

Santa Clara Mojave River Ranger District Sawmill/Liebre Ridge Forest Health Project 2010

Purpose and Need/Proposed Action/Decision to be Made
Santa Clara/Mojave Rivers Ranger District, Angeles National Forest

Los Angeles County, California

June 29, 2009

Purpose and Need

Project Area: The proposed forest health project area is located on the Santa Clara Mojave River Ranger District on the Angeles National Forest. It runs primarily along the Liebre Mountain Ridge between the Old Ridge Route on the west and Lake Hughes on the east. The black oak management area runs along the Forest Road 7N23 primarily on the north side. The plantation maintenance project area consists of seven plantations. The plantations are located in areas classified as Backcountry, Backcountry Non-motorized and Developed Area Interface by the Angeles National Forest.

Why:

The Angeles National Forest Land Management Plan identifies a need to complete 1,000 acres of mortality removal, 600 acres of thinning and 100 acres of reforestation in order to move the forest towards the desired condition of community protection and healthier forests. This proposed action supports this resource management program emphasis.

Lack of management activity in the past within the seven plantations has created a situation where trees have become overstocked, reducing their overall vigor. This situation places the trees at risk to mortality from insect, disease, drought and fire. By reducing canopy cover and increasing spacing between individual trees, moisture competition will be reduced and a healthier growing condition for the remaining trees will be created. By pruning lower branches, removing competing brush from within the plantations and by creating a fuelbreak around the plantations, the potential of fire induced mortality is reduced. Finally, by replanting in areas where mortality from insect, disease or fire, recreation and wildlife habitat features will be retained in the project area.

The purpose of this project is to reduce the risk of catastrophic wildfire, improve wildlife habitat, improve health and vigor of individual trees within plantations and assure the long term retention of these features on the landscape of the forest. The area proposed for plantation treatment is approximately 166 acres in size and can be viewed in the map attached.

California black oak (*Quercus kelloggii*) is a rare species on the Angeles National Forest and comprises half the land coverage today than it has in historical times, currently only making up about ten percent of all tree coverage across the forest (Land Management Plan (LMP), Part 1 p.23) The LMP focuses on maintaining this rare species and allowing for a diversity of stand types across the forest. Without proper management, these missletoe infested trees will eventually face mortality. With no regeneration occurring in the understory, this unique stand

will convert, affecting both the total cover for this stand type and the landscape diversity that it provides. This project intends to focus on restoration of the Black Oak stand through management of the mistletoe infestation using several eradication techniques and by promoting understory regeneration through planting.

Pruning and removal of mistletoe will reduce the stress on the tree and the seed dispersal probability to other trees and branches. Since mistletoe is a parasite and uses its host for water and nutrient supply, it can affect the health of the host tree in many ways. The host tree will have less water available for its survival since it is also working to support the transpiration within the mistletoe. The host will also photosynthesize less due to less foliage exposure to the sun while mistletoe foliage takes over the canopy. When trees become infested and limbs begin to break, this then creates more entries for pathogens and heart rots, making the tree more susceptible to disease. When trees become weak, they are also more susceptible to insect attack and further secondary infestations. One insect recently introduced to California and of concern to oak tree species is the exotic Goldspotted Oak Borer (*Agrilus coxalis*). Preventative management is the best methodology for monoculture stands such as those of the highly susceptible black oak located on the Sawmill ridge. Once an exotic pest enters a single aged, single species environment, the effects could be disastrous and irreversible.

The Sawmill/Liebre ridge is a highly used recreational area and the black oak is a prized species of high aesthetic value, therefore its presence is important for continued recreational opportunities in addition to its ecological value. The primary area proposed for treatment is approximately 799 acres in size and can be viewed in the map attached. This mapped area includes the eastern and western side of the Liebre Ridge along the Forest Road 7N23. While the oak forested area along 7N23 includes over 1200 acres of land, only a portion of the area contains black oak and only a portion of that will be favored for management after excluding inaccessible slopes and areas lacking the need for mistletoe removal. Upon analysis, this acreage size for implementation may vary depending on resource specialist input.

