

Memorandum

To: Board of Forestry and Fire Protection

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Subject: State Forests Response to Board of Forestry Questions and Public Comment

The following are questions posed by the Board of Forestry during the 2014 Demonstration State Forests Annual Report presentation on July 23, 2015, and accompanying responses provided by the State Forest Program Manager. Also included is a response to the public comment expressed subsequent to the presentation.

Board of Forestry Questions:

1. What is "Tecate Peak State Research Area"?

Also known as the Wentz State Forest and the Kuchamaa Experimental Forest, Tecate Peak State Research Area is a 2,040-acre parcel of state land situated along the Mexico-United States border in San Diego County. The property was deeded to the State of California by W.Y. Evans-Wentz, a scholar and authority on Tibetan religion, with the request, according to his will, that it be made a public monument to symbolize goodwill and fraternity between the races and faiths of the Occident and the Orient (Evans-Wentz 1989). The property is located within and is administered by the CALFIRE San Diego Unit. The property is situated on the western flank of Tecate Peak, a mountain sacred to the Kumeyaay Indians who refer to it as Kuuchamaa (Shipek 1985). Kuchamaa (Tecate Peak) was listed on the National Register of Historic Places in 1992 (http://www.fire.ca.gov/resource_mgt/archaeology/downloads/accomplishments.pdf).

Another unique attribute of Tecate Peak Research Area is Tecate cypress (*Cupressus forbesii*), a rare and endemic tree species occurring only in the Santa Ana Mountains, Guatay Mountain, Otay Mountain and Tecate Peak in southern California and in isolated areas of northern Baja California, Mexico. This species is one of the few trees that grows within the chaparral and is listed as endangered by the California Native Plant Society (CNPS List 1B.1). The Tecate Peak population once covered approximately 260 acres, but has been reduced to less than 90 acres because of repeated fires (THE CHAPARRALIAN #19, April, 2006, Volume 3, Issue 2).

2. Has a comprehensive plan been developed for the State Forests to address potential catastrophic wildfire?

As mentioned in the presentation, and elaborated upon by Deputy Director Shintaku, each State Forest lies within a CALFIRE Unit. Each CALFIRE Unit has a multi-faceted Strategic Fire Plan in place with an overall goal to reduce both pre-fire and post-fire costs and losses associated with wildfire. Chief among those goals is to identify and address specific assets at risk and to establish protection plans for those assets. The Fire Plans are updated annually to address evolving environmental conditions such as completed and proposed pre-fire projects, and to identify new assets at risk, available resources and strategies to deal with potential wildland fire threats.

As each Demonstration State Forest is located within the jurisdiction or State Responsibility Area (SRA) of a CALFIRE Unit, these Fire Plans also specifically address State Forest assets as well. Information contained in the Unit Fire Plan regarding their respective State Forest includes background information, physical and environmental conditions, assets at risk, completed, active and proposed vegetation management treatments (fuel reduction projects, fuel breaks and firelines), and the location of available resources within the Battalion. The identification of the assets at risk and pre-planned strategies to deal with wildfire events contained within the Unit Fire Plans serves an important function in the protection of the State Forests.

In terms of potential carbon emissions from the State Forests, the California Forest Practice Rules require that Timber Harvest Plans prepared for State and private timberlands include an analysis of greenhouse gas emissions from the proposed timber harvest operation. An analysis of potential greenhouse gas emissions are also prepared for State Forest research and demonstration purposes, or as part of a proposal to secure grant funding for site-specific projects on the State Forests. For example, the following are excerpts from a grant proposal prepared in 2013 for a fuelbreak/biomass project on Latour State Forest, which includes a discussion and analysis of the potential benefits of the project in terms of avoidance of greenhouse gas emissions and potential renewable energy production.

