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Ms. Leslie Markham  
California Department of Forestry and Fire Protection  
135 Ridgeway Ave.  
Santa Rosa, CA 95401

Re: *Bohemian Grove* NTMP 1-06NTMP-011 SON

Dear Ms. Markham:

I write on behalf of the Bohemian Redwood Rescue Club regarding the above-referenced NTMP.

**The NTMP Fails to Consider the Project's Impact on GHG Emissions<sup>1</sup>**

The Intergovernmental Panel on Climate Change of the United Nations has concluded based on overwhelming evidence that global warming is occurring and is caused by human activity. In 2006, the Governor signed the historic California Global Warming Solutions Act of 2006, codified at Health and Safety Code, section 38500 et seq. (AB 32.) The historic legislation acknowledges the anthropogenic cause of climate change and requires reduction of the State's GHG emissions to 1990 levels by 2020. The California Climate Change Center estimates that temperatures within the State will rise by 4.7 to 10.5 degrees Fahrenheit by 2100.

It is settled that GHG emissions must be considered under the California Environmental Quality Act (CEQA) and the Forest Practice Act. (Pub. Res. Code, § 21083.05.) In considering GHG emissions under CEQA, the Attorney General's Office recently stated:

Lead agencies should make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO<sub>2</sub> and other GHG emissions from a project, including the emissions associated

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<sup>1</sup> This letter borrows heavily from research conducted by the Center for Biological Diversity. The Center's sharing of the research is acknowledged and greatly appreciated.

with vehicular traffic, energy consumption, water usage and construction activities. (Exh. A, California Attorney General's Office: *Climate Change, the California Environmental Quality Act, and General Plan Updates: Straightforward Answers to Some Frequently Asked Questions*, p. 2 [Rev. 3/06/09].)

The question for the lead agency is whether the GHG emissions from the project . . . are considerable when viewed in connection with the GHG emissions from past projects, other current projects, and probable future projects. (*Id.* at p. 4.)

Unlike more localized, ambient air pollutants which dissipate or break down over a relatively short period of time (hours, days or weeks), GHGs accumulate in the atmosphere, persisting for decades and in some cases millennia. The overwhelming scientific consensus is that in order to avoid disruptive and potentially catastrophic climate change, then it's not enough simply to stabilize our annual GHG emissions. *The science tells us that we must immediately and substantially reduce these emissions.* (*Id.* at p. 3, emphasis added.)

The decisions that we make today do matter. Putting off the problem will only increase the costs of any solution. Moreover, delay may put a solution out of reach at any price. The experts tell us that the later we put off taking real action to reduce our GHG emissions, the less likely we will be able to stabilize atmospheric concentrations at a level that will avoid dangerous climate change. (*Ibid.*)

Like CEQA, the Forest Practice Act mandates protection of the environment: “[T]he plain intent of the Legislature in enacting the [Forest Practice Act] was to require the Board to view the forests of the state as a complete working ecosystem, and not only as a producer of high quality timber, but also as forestlands valuable in their own right as a public resource.” (Exh. M, Attorney General's Office, *Advice Regarding Board of Forestry's Regulatory Authority to Provide for the Restoration of Resources* at p. 4.)

### **Timber Harvesting Produces GHG Emissions**

According to the California Climate Action Registry Forest Protocols Overview, the forest sector is the second-largest global source of anthropogenic GHG emissions, contributing roughly 23% of total emissions. The Climate Action Team Report to Governor Schwarzenegger and the Legislature, estimates that the forest and agriculture sector contributes 8% of GHG emissions in California. (Exh. B.)

A forest can act as a sink for carbon dioxide as its biomass increases. If forests are allowed to flourish they can sequester significant amounts of carbon. Numerous studies make this point.<sup>2</sup>

Logging and its many related activities, on the other hand, emit carbon dioxide. Logging removes carbon from long-term storage and releases it to the atmosphere, exacerbating global warming and climate change. In short, it reduces the benefit of carbon sequestration and thereby adversely affects the environment.

Timber harvest, clear cutting in particular, removes more carbon from the forest than any other disturbance (including fire). The result is that harvesting forests generally reduces carbon stores and results in a net release of carbon to the atmosphere.

(Exh. C, Harmon (2007) Letter to California Air Resources Board. *Comment on Forest Protocols*.)