Proposed Action

Who: The Santa Clara Mojave Rivers Ranger District, Angeles National Forest proposes to improve forest health in the listed plantations and stands.

What: Maps displaying the proposed treatment areas are attached. Proposed activities within the seven plantations and the black oak stands would consist of mortality removal, thinning, pruning, planting, release and establishing fuelbreaks around the listed plantations. There is only one of two types of oak mistletoe (*Phoradendrom villosum*) present within the black oak stand proposed for treatment. This is the leafy mistletoe which reproduces by seed dispersal through bird feces. While the transport of seeds may be inevitable and difficult to prevent, the continued growth of any current mistletoe can be monitored and controlled. Therefore, this project consists of pruning the mistletoe from parts of the trees where it has not yet affected the trees vigor and to remove limbs of the trees that have been affected to the point of limb mortality. In some cases, entire trees may need to be removed if they are infested to the point that they can be considered a hazard tree or if they are infested with secondary pests such as golden oak scale insects

(*Asterolecanium puteanum*) that can spread to other weakened trees in the vicinity. A tree would be considered a hazard if the infestation is large enough that the limbs could not be removed safely individually or if the tree is dead and poses a fire hazard.

Pruned mistletoe and infested limbs will need to be removed from the site and/or disposed of in a way not to spread the mistletoe infestation through natural seed dispersal or bird vectors. Cut wood will remain on site and sold as firewood to the public.

Black Oak seedlings may be planted after all the wood is removed from the area and following site preparation. This preparation will be minimal so as not to destroy the natural understory of native grasses that have inhabited. Site preparation will include clearing of grass down to the topsoil in patches of 2 feet by 2 feet every 8 feet in a row. Each row will be 8 feet apart and the patches will alternate amongst the rows so as to maximize the distance between each patch. California Black Oak will be the primary species planted so as to restore the current stand type, however there may also be some Canyon live oak (*Quercus chrysolepis*), Scrub oak (*Quercus dumosa*) and other native conifer species planted throughout the project area. The reason for this is to provide a species break between the individual trees and therefore inhibit the further introduction and spread of other species specific insect and diseases.

No new roads will be constructed as a result of this proposed action. The total assessment area consists of 967 acres. Acres by treatment are displayed in the table below.

The proposed action is focused on improving forest health and reducing wildland fire risk. The proposed treatments are tools that will be used to achieve the desired conditions.

Approximate Acres by Treatment	
Proposed Treatment	Acres
Mortality Removal	70
Thinning	168
Fuelbreak Maintenance	45
Pruning	967
Planting	245
Brush Removal (Release)	168

Specific Actions

Mortality Removal: All dead trees within the boundary of the plantations will be removed, except those non-hazardous dead trees greater than 16 inches in diameter will be left in numbers of 2-3 per acre. The rate of mortality for existing trees is estimated to be 5% in healthier stands (Castaic Lake, New Liebre, Lake Hughes, Rays Ridgetop, and the Black Oak stand) and 60% in burnt stands (Reservoir, Sandshed, Three Points) with an average of approximately 8% of the

entire project area. Material over three inches in size will be retained on site for possible sale as a forest product (firewood). Material less than 3 inches and within 300' of a road will be chipped and the chipped material blown back onto the site. Material 3 inches and less and greater than 150 feet from a road will be piled for burning when conditions are favorable based on parameters of a prescribed fire plan. All stumps will be "flush cut" within 4" of the surface except where a rock or other obstacle prevents this and then a 6 inch cut above the obstacle will be permitted.

Thinning: Trees will be removed to create 20' x 20' spacing between the boles of the remaining trees. Native trees, (ponderosa pine, incense cedar and Coulter pine) will be favored as residuals over non-native species. Trees greater than 20 inches in diameter will be left as leave trees. Material over three inches in size will be retained on site for possible sale as a forest product (firewood). Material less than 3 inches and within 300' of a road will be chipped and the chipped material blown back onto the site. Material 3 inches and less and greater than 300 feet from a road will be piled for burning when conditions are favorable based on parameters of a prescribed fire plan. All stumps will be "flush cut" within 4" of the surface except where a rock or other obstacle prevents this and then a 6 inch cut above the obstacle will be permitted. All live conifer trees cuts will have their stumps treated with Sporax within 15 minutes of cutting to prevent fungal infection to residual live trees.