- ***Tons of Carbon Sequestered or Emissions Avoided***

In 2007 the State of California passed the Global Warming Solutions Act (AB 32), which set targets to reduce greenhouse gas emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. The California Air Resources Board was tasked with obtaining compliance with the cap through regulatory and market approaches. Planning is currently underway and definitive decisions by the Board have not yet been taken, however, it appears that forests will play a significant role in non-regulated strategies to meet targets. This is anticipated to occur both as offsets within a cap and trade system and through voluntary measures.

Recognized strategies to mitigate GHG emissions and enhance terrestrial sequestration include reforestation, forest management and fuels treatments to avoid catastrophic losses. LDSF will contribute to the targets of AB32 by increasing the resiliency of the Forest to catastrophic

mortality by improving the general health of stands, pre-fire implementation of shaded fuel breaks and maintenance of firefighting infrastructure such as roads, signage and water sources. The long-term carbon stocks of the Forest are anticipated to increase over time. For example, the LDSF Long-Term Management Plan (Option A Plan) indicates that the timber inventory on the Forest will increase from about 22.7 MBF per acre in 2005 to 34.4 MBF per acre in 2105.

Forest products produced from LDSF will sequester carbon during their life cycle. Biomass fuels produced on the Forest also provide an opportunity to replace fossil fuels with an alternative energy source that is close to carbon neutral.

LDSF, in cooperation with WESTCARB, is currently conducting a Carbon Sequestration Project designed to demonstrate various methods to improve carbon sequestration in forested environments and the protocols in carbon registration. A total of seven units encompassing 281 acres were established between 2007 and 2009 and treated by various means including clearing brush using tractor & brush rake or masticator, controlling brush with spray treatments to release existing conifers, and planting tree seedlings.

Annually across the country, millions of tons of carbon are emitted into the atmosphere as a result of the environment and typical nature of the fuels consumed under wildland fire conditions. By implementing this fuelbreak/biomass project on LDSF, potentially thousands of tons of emissions may be avoided in the event of a fire. The material harvested during this operation will be dried and burned at one of several surrounding co-generation plants under environmentally controlled conditions. While there are alternative opinions, current Federal EPA regulations have accepted the premise that facilities fueled by woody waste are "carbon-neutral". That is, it is considered a process that simply speeds up the carbon cycle that would otherwise naturally occur as plants decompose. Therefore, emissions produced by converting the material from this project to energy in licensed wood-burning co-generation plants are considered to be "carbon neutral" according to the EPA.

Alternatively, based on extrapolation of information contained in Forest Carbon Emissions Model (FCEM) Report No. 2 for four California Fires, prepared by Thomas M. Bonnicksen, Ph.D., March 12, 2008, a catastrophic fire on LDSF may conservatively have the potential of emitting 50 tons of CO₂ per acre produced from combustion, and 185 tons of CO₂ per acre produced from combustion and decay over a 100-year period. Expanded forest wide, these estimates amount to approximately 452 thousand tons and 1.671 million tons, respectively, of potential CO₂ emissions that may be avoided from a catastrophic fire on LDSF.

In this report, the author states: "The immensity of greenhouse gas emissions illustrated in Table 7 from just these four wildfires is a warning. Clearly, we must make every effort to reduce the amount of excess biomass in forests to prevent catastrophic wildfires. That means thinning trees to restore the natural health and diversity of forests and to make them more resistant to crown fires. Reducing wildfires may be the single most important action we can take in the short-term to reduce greenhouse gas emissions and fight global warming."

- **Kilowatts of Renewable Energy Production Capacity Maintained or Created**

The raw materials, all renewable by-products, harvested from the fuelbreak/biomass operation will be used to generate energy. Based on conversion tables available at <http://rsbiomass.com/woodfuels.html>, softwood chips at 30% moisture content can produce approximately 3.5 kWh of electricity per Kg of fuel. Also, based on an estimated total production of 4,500 tons of biomass material, predominantly composed of softwood chips, the estimated amount of renewable energy production capacity maintained by this project is calculated to be 14.288 million kilowatt-hours (4,500 tons = 4,082,331 Kg * 3.5 kWh/Kg = 14.288 megawatt-hours. This translates into enough energy to supply 2,381 homes with electricity for a year, based on an average household consumption of 6,000 kWh per year (<http://www.physics.uci.edu/~silverma/actions/HouseholdEnergy.html>).

