



February 21, 2020

Chairman Dino Franklin
Kashia Band of Pomo Indians
Stewarts Point Rancheria
1420 Guerneville Road, Suite 1
Santa Rosa CA 95403

RE: Long Point Unit Forest Management Plan

Dear Chairman Franklin,

Enclosed you will find a draft Forest Management Plan for the Long Point Unit of your property adjacent to the Original Reservation of 41.85 acres. As you know, this land is held in Trust by the BIA. In order to meet the requirements of National Indian Forest Resource Management Act (NIFRMA), and in order to be able to conduct forest management activities, a Forest Management Plan (FMP) must be developed. Under NIFRMA, forest management activities are limited to the following until a FMP is approved:

- A. Preparation of an FMP (25 CFR 163.11).
- B. Emergency sale of timber on allotted lands (25 CFR 163.14(b)).
- C. Free use cutting without permit (25CFR 163.27).
- D. Fire management measures (25 CFR 163.28(a), (b), and (c)).
- E. Trespass protection and prosecution (25 CFR 163.29).
- F. Insect and disease control (25 CFR 163.31(b)).

The attached FMP helps guide you, your members, and staff through a series of tools in the toolbox to managing the Long Point forest. This doesn't mean that you must do one thing or another. The FMP simply gives you a snapshot in time of the current condition of the Long Point forest, the road issues which should be addressed to reduce erosion issues, possible ways to enhance the forest and keep the young and relatively healthy forest growing well, and some of the possible permitting issues you may face, all while enhancing the cultural use of the land. At the end of the document are a series of recommendations to base this management on. I have been working on this property since 1999 and have been able to watch it mature, respond to treatments, and continue to develop from a single aged stand of trees into a more complex system. The previous owners prior to the Roberts family, did set the forest significantly back, but it is recovering and responding well. Trees are amazingly resilient. The following is meant to be an Executive Summary for those that don't have time to read the entire document and also to satisfy part of the needs of the BIA for a FMP, which requires an Executive Summary.

Executive Summary

In 2016, the Long Point Unit (480.0 acres of mixed forestland, oak woodland, and grassland) was conveyed in Trust to the United States for the Kashia Band of Pomo Indians of the Stewarts Point Rancheria. In order to meet the needs of the 1990 National Indian Forest Resource Management Act (NIFRMA), a Forest Management Plan must be prepared for properties which have substantial forested resources. A forest inventory was conducted in 2019 across the property. This forest inventory identified 10 vegetation types (grassland, brushland, a hardwood vegetation types and 7 different conifer vegetation types). The forest vegetation types differ by species composition, density, stand development, and management history.

There are 449 acres of conifer forestland. Across this forestland, 140, 1/5-acre fixed radius plots were installed to provide the basis of the information contained within the FMP. This inventory sampled approximately 6.2% of the conifer forestlands. This level of inventory was conducted to be able to provide some rough estimates of value of the timber in the future if necessary. In addition to standard forest measurements, the growth of the current forest was assessed via measuring increment cores for the previous 10 years (2009 to 2019) growth. We also looked in some degree at the growth in the previous 10 years (1999 to 2009), which followed a series of thinnings between 1999 and 2002 and some harvesting of hardwoods between 2002 and 2005.

The following is a summary of the current forest:

2019 Total Standing Volume (bd. ft.) of MERCHANTABLE TIMBER (by Species & 2" Diameter Class)				
	18" to 24"	26" to 34"	36+	Total Merchantable
Redwood	1,992,000	2,494,000	1,158,000	5,644,000
Douglas-fir	2,294,000	1,700,000	243,000	4,237,000
9,881,000				

Table 1: Net merchantable volume across the Long Point Unit in 2019.

Based on the growth measurements of the forest, all seven forest types are currently growing at a weighted average rate of 2.8% for redwood (or about 420 board feet of redwood per acre per year; 160,000 across the property) and 4.2% for Douglas-fir annually (or approximately 430 board feet of Douglas-fir per acre per year; 190,000 across the property). The growth rates for the period of 2000 through 2010 showed a higher growth rate (3%) following the initial harvests in the late 90's and early 2000's. From experience, we expect to be able to maintain growth rates for about 10 to 12 years following a harvest. The growth rate is currently much lower in some areas because it has been 16 and 19 years or longer since the last harvest. Competition has begun to set in between the trees which had been thinned out and started to slow things down in the second 10-year period.

