elements which are common to all the alternatives, would need to be implemented. These include monitoring damage levels and implementation of modified silvicultural practices designed to reduce damage while maintaining conifer growth. Work has been occurring on the development of monitoring methods using BIA grant funds, and has included three main elements. All of these elements would be reasonably quick to implement but altogether would require ½ to 1 FTE. This is considered a low impact and would not be significant.

Alternative 4: The elimination of pre-commercial thinning within heavy bear damage areas could be implemented quickly, however, this alternative will also require the implementation of the monitoring and modification of silvicultural treatments. This is considered a low impact and would not be significant.

Alternative 5: This alternative requires capturing and killing of targeted bears. Killing bears may require a Section 501 permit before Tribal Forestry can obtain the immobilization drugs necessary to put the bear down so that it is safe to handle prior to killing it. This permit is required by the Federal Animal Welfare Act regulations for “research” conducted on animals. The permit can be obtained through the HSU Institutional Animal Care and Use Committee (IACUC) and may take up to 30-40 days to obtain. The source of the drugs necessary for immobilization will be HSU, and they are provided in the context of research. Additionally, HSU has stated that they could use the carcasses for research purposes, helping to address one of the other ICO’s. Ideally, an HSU graduate student would be involved with this project to take full advantage of the bear carcasses and to make the permit process smoother. Transport of the bear carcasses or parts thereof would be completed by HSU personnel or students under their State issued Scientific Collectors Permit. It would likely take one to four months for a qualified graduate student to be found, however, it is not a necessity to begin the project. The length of time to obtain the permit is reasonably short and would have a low to moderate impact and would not be significant.

There is also a possibility that a government trapper from the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) could be used in this effort. It is expected that the above mentioned permit would still be required. Implementation of this alternative would not be legal outside of Reservation lands in California without a depredation permit from the California Department of Fish and Game (CDFG). Because State game regulations do not apply on the Reservation, it is possible for the Tribe to conduct this type of management activity without the involvement of CDFG.

#### B-5 Affects to Wildlife, Black Bear Population

Alternative 1: Under this alternative the Reservation bear population would likely remain very high and relatively stable with the possibility of a low to moderate increase during the short term (10-30 years). The effects of PCT treatments and bear damage on the

vegetation within PCT units ensures that those units continue to produce forage for bears over a longer period of time, perhaps half way or more through the rotation than in either alternative 4 or 5. This provides more acres of foraging habitat for bears and may contribute to an increase in the bear population in the short term. Towards the last half of the rotation stem exclusion will likely occur, shading out grasses and herbaceous plants as well as raspberries and blackberries. Mast production would likely be lower under this alternative than alternative 4 but the effects of this on bears will not be noticeable for 30 to 40 years or more. The overall effect of this alternative on the bear population would be to maintain a stable or encourage an increase in the bear population over the next 10-30 years. This effect would not be considered significant.

Alternative 4: Under alternative 4 the vegetation within units will progress towards the stem exclusion stage more rapidly than alternative 1 or 5, shading out most of the prime bear food. The effect of this on the bear population will be low to moderate because timber harvest will continue to provide areas of early seral stage habitat which will probably serve to provide a stabilizing influence on the bear population in the short term (10-30 years). As time progresses and mast production increases within the un-thinned stands, while timber harvest continues to provide early seral habitat, the bear population may increase.

Alternative 5: Approximately 15-30 (2-7% of the Reservation population) bears would be killed annually for three or more years, presumably decreasing bear damage to plantations. The California Department of Fish and Game allows approximately 6.9-10% of the bear population to be harvested annually statewide (DFG 1990). PCT treatments would continue to extend the time that each unit is capable of providing grasses, herbs and berries, however, a decrease in bear damage would likely result in stem exclusion being achieved within a much shorter time period and contribute to less diverse stands with a much lower hardwood component. Mast production towards the last half of the rotation age would be substantially less than that expected under either alternative 1 or 4 moderately reducing future food sources available to bears on the Reservation. Overall the impact of this alternative would be to stabilize or slowly reduce the bear population within the Reservation over the next decade. This alternative would have little to no long term effect to the black bear population on or surrounding the Reservation and would not be a significant impact.

## B-6 Affects to Vegetation

Alternative 1: Pre-commercial thinning would continue in all areas of the Reservation under this alternative and bear damage would likely increase. The effect of pre-commercial thinning on vegetation within well stocked units is to simplify the vegetative structure of the unit. Un-thinned units typically have a mix of Douglas fir, tanoak, madrone and other hardwoods and conifers. PCT practices generally leave the unit with far less tree species diversity immediately following the thinning. For a short period of time prior to the closing of the crowns, an influx of brush, berries and stump sprouting hardwoods occurs. The conifers, principally Douglas fir, then respond and grow rapidly until their crowns close and the stand becomes nearly monotypic for the remainder of the