The forest sector produces GHG emissions in a variety of ways. When trees are cut down, they become a source of CO<sub>2</sub> emissions. Although wood products may store carbon for a time, large quantities of GHG emissions are also released to the atmosphere “immediately through the disturbance of forest soils, and over time through the decomposition of leaves, branches, and other detritus of timber production.” (Exh. D, *Recognizing Forest’s Role in Climate Change*, Union of Concerned Scientists; [http://www.ucsusa.org/global\\_warming/solutions/forest\\_solutions/recognizing-forests-role-in.html#20](http://www.ucsusa.org/global_warming/solutions/forest_solutions/recognizing-forests-role-in.html#20).)

Forests store enormous amounts of carbon in their soils that are released when disturbed by timber harvests. Research estimates that of the carbon stored in forests in the coterminous United States half of that is in the soil, one-third in trees, ten percent in woody debris, six percent in the forest floor, and one percent in the understory. (Exh. E, Turner et al. (1995).) The carbon contained in soil can be greatly reduced by logging. (Exh. F, Jandl et al. (2007).)

Nor can it be argued that logging stores more carbon in forest products than it releases. Research shows that from 1910 to 1990 in the United States seventy-four percent of the carbon harvested was released into the atmosphere while the remainder was stored in wood products and added to landfills. (Exh. G, Skog and Nicholson (2000).) Thus, only a small percentage of carbon logged is stored in

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<sup>2</sup> E.g., EPA (U.S. Environmental Protection Agency). 2008. Inventory of U.S. Greenhouse gas emissions and sinks: 1990-2006. EPA 430-R-08-005. Washington, DC.; Pacala et al. 2001. Consistent Land and Atmosphere Based U.S. Carbon Sink Estimates. *Science* 292: 2316-2320; Peters et al. 2007. An atmospheric perspective on North American carbon dioxide exchange: CarbonTracker. *PNAS* 104 (48): 18925–18930.

stable forest products after logging: “[D]espite the large mass of carbon (1,692 Tg) harvested in Oregon and Washington, only a small fraction (23%) is currently stored in forest products.” (Exh. H, Harmon et al. (1996).) Most is left to decompose, burned on site, or transported to a mill for fuel.

What is more, forest products decay over time, releasing carbon into the atmosphere. Half of the carbon in lumber gets released in the first 100 years. (Exh. G, Skog and Nicholson (2000).) Forest products like pallets and paper decay far more quickly. (Exh. G, Skog and Nicholson (2000).) Thus there is no comparison between a forest product and a living conifer. The latter stores carbon indefinitely, far longer than forest products, *and* it continuously removes carbon from the atmosphere.

Besides release of GHG emissions from logging itself, there is another major source of emissions, namely equipment operations and facilities management.

### **The NTMP Uses an Inflated Baseline to Underestimate the Impacts from GHG Emissions**

The NTMP’s baseline for GHG emissions is fundamentally flawed on at least two grounds: First, it uses an arbitrarily inflated baseline; and second, given AB 32, requiring a *reduction* of GHG emissions, the project should be compared to a baseline of zero emissions or less.

The NTMP maintains that logging will have “an environmental benefit” because “its carbon sequestration effects would result in a net reduction of CO<sub>2</sub>e emissions over the life of the project.” (NTMP, pp. 175-176.) The NTMP arrives at this remarkable conclusion by comparing its amount of logging with a baseline involving an even greater amount. But this is a false baseline. Under ordinary circumstances, the correct baseline would be the amount of logging under the previous management plan. Since that is less logging than what the NTMP proposes, the NTMP project will produce *more* GHG emissions compared to baseline.

Under the California Environmental Quality Act, the general rule is that the existing environmental setting should normally constitute the baseline against which an agency should analyze a project’s impacts. (CEQA Guidelines, § 15125, subd. (a); Remy, et al., *Guide to CEQA* (11<sup>th</sup> ed.) chap. 7, p. 198.) Under this principle, the baseline is the rate and amount of logging that preceded the NTMP. It is undisputed that the baseline involves substantially less logging than the NTMP. The management plan that preceded the NTMP recommended no more than the cutting of 500,000 bf per year. By contrast, the NTMP recommends anywhere from 700,000 to well over 1 M bf per year.

But the NTMP ignores the legally correct baseline, and arbitrarily comes up with one that involves more logging—a “management scenario that essentially harvests growth.” There is no justification for such a baseline. The Grove has never been logged this intensively. And, given the Club’s objective to restore old forest conditions, there is no basis to assume it ever would be if the NTMP were denied.