This growth rate will produce 3.4 million board feet off of the property sustainably every 10 years if you choose to harvest timber in the future. Harvests shouldn't exceed this rate until a time in the future when growth and yield values are recalculated.

I have suggested that the property be re-inventoried roughly every 20 years as this forest is still young and growth rates will need to be monitored to make sure that future growth and yields numbers are accurate.

We have recommended 2 silvicultural treatments to apply across the property for the foreseeable future; single tree selection and group selection. There are other treatments, but those treatments are not necessary at this time, nor do they meet the aesthetic needs of a property so close to the Rancheria or protect the planning and ongoing cultural uses and resources on the property. There are other recommendations for various intermediate treatments; burning, planting, thinning of precommercial trees, pruning, fuelbreak establishment, and possibly thinning of some hardwoods. These treatments are meant to improve the health of the forest. Any activity that is undertaken should improve the long-term health and stability of the forest, while not diminishing the other uses. As we have looked at various properties, this is possible, it just needs to be planned and executed well in order to meet the expectations of you and your members.

If harvesting is to occur, I would suggest not exceeding a harvest rate of 30% of the trees over 18" in diameter. Thinnings like this should follow a strict series of requirements. Trees to be removed should meet one of the following requirements (ranked in order of priority, which should be used to select which trees to harvest):

1. Trees which are diseased, dead, dying or will not survive for the next 10 to 12 years.
2. Trees which have less than 50% live crown ratio. Trees with less likely won't show a release if thinned out.
3. Trees which show defect (rot or damage by previous activities), deformities, or other issues which will hinder future growth. This could include internal rot issues, broken tops, trees which are twins, trees with fire damage, or other issues. A certain amount of these trees should be left per acre for wildlife and aesthetics, but probably not more than 3 or 4 per acre as this will begin to affect the productivity of the forest. In some of the forest types you currently have 3 to 4 times this level.
4. Trees which are presently not contributing toward growth and are not expected to do so.
5. In order to provide spacing and increased growth of neighboring trees, clumps will be thinned.

The chart below (Chart 1) is from a forest in Mendocino County which was 170 years old in 2015. It has been monitored and measured every 10 years over the last 80 years to observe its development over time as it progresses towards an older forest. The current forest is the result of a clear-cut 175 years ago. No harvests have occurred within this stand since that original harvest. The forest has been allowed to go through the various phases of forest succession. An important thing to point out here is that forests are not static in time, they are dynamic process which are continually being shaped and shifted. We are only here for so long and our perspectives are rather short-term compared to what history tells us. Historically, fire was an important tool in the management of these forest. Low intensity fires helped maintain brush, small trees and dead trees, while allowing larger trees to respond to newly available resources (light, water and nutrients).

At 90 years in age, this forest nicknamed the Wonder Plot, had 275 trees per acre and over the last 80 years the forest has gone through a process that is commonly known as stem exclusion.

Over time, the trees per acre continued to decline annually through natural attrition, however the size of the remaining trees and their corresponding volume increased.

Chart 1: Results from the 2005 Measurement and Data Compilation.



Research shows that our historic forests were much different than they are today. Some of the best research shows that historically, there were 40 to 60 total trees per acre in Coastal Sonoma County forests. Long Points forest today range from 235 trees per acre in the RD22 type all the way up to 525 trees per acre within the RD44 type. This is neither healthy nor sustainable. The historical forests were dominated by large redwoods with fir and hardwoods playing a very minor part of the forested ecosystem. Of course, this is a very simplified narrative of what those complex forests looked like. There were gaps/openings from fire, wind, landslides and other disturbances which also caused even larger pockets. These disturbances created a patchwork landscape where small gaps would create a new age class of vegetation.

Table 2: Stand density comparison between old growth coastal redwood stands from different geographic locations with differing climatic and edaphic conditions (Giusti 2004).