rotation. Even aged, monotypic stands of Douglas fir provide far lower habitat value for most native wildlife species and they can appear nearly sterile. Because many units which have received PCT treatments on the Reservation were not well stocked across the entire unit and because bears have attacked the future crop trees with varying degrees of intensity, many PCT units have not achieved the monotypic condition targeted as a goal by past silviculture. Many of these units are highly diverse both vertically and horizontally due to these factors and the mix of hardwoods and conifers has returned, generally in two distinct canopy layers. Assuming bear damage would spread and increase under this alternative, future vegetative conditions expected would be highly diverse in species composition and would be multi-layered at a fairly young age. These stands would probably have sparse to moderate overstories of larger diameter Douglas fir with mid- and understories of smaller diameter tanoak, madrone and other hardwoods. The hardwoods would probably not mature quickly enough to provide large crops of mast or berries prior to the end of the rotation and would not likely develop the cavities which are so important to many wildlife species. Regardless of the stand conditions prior to PCT, implementing this alternative will be expensive and will not likely result in the desired volume production. It will not however, result in a significant impact to the vegetative condition.

Alternative 4: Under this alternative PCT treatments would be eliminated from the majority of the Reservation since bear damage continues to spread on the east side of the river. Because early release would continue, well stocked units should generally remain well stocked. Conifer density would likely be higher than that under alternatives 1 or 5 but individual tree growth would be lower and net volume production at the end of the rotation may be lower than alternative 1 and would likely be substantially lower than alternative 5. The stand vegetative condition would be a diverse mix of Douglas fir, tanoak, madrone and other hardwoods of relatively uniform size class until near the middle of the rotation. The conifers would then begin to differentiate and two canopy layers would form with an overstory of Douglas fir and an understory of hardwoods. Below the understory there would likely be no vegetation at all for most of the rotation. Bear damage would likely occur sporadically through these units and may reduce the conifer stocking substantially, especially in units which are poorly stocked to begin with. Mast and berry production from the tanoak and madrone would likely be substantial for the last half of the rotation while cavity development would be just beginning at the end of the rotation. This alternative would most closely resemble the natural succession patterns expected after stand replacement disturbances.

Alternative 5: Under this alternative it is likely that bear damage would decrease substantially and that units receiving PCT treatments would progress towards a stem exclusion stage with a nearly monotypic overstory of even-aged Douglas fir. The value of these stands to wildlife would be substantially less than either alternative 1 or 4. However, because of the current provisions within the Tribe's management plan which ensure that some lands remain protected from timber harvest while others retain large diameter residual trees across all harvest units the effects of this alternative on Reservation-wide vegetation would be only low to moderate and certainly not significant.

## **V. LONG TERM CONSEQUENCES**

### **A. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Irreversible commitments of resources are decisions causing changes that cannot be reversed; once used, the resources cannot be reinstated nor can opportunities be renewed. Irreversible commitments apply to activities or events such as mining, road construction and cultural resource disturbance. Irretrievable commitments are OPPORTUNITIES for production or use of resources which are foregone for a period of time because of land use decisions such as protecting spotted owl activity centers, deferring harvest of unstable land, etc.

Regardless of the alternative selected, an irretrievable commitment of resources could occur if the annual allowable cut (AAC) is not adjusted to an appropriate level for the individual alternative. For example, allowing bear damage to continue unchecked while ignoring the adverse impacts to future volume production would lead to an Irretrievable commitment of resources. In this case, the current AAC would effectively result in “over cutting” sure to be felt in the next decade or two as the impacts of bear damage begin to be reflected in the Tribe’s Continuous Forest Inventory (CFI) measurements. Careful monitoring of the extent and intensity of bear damage over the next five to ten years will be very important in tracking the effectiveness of the chosen alternative as well as adjusting the AAC. Because monitoring is an important part of each alternative, no irretrievable commitment of resources as described above would be made since adjustments to the AAC would be expected if the data were to warrant such action.

Alternative 1: The irretrievable commitment of resources associated with this alternative is loss of growth and volume due to bear damage and mortality. Unknown factors could result in a higher commitment of the resource if bear damage continues to intensify and spread above the level anticipated.

Alternative 4: The irretrievable commitment of resources associated with this alternative is growth and volume loss due to the elimination of pre-commercial thinning. Unknown factors could result in either a higher or lower commitment of resources for two main reasons as follows: 1) The growth rates used in the modeling were based on un-thinned plantations which did not receive early release treatments. If early release and experimental silvicultural practices improve growth then the AAC may not be reduced as substantially. 2) Bear damage is known to occur in un-thinned stands on the Reservation, but as yet, at lower intensity. If bears begin to hit these stands harder as they become older then the AAC may be reduced even further.

Alternative 5: No known irretrievable commitment of resources will occur under this alternative. There is a low to moderate amount of uncertainty associated with this alternative due to not knowing how well it will work to control bear damage.

## **VI. CONSULTATION AND COORDINATION**

A. USFWS, No threatened or endangered species of fish, wildlife or plants will be impacted by this action and therefore, no consultation with the Fish and Wildlife Service is needed.

B. SHPO, No ground disturbing activities will occur and no significant sites will be affected by this action, therefore, no consultation with the State Historic Preservation Office is needed.