Thus, the Club has chosen an inflated baseline that misleads, allowing it to compare the NTMP to more logging and thereby conclude that the NTMP will have a positive impact on GHG emissions by sequestering more carbon than the inflated baseline. This sleight of hand violates numerous principles under the Forest Practice Act and CEQA. To name a few, it is materially misleading, it constitutes an incorrect description of the baseline and environmental setting, it corrupts the analysis of significant and cumulative impacts, and it is unsupported by substantial evidence.

To highlight the error here, it is useful to review the EIR prepared for the Board of Forestry for the new management plan for Jackson Demonstration State Forest. The EIR considered numerous alternatives with different logging rates and estimated the amount of carbon stored over the life of the plan. The alternatives harvested the following percentages of growth: Alternative A (no project); B (harvests 82 percent of growth); C (harvests 70 percent of growth); D (harvests 55 percent of growth); E (harvests 18 percent of growth); F (harvests 42 percent of growth). (Exh. I.)

At the end of the 100-year period, the total net carbon sequestered (M tons) for the alternatives is as follows: Alternative A (2113.9); B (1684.5); C (1648.5); D (1954.1); E (2300.5); F (1912.9). (Exh. I.)

Thus, the amount of carbon sequestered is inversely proportional to the amount of growth cut. The no cutting alternative A and alternative E (harvests 18 percent of growth) stored the most carbon. Alternatives D (harvests 55 percent of growth) and F (harvests 42 percent of growth) stored less, 1954.1 and 1912.9, respectively. And the most aggressive harvest regimes—B (harvests 82 percent of growth); C (harvests 70 percent of growth)—stored the least, 1684.5 and 1648.5, respectively. (Exh. I.)

Although the baseline established by the previous management plan involved less logging than that proposed by the NTMP, even if it involved the same amount or more, the NTMP still would have an adverse GHG emissions impact that would need to be analyzed. This is because AB 32 requires *reduction* of the State’s GHG emissions to 1990 levels by 2020. A project like the NTMP that acts as a net producer of GHG emissions has an adverse impact that requires analysis and feasible mitigations.

In sum, the NTMP uses a false baseline, a rate of harvest greater than what would ever be contemplated for the Bohemian Grove. Given AB 32 the proper baseline is at least zero net production of GHG gases.

Because of the NTMP's baseline error, the NTMP commits two more: It fails to identify and quantify the individual and cumulative effects of the project's production of GHG emissions, and it fails to assess their significance and identify mitigation measures.

### **The NTMP Fails to Identify and Quantify the Project's Production of GHG Emissions**

Before the NTMP can assess the individual and cumulative impacts of GHG emissions, it must first identify and quantify them. Logging causes release of CO<sub>2</sub> in numerous ways. So-called green carbon is released from the removal of living trees and plants (live biomass), disruption to the soil, and removal of dead biomass. (Mackey et al. 2008, [http://epress.anu.edu.au/green\\_carbon/pdf/whole\\_book.pdf](http://epress.anu.edu.au/green_carbon/pdf/whole_book.pdf).)

So-called gray carbon is released as a result of the burning of fossil fuels to accomplish logging operations and processing forest products. Gray carbon is produced by a wide range of activities, including road construction and maintenance, harvesting, transportation of logs, and manufacturing. (Mackey et al. 2008.) Then there are the energy inputs sourced from fossil fuels that are required to regenerate the forest after logging, e.g., the planting of seedlings, site preparation, and ongoing maintenance. (*Ibid.*)

In the present case, the NTMP makes no attempt whatsoever to “calculate, model, or estimate the amount of CO<sub>2</sub> and other GHG emissions from the project, including the emissions associated with [logging and related activities.]” (Exh. J, Governor's Office of Planning and Research Technical Advisory (2008), *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*.) There is no attempt to measure green or gray carbon. There is no measurement of carbon emissions from the cutting of trees, biomass decomposition, and soil disturbance. Nor is there measurement of emissions from myriad logging-related activities, such as transportation, equipment operation, milling, site preparation, road maintenance, site regeneration, and the like. And there is no comparison between those measurements and the baseline set by the historical pattern of logging, or the even lower baseline required by AB 32.

The California Air Pollution Control Officers Association (CAPCOA) recently set forth methodologies for analyzing greenhouse gas pollution. (*CEQA & Climate*

*Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (Jan. 2008), <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>.)

The CAPCOA white paper mostly addresses gray carbon. As for green carbon, a number of studies provide guidance. (E.g., Exh. K, Hamburg (2000); Exh. L, Harmon and Marks (2002).)