Fomes annosus (Heterobasidion annosum) is a fungus that attacks a wide range of woody plants causing a decay of the roots and butt and the death of sapwood and cambium. All conifer species in California are susceptible to the fungus. To reduce the risk of *Fomes annosus* infestation, Sporax will be applied to freshly cut stumps no later than 15 minutes after the tree is cut. The active ingredient in Sporax is borax, a naturally occurring mineral made of sodium, boron, oxygen, and water. No treatment of vegetation would occur within 50-200 feet of streams; therefore, no borax is anticipated to enter the streams within the project area. Sporax would be applied in localized treatments, has low toxicity, and would not be used near water or during rain events. The Contractor shall adhere to all County, State, and Federal laws and regulations regarding this pesticide. This includes label directions and restrictions for application, handling storage, transportation and employee safety. The Contractor shall obtain all necessary permits and licenses for application of this pesticide. The Contractor shall submit all required Use Reports to all appropriate agencies within required time frames.

Retention/ leave tree species preference shall be as follows: Ponderosa pine, Jeffery Pine, Sugar Pine, and Coulter pine; Incense Cedar and Big cone Douglas fir; Black and White Oaks with single or no more than triple stems. Residual trees, when available, shall have crown ratios that average 60% or greater; be in the dominant and co-dominant crown classes; have good crown and bole form; and have no obvious insect, disease, or mechanical injury. All tree-form oaks will be retained but thinned to 2-4 stems per tree with up to three of the largest primary stems left uncut. This will be done by hand and not with a masticator. All trees to be pruned and thinned will be done so by hand and not a masticator.

Hand Clearing, Masticating and Release: All brush within the plantation boundary will be cut 4" or closer to the surface except where a rock or other obstacle prevents this and then a 6 inch cut above the obstacle will be permitted. A maximum of 75% and minimum of 55% of the standing brush will be treated in the units. A buffer of standing vegetation will be maintained

along the road system to discourage illegal off-highway vehicle access. A mosaic of 25% to 45% of the residual untreated brush pockets at least ¼ acre in size will be retained. Where feasible, manzanita and ceanothus species will be favored in the retained pockets. Material less than 3 inches and within 300 feet of a road will be chipped and the chipped material blown back onto the site. A buffer 5 to 10 feet wide will remain in a mosaic form along the roadside to prevent opening the area up to illegal OHV entrance and to enhance the visual aesthetics along the roadside. Material 3 inches and less and greater than 300 feet from a road will be piled for burning when conditions are favorable based on parameters of a prescribed fire plan. These piles will be no larger than 10 foot by 10 foot. A fireline will be constructed around each pile. In addition, a 30 foot wide fuelbreak will be created around the perimeter of the plantations, where all brush will be cut or masticated. Blue ribbon will be located around the plantation boundary as a guide but can be exceeded where there exists less than 30 feet of distance between the nearest tree base and the ribbon. Mastication will only occur on slopes less than 30% and will only be used to eradicate brush species. Mastication will not occur on tree species. Tree species include oaks and conifer species. Masticated material will be retained on site to provide protection for the soil and reduce the potential of the spread of noxious weeds. Where mastication is not preferred for the primary treatment, it will still be proposed as a follow up treatment to piles in the following years. This will allow for ground surveys to be conducted that may have prevented initial use of mastication and required handwork. This will also aid in removal of the fuels when short burning windows inhibit pile burning for several years. If mastication is not allowed due to steep slopes, lop and scatter methods will be favored over piling to prevent any bark beetle infestation of the piles or temporary dens for wildlife that may be destroyed when burning windows allow for pile eradication. This lopped and scattered material will allow for soil stabilization on those steep slopes as well.

All tree-form oaks within the fuelbreak areas will be retained. Those oaks that are thinned will be done so by hand and not by mastication. All trees to be retained and pruned will be done so by hand and not by mastication.