C. BIA, The environmental assessment and Tribal decision notice will be submitted to the Regional Director for his concurrence with the Tribal decision since BIA funding will be used to implement this project at least during the first year. The Regional Director will be requested to issue a Finding of No Significant Impact (FONSI), based on the evaluation contained in the EA.

D. NMFS, No threatened or endangered species of anadromous fish will be impacted by this action and, therefore, no consultation with the National Marine Fisheries Service is needed.

E. Federal Animal Welfare Act, The method of trapping bears (culvert traps) which will be used under alternative 5, will require the use of chemical immobilization of the bears prior to euthanasia. The only source of the immobilization drugs readily available to Tribal Forestry staff is through the Humboldt State University (HSU) wildlife department. In order for HSU to provide the immobilization drugs a Section 501 permit must be issued through the HSU Institutional Animal Care and Use Committee (IACUC). Obtaining this permit would ensure that the methods and protocols for implementation of alternative 5 would meet the requirements of the Animal Welfare Act and other related regulations.

F. CDFG, No consultation with the California Department of Fish and Game would be required since State game laws do not apply on the Reservation, however, it would be beneficial to provide CDFG with a copy of this EA as a professional courtesy. In addition, if HSU does wish to use the bear carcasses they will need to have a State issued CA Fish and Game Commission (Title 14) - Scientific Collecting Permit in order to transport the carcass off of the Reservation.

## **VII. LIST OF PREPARERS**

The interdisciplinary team members who prepared portions of this environmental assessment include:

Greg Blomstrom, Planning Forester  
Mark Higley, Wildlife Biologist, IDT team leader  
Todd Salberg, Assistant Silviculturist

## Appendix A. CONSEQUENCES FROM ISSUES RAISED BUT NOT CONSIDERED SIGNIFICANT

A-1 There is a concern that due to the lack of information regarding effective bear damage control, implementation of any alternative will require long term effectiveness monitoring.

### Alternative 1

Under Alternative 1 monitoring would be implemented to track the trend in the spread and intensity of damage so that reasonable projections of the annual allowable cut could be made. This would require a low-moderate increase in effort annually and would use aerial photography and road side surveys to classify damage severity within units. This effort would be focused primarily within pre-commercial thinning (PCT) units using 1" = 500' aerial photos taken every five years. Roadside surveys would be used to ground truth that mortality had been caused by bears and to monitor annual bear damage activity. As with the other Alternatives, experiments with silvicultural practices would be made which would require some intensive monitoring. Taken together it is likely that the monitoring effort would require approximately ¼-½ FTE and would cost \$5,000 to \$10,000 annually and \$8,000 every five years.

### Alternative 4

Under Alternative 4 monitoring would be implemented to track the trend in the spread and intensity of damage so that reasonable projections of the annual allowable cut could be made. This would require a moderate increase in effort annually and would use aerial photography and roadside surveys to classify damage severity within units. This effort would be focused on both thinned units and un-thinned units in an attempt to assess the effectiveness of eliminating PCT treatments. As with the other Alternatives, experiments with silvicultural practices would be made which would require some intensive monitoring. Taken together it is likely that the monitoring effort would require approximately ½ FTE and would cost \$10,000 annually and \$8,000 every five years.

### Alternative 5

Under Alternative 5 monitoring would be implemented to track the trend in the spread and intensity of damage so that reasonable projections of the annual allowable cut could be made. In addition, more intensive monitoring would occur each spring in order to select appropriate trap locations, wherever bears are trapped and killed to assess the effectiveness of this alternative. Field methods were developed during FY99 which should provide a statistically sound assessment of the change in damage occurring annually within specific units. This would require a substantial increase in effort annually and would use aerial photography and roadside surveys across the landbase to detect changes in damage levels. This effort would be focused mostly on thinned units in an attempt to assess the effectiveness of killing bears to protect trees. As with the other alternatives, experiments with silvicultural practices would be made which would require

some intensive monitoring. Considering all monitoring and annual trap site selection and trapping it is likely that the monitoring and implementation effort would require approximately ½ to 1 FTE and would cost \$15,000 to \$30,000 annually and \$8,000 every five years.

A-2 There is a concern about how to dispose of any bears that may be killed.

Alternative 1: There would be no bears killed under this alternative.

Alternative 4: There would be no bears killed under this alternative.

Alternative 5: It is expected that 10 to 30 bears might be killed annually for two to three years and fewer than 10 per year thereafter. Humboldt State University's Wildlife Department has expressed an interest in obtaining the carcasses for research purposes. If they do not want the carcasses or any parts thereof, remote disposal sites will be selected which have no possibility of contaminating water. Over the course of the Tribe's bear population study, Tribal members have informed Tribal Forestry's wildlife staff of a number of bears which have been killed in their yards so that data could be gathered from the bears. The carcasses of these bears were removed and dumped as described above. There have been no complaints from the community regarding these bear carcasses. On a few occasions Tribal Forestry staff have found bear carcasses which have been dumped into the Trinity River, creeks or within view from major roads. This will not happen with bears dispatched under this alternative. Any carcasses disposed of under this alternative will be sliced open to promote rapid consumption of the bear by turkey vultures, ravens and other scavengers.