Stand Age	Old Growth	Old Growth	Old Growth	Old Growth
Location	REDWOOD CREEK	LITTLE LOST MAN CREEK	BULL CREEK	MONTGOMERY WOODS STATE RESERVE
County:	Humboldt	Humboldt	Humboldt	Mendocino
Tree Size	<u>TPA</u>	<u>TPA</u>	<u>TPA</u>	<u>TPA</u>
> 24" DBH	No data	20	40	16
> 32" DBH	No data	15.7	40	0
> 40" DBH	11.3	12	35	15

The table above (Table 2) appears in Gregory Giusti's paper titled Management Practices Related to the Restoration of Old Forest Characteristics in Coast Redwood Forests. It shows some historic data of older forests. The Montgomery Woods State Park site is probably the most relevant to the Long Point Unit, as it is the closest forest physically. As you get further north, the climatic conditions favor more trees per acre.

There are multiple reasons discussed in great detail within the FMP as to why I am recommending selection-based harvesting. The primary reason for this recommendation is that selection-based logging resembles low intensity fires without the problems and complexities surrounding controlled burns today. With it being harder and harder to burn these days, light intensity logging allows us to remove those trees which would have been killed by fire or which will be killed by competition as the forest matures. Secondary benefits to logging allow you to get paid for trees which would otherwise die and rot, while reducing elevated fire risk and safety hazard to the future recreational uses. As illustrated in Table 1, the Wonder Plot forest has gone from 275 trees per acre down to 75 trees per acre (the purple line) over the course of the last 80 years. This die-off of 200 trees per acre will similarly occur on Long Point if actions are not taken to correct the density of the forest. Our current forests are out of balance. By working to restore this balance, we can help them to resist insects, diseases, fires, and hopefully climate change. Trees killed by Sudden Oak Death aside, Long Point has between 5 and 13 (conifer trees over 12" dbh) standing dead trees per acre. This will only continue to persist if something isn't done.

The future conditions for the various Long Point forest types should be one with all age classes represented, species endemic to the area, and somewhere between 75 and 100 mature trees (greater than 18" dbh) per acre. Currently it is a two aged forest with very low diversity in size, age, species composition and space in the both canopy and understory. The harvests that occurred between 1999 and 2002 were intentionally light to allow the young trees room to grow but not set the forest backwards on its recovery from the industrial ownership.

In the discussion within the FMP, silviculture relates to how the future forest is managed to achieve this desired future condition. These changes won't occur overnight. They will take tens if not hundreds of years to achieve. The use of various silvicultural treatments along the way will be important to achieving these goals.

Additional benefits to managing the forest include but are certainly not limited to:

- The ability to restore, or in many cases, enhance cultural practices.
- Improved roads for better access.
- Reduced fuel loads so that in the future, you may be able to use fire again.
- Installation of fuelbreaks to help protect the Rancheria in the event of a fire.
- Reduced sedimentation from failing culverts, poorly drained roads, and other issues across the landscape.
- A source of revenue over time that will not only pay for the property, but also provide a steady source of income for various projects. Using a 10-year average the above

discussed level of harvest could generate between \$500,000 and \$1 million dollars every 10 years. If managed in a sustainable manor, this number will grow.

- An opportunity to provide Tribal members jobs now and in the future working in the woods on various projects which also happen throughout the year.
- A steady supply of wood products for building new homes, structures and other wood manufactured products, fuel for heating homes, and possibly an opportunity for a source of energy to power structures and homes via cogeneration or other technologies.

I have suggested a harvest every 4 years across the property and a 12-year rotation. This is intentional and based on a scale of economy. You could cut the entire property in 1-year, but having equipment on the property every 3 to 4 years helps with needs for various projects such as continued road maintenance. Additionally, dispersing income over time is often better than a lump sum. This rotation is a suggestion, based on the growth levels, what an acceptable level of harvest would be over time.

I hope that this helps with why I am suggesting that logging can work to manage this piece of property. At some point in time, it may be that prescribed fire can be used to maintain some of these smaller trees, but its use right now would result in significant mortality due to fuel loading. I am happy to take anyone out on Long Point or at Plantation who would like to talk about these things.

Thanks, and please let me know if you have any questions.



Matt Greene, RPF #2747