Pruning: All trees retained after thinning will be pruned to a height of 10' from the surface or no more than 1/3 of the live crown height, when 10' cannot be achieved. All limbs will be "flush cut" to the bole of the tree. Material less than 3 inches and within 300 feet of a road will be chipped and the chipped material blown back onto the site. Material 3 inches and less and greater than 300 feet from a road will be piled for burning when conditions are favorable based on parameters of a prescribed fire plan.

Planting: In plantations where mortality from insect, disease, drought or fire has created areas where reforestation is required to meet 20' x 20' spacing, planting of native stock seedlings will occur. Planting will generally occur during February through May, dependent on elevation and moisture conditions. Planting holes will be created by use of a power soil auger or with a manual planting bar. A 2' x 2' "scalp" will be created at each planting site to limit competition from herbaceous vegetation. Spacing for seedling will be approximately 6' x 6'. Planting is estimated up to 100 percent for burnt plantations, and at approximately 25 percent for healthier plantations that simply need some restoration.

Hand removal of noxious weeds including non-native thistle, will occur throughout the plantations as needed where those species are found and with prior permission from the Forest botanist.

Specific Prescriptions by Plantation are as follows:

- Three Points (28 acres) - Site preparation for planting of native seedlings, release of shrubs within 10 feet of conifers, thinning to a 20 x 20 foot spacing, and pruning limbs up to 10 feet. Preferred method is by hand with a chainsaw and using a chipper for the slash. This plantation area was recently burnt in the Liebre Pine Fire of 2005. There is a lot of cleaning up of hazardous fuels needed here as well. Mastication is the primary proposed treatment method for this. There is also a need for invasive weed surveys and possible management. Preferred method is by hand. The probability for the presence of secondary insects and disease after the Pine Fire is high and therefore proper disposal of any infested wood is necessary with treatment. Planting is estimated at approximately 20 acres in this plantation.
- Ray's Ridgetop (8 acres) - Release of shrubs within 10 feet of conifers, thinning to a 20 x 20 foot spacing, and pruning limbs up to 10 feet. Dense brush growth, especially on the north side of the plantation, has caused the need for reestablishment of a fuelbreak. Ribboning is poor on the north side due to poor access but a 30 foot break is intended around the entire plantation. Preferred method is by mastication. Some restoration is needed on the non-designated OHV routes that have been created. Installation of fencing or other natural barriers to prevent OHV entrance is proposed as a first step. If it is determined through monitoring that vegetation is not regenerating naturally, planting of native seedlings is proposed for the damaged areas. Planting is estimated at approximately 3 acres for this plantation.
- Lake Hughes (22 acres) - Release of shrubs within 10 feet of conifers, thinning to a 20 x 20 foot spacing, and pruning limbs up to 10 feet. Eradicating the existing piles from previous projects is a priority. Preferred method is by mastication. Some restoration is needed on the non-designated OHV routes that have been created. Installation of fencing or other natural barriers to prevent OHV entrance is proposed as a first step. If it is determined through monitoring that vegetation is not regenerating naturally, planting of native seedlings is proposed for the damaged areas. Thistle species are present and preferred method for removal is by hand. Signs of root rot are present and there is the possibility of secondary insects and diseases that may require proper disposal of the treated wood. Planting is estimated at approximately 2 acres for this plantation.
- Sand Shed (5 acres) - Site preparation for planting of native seedlings, treatment of existing slash and dead fallen limbs/trees and removal of dead standing trees. Preferred method is by hand. Planting is estimated at approximately 5 acres for this plantation.
- Reservoir (5 acres) - Site preparation for planting of native seedlings, treatment of existing slash and dead fallen limbs/trees and removal of dead standing trees. There are an abundance of non woody species growing throughout the plantation area that need to be surveyed and possibly controlled. Preferred method is by hand. Planting is estimated at approximately 5 acres for this plantation.
- Castaic (36 acres) - Site preparation for planting of native seedlings, release of shrubs within 10 feet of conifers, thinning to a 20 x 20 foot spacing, and pruning limbs up to 10 feet. Preferred method is by hand with a chainsaw and using a chipper for the slash.