In contrast to potential carbon emissions, an analysis of potential carbon sequestration has also been prepared and is updated periodically for each State Forest. This is done as part of an Initial Study (IS) conducted in conjunction with the preparation of a new or update of an existing management plan for each Forest, per CEQA, to determine if the project may have a significant effect on the environment, either on a project basis or cumulatively. This Initial Study includes an analysis of greenhouse gas (GHG) issues related to the specific management proposed on each State Forest over the next 100 years to evaluate potential impacts. The table below summarizes the estimated net carbon dioxide (CO₂) sequestration levels, primarily in the form of standing timber, under the proposed management for each Forest over the 100-year Planning Interval, assuming there are no catastrophic wildfires.

Demonstration State Forest	Total Net Carbon Sequestered ¹
Jackson	6,034,600
Latour	3,773,000
Mountain Home	765,500
Boggs Mountain	671,000
Soquel	1,241,625
Total	12,485,725

¹ Metric Tonnes

3. What is the total standing inventory on the Demonstration State Forests?

Demonstration State Forest	Total Volume (MMBF) ¹
Jackson ²	2,150
Latour	211
Mountain Home ³	272
Boggs Mountain	44
Soquel	117
Total	2,794

¹ MMBF (Million Board Feet)

² Approximately 33% of volume is in limited or no harvest areas

³ 40% of volume is in old-growth giant sequoia (no harvest)

4. What is the current Annual Allowable Harvest for the Demonstration State Forests?

Using what is commonly referred to as “Option A” under the Forest Practice Rules (14 CCR §913.11(a)), a long-term sustained yield (LTSY) was calculated for each State Forest using growth and harvest models such as FORSEE and FVS. This rule section applies to ownerships that are greater than 50,000 acres in size, and is required as a demonstration that Maximum Sustained Production of High Quality Timber Products (MSP) is achieved. This analysis was conducted as part of the development and demonstration of management practices designed to achieve MSP “while giving consideration to values relating to sequestration of carbon dioxide, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment” (Public Resources Code 4513). That is, the LTSY represents the harvest volume that is sustainable, i.e. harvest equals growth, at the end of a 100-year planning horizon, while having taken into account other public trust resources. The annual allowable harvest represents the target short-term annual harvest levels modeled to achieve the LTSY. The following table lists the current annual allowable harvest and LTSY for each of the actively managed Demonstration State Forests:

Demonstration State Forest	Annual Allowable Harvest (MMBF) ¹	Long-Term Sustained Yield (MMBF) ¹
Jackson	22.1	43.2
Latour	4.1	5.5
Mountain Home	2.7	4.4
Boggs Mountain	.770	1.7
Soquel	.886	3.3
Total	30.556	58.1

¹ MMBF (Million Board Feet)

5. What types of silviculture are used on the Demonstration State Forests?

While the selection prescription is the most commonly used silvicultural prescription applied on the Demonstration State Forests, all silvicultural methods allowed under the Forest Practice Rules are available for use. Below is a list of acres by silvicultural prescription used in the past fifteen years on the Demonstration State Forests.

Demonstration State Forests												
Acres by Silviculture												
2000-2014												
State	Silvicultural Prescription											
Forest	SEL	GS	TRANS	VR	ALT	CT	CC	SR	S-S	FB/DS	Rehab.	Total
Jackson	6,053	2,300	17		42	818						9,230
Latour	462	4,378		144		50	22	471	101	10	27	5,665
Mtn Home	156				26					391		573
Soquel	539				19					24		582
Total	7,210	6,678	17	144	87	868	22	471	101	425	27	16,050

6. How does the State Forest Program intend to finance the management of PG&E properties if/when they are acquired?

As stated at the 2014 State Forests Annual Report presentation, the PG&E Lands Acquisition process is moving forward slowly. Three properties are designated for acquisition in Shasta County: Pit/Tunnel, Battle Creek, South Cow Creek, totaling approximately 12,000 acres, and one property in Amador County: North Fork Mokelumne at 1,048 acres.