In a presentation to the Board of Forestry, the California Resources Agency addressed GHG emissions from logging and made clear that the following must be considered:

- Type of Forest Management (Clear Cutting or other types of logging management)
- Age of forest at issue, tree type
- Store of Carbon in Bio Mass, Soil, and Old Growth
- Rate new growth sequesters carbon
- Changes to system overall
- Reduction of carbon stores v. rate of carbon uptake
- Increases and Decreases in Carbon to Environmental Setting
- Cumulative Impacts

(See Powerpoint Presentation of Resource Agency (presented at February, 2009, Board of Forestry meeting.) None of these variables was considered here.

Since the NTMP fails to identify and quantify the project's GHG emissions, it cannot begin to assess their impacts and mitigate them. This oversight is especially alarming in the context of CO<sub>2</sub> emissions and climate change, since *any* new emissions must be considered significant. This argument is consistent with the "zero emission threshold" identified by CAPCOA. (*CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (Jan. 2008), <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>.)<sup>3</sup> Recent scientific studies

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<sup>3</sup> This threshold was used in the California State Lands Commission's Draft EIRs for the Venoco Ellwood Full Field Project and Venoco Ellwood Marine Terminal.

point to the need to reduce existing emissions levels, even beyond AB 32 targets. (Exh. O, Matthews et al. (2008); Exh. P, Hansen et al.)

### **The NTMP Fails to Assess the Individual and Cumulative Impacts from the Project's Production of GHG Emissions**

An NTMP must analyze the significant adverse impacts of all timber harvesting activities and must impose mitigations to eliminate or reduce them to a level of insignificance. (Pub. Res. Code, § 21080.5, subd. (d)(2)(A), (d)(3)(A); e.g., *Sierra Club v. Board of Forestry* (1994) 7 Cal.4<sup>th</sup> 1215, 1230.)

The NTMP must also consider the project's cumulative effects. (*Environmental Protection Information Center, Inc. v. Johnson* (1985) 170 Cal. App. 3d 604, 624-625.) “Cumulative impacts’ refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts .... Cumulative impacts can result from individually *minor* but collectively significant projects taking place over a period of time.” (CEQA Guidelines, Cal. Code Reg., Tit. 14, § 15355, subd. (b) [emphasis added]; *accord EPIC, supra*, 170 Cal. App. 3d at 625.) “[A]n agency may not ... [treat] a project as an isolated 'single shot' venture in the face of persuasive evidence that it is but one of several substantially similar operations.... To ignore the prospective cumulative harm under such circumstances could be to risk ecological disaster.” (*Whitman v. Board of Supervisors* (1979) 88 Cal. App. 3d 397, 408.)

An NTMP's GHG emissions are a quintessential cumulative impact, especially an NTMP like this one, involving the repeated logging of 2,500 acres over a 100-year period. The present project will increase the amount of CO<sub>2</sub> in the atmosphere even as California struggles to reduce it under AB 32's mandate:

[W]e cannot afford to ignore even modest contributions to global warming. If global warming is the result of the cumulative contributions of myriad sources, any one modest in itself, is there not a danger of losing the forest by closing our eyes to the felling of the individual trees?

(*Center for Biological Diversity v. Nat'l Highway Traffic Safety Admin.* (9th Cir. 2008) 538 F.3d 1172, 1221 [“the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct.”].)

The Office of Planning and Research recently underscored the importance of a thorough analysis of a project's cumulative impacts regarding GHG emissions:

When assessing whether a Project's effects on climate change are

cumulatively considerable, even though its GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects . . . . Lead agencies should not dismiss a proposed project's direct and/or indirect climate change impacts without careful consideration, supported by substantial evidence.

Documentation of available information and analysis should be provided for any project that may significantly contribute new GHG emissions, either individually or cumulatively, directly or indirectly (e.g., transportation impacts).

(Exh. I, Office of Planning and Research Technical Advisory (2008), *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act Review*.)

The failure to consider cumulative impacts in this case is especially troubling. Research shows that more carbon will be produced as the century progresses while increased logging is expected to decrease the amount of forest available as a carbon sink. (Exh. E, Turner et al. (1995); Exh. N, Turner et al. (1995b).)

By any measure, a 2,500-acre logging operation with multiple entries over a 100-year period is a massive project that will produce substantial amounts of CO<sub>2</sub>. Yet the NTMP does not attempt to identify and quantify, let alone assess, the project's individual and cumulative CO<sub>2</sub> impacts on the environment.

It therefore satisfies neither CEQA nor the Forest Practice Act.

Very truly yours,

Paul V. Carroll