Dieback of intermediate trees is apparent and investigation into the presence of insects and diseases are necessary with possible management and therefore wood disposal treatment. Little regeneration exists within the plantations and therefore future planting on this site will be promoted. Some restoration is needed on the non-designated OHV routes that have been created. Installation of fencing or other natural barriers to prevent OHV entrance is proposed as a first step. If it is determined through monitoring that vegetation is not regenerating naturally, planting of native seedlings is proposed for the damaged areas. Planting is estimated at approximately 10 acres for this plantation.

- New Liebre (64 acres) - Release of shrubs within 10 feet of conifers, thinning to a 20 x 20 foot spacing, and pruning limbs up to 10 feet. Preferred method is by mastication.

Specific Actions for the Black Oak stand (799 acres) are as follows:

- Felling of heavily infected trees and bucking of logs to 3 to 6 feet in length for firewood sales.
- Follow up of thinning stump sprouts to 1-2 stems per stump for those felled trees.
- Pruning of entire limbs of trees that are moderately infested and that are eligible for cutting less than 50 percent of the crown through limb removal.
- Pruning of mistletoe shoots from those less infested trees and from those trees where limb removal would cause more than 50 percent of crown removal.
- Limbing and pruning maintenance on a yearly basis to remove additional mistletoe growth and/or weaker limbs that may have been left until after crown growth exceeded 50 percent.
- Planting seedlings of multiple oak species and native conifers throughout the understory of the stand to promote diverse regeneration.
- Planting is estimated at approximately 200 acres for this project area.

All work will be done by hand and using hand tools including but not limited to the following: McLeods, Polaskis, Hand Pruners, Hand Saws, Chainsaws, Pole Pruners, Shovels, Planting bars, Spades, etc. Mobile wheeled elevator buckets may be used to work in those trees that propose a hazard for climbing to prune.

On some trees, multiple methods of removal may be implemented to maximize removal abundance and minimize effects to the tree. An example of this would be a tree that would be pruned to less than a 50 percent crown cover if only limbing were implemented; Therefore pruning of mistletoe shoots would be done on those limbs that could remain. This would allow for more crown cover to grow where the mistletoe has been removed and when that crown is filled in, and then limbing can occur for those infested branches that were left previously. Those trees that are limbed should be done so in a manner to promote good crown form.

Pruning will be done using three-point cut methods of practice in order to inhibit rapid wound healing and prohibit the probability of fungi entry into the wound. Final cuts should be perpendicular to the branch axis at the branch collar and additional residual bark wounds should be prevented.

The following mitigations would assure that all above mentioned treatments meet other needs as defined in the Forest Plan. These mitigations are not all inclusive and as necessary additional mitigations will be added as needed following the environmental analyses of the proposed action. All avoidance areas will be flagged with orange flagging and contractors should not enter into the avoidance area for any reason unless authorized by the COR.

Riparian Conservation Area (RCA):

- Perennial Stream = 100' buffer; Intermittent Stream = 100' buffer.
- No mechanized equipment allowed.
- No taking of riparian species allowed, i.e. willow, maple etc.
- Retain or re-establish ground cover to 60-70%, consisting of litter, duff, slash, grass.
- In identified RCAs, there will be no treatment within the stream inner gorge (from channel bottom to major break in slope).
- Any ground-based units that have a high degree of existing soil quality impairment (as identified by hydrologist/soils specialist) will require mitigations so as not to exceed threshold standards for detrimental disturbance.

Additional design features:

- The Forest Heritage Resource Program Manager may determined that sensitive areas exist within the project boundary or immediately adjacent to the project area. A representative from the Heritage Resources Department will be informed of all activities prior to beginning ground disturbing activities in these sensitive zones. Also, per the *Interim Protocol for Non-intensive Inventory Strategies for Hazardous Fuels and Vegetation Reduction Projects*, there are areas within the project area that may not have been surveyed and will need the Forest Heritage Resource Program Manager's approval before any ground disturbance treatments can occur in these areas. Maps in the project file will show the locations that will need approval from the Heritage Resource Program Manager before any ground disturbance can occur. This map will also identify areas which are to be flagged and avoided during project implementation.
- Protocol standards will be used in the washing of equipment to prevent the spread of noxious weeds. Documentation forms regarding this activity will be maintain by the project manager and forwarded to the forest Botanist. These protocols are attached.
- Any heavy equipment staging areas and access points will be rehabilitated and blocked after project completion. Rehabilitation would include returning the ground to natural contours, implementing decomposition and erosion control measures as needed, and covering bare soil with slash, chips, pine needles, or cut brush as necessary.
- A combination of natural barriers (rocks, logs, etc.), screening, and fencing will be used to prevent/discourage illegal vehicle activity during and after the project treatment. Fire Prevention Technicians and other staff would monitor the area, and if/when problem areas arise, remedial and preventative actions would be taken as appropriate. Coordination with adjacent landowners, public education, and signing would be used as appropriate.

- All equipment staging areas and burn pile areas will be located away from known areas with invasive species occurrences.
- In the masticated area material will remain on site to provide a barrier to the noxious weed invasion into the treated areas.
- Livestock will not be used as part of this project.
- Soil and Watershed BMP's will be fully applied for the duration of the project.
- All prescribed fire activity will occur only with approvals from the South Coast Air Quality Management District and under conditions established as approved Prescribed Fire Burn Plan.
- Where feasible, burning and removal of trees and other vegetation will be conducted outside of the general nesting season for migratory birds (April 1st – September 1st). The Forest Biologist will be notified if treatment occurs between April 1st – September 1st.
- Mastication machines will not be restricted to a size limit however access to plantations and movement within the plantations should be considered when deciding which machines to use. There should be no residual damage to trees or shrubs in the treatment area and soil effects should be minimized at all times. Machines will be restricted to track wheels only and a limit to pounds per square inch of tire tread may be established by resource specialists based on field survey results.
- When significant precipitation events are anticipated or have occurred (i.e. rainfall in excess of ½ -inch or greater), construction activities involving earth movement and heavy equipment may be suspended. The COR with the Forest Hydrologist and/or the Forest Road Engineer will inspect work sites for effectiveness of BMP's and determine when weather or soil conditions are appropriate for construction activities to commence or continue. If excessive erosion, compaction, or other soil conditions are apparent which will limit the achievement of restoration goals, work will be stopped until conditions improve. Conditions for making such decisions may include, but are not limited to:
 1. Precipitation event which is expected to occur or has recently occurred in excess of ½ -inch
 2. Excessive rutting and/or soil mixing
 3. Evidence of erosion and sediment runoff
 4. Significant soil compaction
 5. Significant soil adhesion to vehicles and construction equipment

Equipment Cleaning

FSM 2081.03 directs the Forest Service to require all equipment be cleaned when working in a site contaminated with noxious weeds. As a result of FSM 2081.03, the following will be required at all project sites:

- 1) All equipment except machinery except, trucks, vans, pickups, and cars used for daily transport of personnel, will be cleaned prior to entering Forest Service land. This includes vehicle wheels, undercarriages, bumpers, chain saws, hand pruners, or any equipment other than personnel transport vehicles.* All washing must take place where rinse water is collected and disposed of in either a sanitary sewer, a landfill, or other facility authorized to accept such rinse water.
- 2) Holder shall notify Forest Service at least 2 working days prior to moving each piece of equipment on to National Forest Land, unless otherwise agreed. Notification will include vehicle washing information. Upon request of Forest Service, arrangements will be made for Forest Service to inspect each piece of equipment prior to it being placed in service.
- 3) If equipment has operated in areas that the Forest Service has identified as containing invasive plant species, all equipment, and tools used at that site must also be washed AFTER work has been completed.
- 4) Holder shall certify in writing compliance with the terms of this provision prior to each start-up of operations.
- 5) If any new infestations of invasive species are identified by the permittee or Forest Service staff on the project site or access routes it shall be promptly reported to the other party.
- 6) A current list of invasive species of concern is attached to your permit.

* Equipment includes all machinery except trucks, vans, pickups, and cars used for daily transport of personnel. Even though it is not required, *it would be ideal if transport vehicles such as cars, truck etc were also washed regularly during the project.*

Sawmill Liebre Project Areas