In terms of financing for the management of these properties, the State Forests Program has been working with the Stewardship Council to secure funding for infrastructure improvements such as property line surveys and the establishment of baseline data including cultural resources surveys, forest resource inventory work, watershed assessments and road management plans. As part of that process, the Stewardship Council requested and CALFIRE provided cost estimates for this work in April, 2013. The estimated cost for the work, excluding property line surveys, is itemized in the following table. The Stewardship Council is currently soliciting bids for property line surveys on the Pit River and Tunnel Reservoir Units at an estimated cost of \$200,000.

Project	Budget
Forest resources inventory:	
Initial resources inventory	\$ 83,900
Permanent plot inventory	\$104,010
Cultural resources survey	\$200,000
Watershed Assessment	\$100,000
Road management plan	\$ 44,000
Total Budget	\$531,910

Upon completion of the acquisition and transfer of title to CALFIRE, an initial study will be conducted and management plans developed for each of the four properties using existing State Forest and Program staff, and submitted to the Board for review and approval. The next step will be the development of an Option A, as described under Q&A #4 above, again utilizing existing staff including the State Forests Biometrician and GIS specialist. The Option A is then submitted to the CALFIRE review team for review and approval in conjunction with a Timber

Harvest Plan (THP). Once approved, subsequent THP's may be submitted referencing the approved Option A as demonstrating MSP for the ownership.

Ultimately, the proceeds generated from the harvest of forest products from these properties will provide additional Forest Resources Investment Fund (FRIF) revenues for the operation of the new Demonstration State Forests and for the State Forests Program as a whole. The addition of these properties will also provide more opportunities for research, demonstration and recreation by including more diverse regions, landscapes and vegetation types found across the State, which is the express mandate and mission of the Demonstration State Forest System.

Public Comments/Questions Regarding the 2014 Demonstration State Forests Annual Report:

- 1. The Annual Report states that Section 4654 of the Public Resources Code requires State Forests to make payments to Counties equivalent to the property taxes that would be paid on similar privately held forest land. However Table 1 on page 7 indicates that no in-lieu property taxes were paid for Boggs Mountain State Forest.**

While the State Constitution exempts state property from property taxes, in the particular case of CALFIRE's State Forests, the Public Resource Code (PRC) additionally applies. PRC 4654 states "There shall be paid to each county in which lands acquired for state forest purposes are situated, out of funds hereafter made available for such purpose, an amount equivalent to taxes levied by the county on similar land similarly situated in the county in the same manner as provided in the Revenue and Taxation Code for secured property tax payments as long as the state continues to own the land. Such payments shall be based only upon the value of the forest lands used for purposes of continuous commercial forest production and not upon value of such forest land used for any other purposes, including any improvements on such lands."

The State Forests Program staff has successfully established an annual in-lieu property tax billing and payment process with most County Tax Collectors within the Counties where Demonstration State Forest properties are located. However, even though this message has been conveyed numerous times, two Counties have either neglected or been reluctant to provide an in-lieu property tax bill to the State for two State Forests, Boggs Mountain and Mount Zion. In adherence to the law, and in fairness to private property owners across the State, the State Forests Program will re-double our efforts to persuade these particular Counties to provide an annual tax bill for their respective State Forest properties. To that end, both CALFIRE State Forests and our Legal Department personnel together have drafted and submitted a formal letter to the two Counties wherein the legal requirements were detailed and requesting that they place the State Forest properties on their tax rolls. While no response has been received to date, we will continue our efforts. We will inform the Board when we are successful in this endeavor.