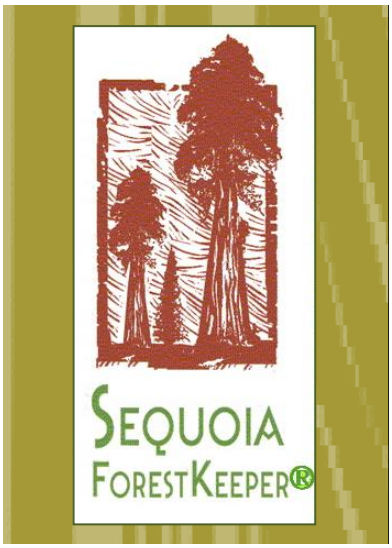



December 16, 2016

Mary D. Nichols, Chair
Members of the Board
California Environmental Protection Agency
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

**Subject: CARB 2030 SCOPING PLAN UPDATE Scoping Plan Discussion Draft. Comments due December 16, 2016, 5 PM**

The Revised Proposed Short-lived Climate Pollutant Reduction Strategy Draft 2030 Target Scoping Plan by the California Air Resources Board (CARB) was issued on 11-28-2016.
https://www.arb.ca.gov/cc/shortlived/meetings/11282016/revisedproposedslcp.pdf

## The Short-Lived Climate Pollutant Strategy

SB 605 (Lara, Chapter 523, Statutes of 2014) directed ARB to develop a comprehensive short-lived climate pollutant strategy, in coordination with other state agencies and local air quality management and air pollution control districts. The effort is to engage scientific experts, identify additional measures to reduce short-lived climate pollutants, and will build upon California's leading commitments to reduce greenhouse gases and air pollution. Furthermore, Governor Brown has identified reductions of SLCP emissions as one "pillar" to meet an overarching goal to reduce California's GHG emissions by 40 percent below 1990 levels by 2030. ARB staff released a proposed SLCP Strategy in April 2016 and a revision to the SLCP Strategy in November 2016. ARB staff will present the Revised Draft SLCP Strategy to the Board for approval later next year.

## SLCP Documents

- Revised Draft Strategy (posted November 28, 2016)
- Appendix A: Senate Bill 605
- Appendix B: Senate Bill 1383
- Appendix C: California SLCP Emissions
- Appendix D: Research Related to Mitigation Measures
- Appendix E: Revised Draft Environmental Analysis for the Proposed SLCP Reduction Strategy
- Appendix F: Supporting Documentation for the Economic Assessment of Measures in the SLCP Strategy
- Public Notice for SLCP Document Revisions, Workshops and Board Meeting (posted November 28, 2016)

REVISED
https://www.arb.ca.gov/cc/shortlived/shortlived.htm

## What are Short-Lived Climate Pollutants?

Short-lived climate pollutants are powerful climate forcers that remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants, such as carbon dioxide ($CO_2$). Their relative potency, when measured in terms of how they heat the atmosphere, can be tens, hundreds, or even thousands of times greater than that of $CO_2$. The impacts of short-lived climate pollutants are especially strong over the short term. Reducing these emissions can make an immediate beneficial impact on climate change.

***Short-Lived Climate Pollutants include three main components:***

- **Black carbon** is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Diesel particulate matter emissions are a major source of black carbon and are also toxic air contaminants that have been regulated and controlled in California for several decades in order to protect public health.
- **Fluorinated gases** (F-gases) are the fastest growing source of greenhouse gas emissions in California and globally. They include ozone-depleting substances that are being phased out globally under the Montreal Protocol, and their primary substitute, hydrofluorocarbons (HFCs). Most F-gas emissions come from leaks of these gases in refrigeration and air-conditioning systems. Emissions also come from aerosol propellants, fire suppressants, and foam-expansion agents.
- **Methane** ($CH_4$) is the principal component of natural gas. Its emissions contribute to background ozone in the lower atmosphere (troposphere), which itself is a powerful greenhouse gas and contributes to ground level air pollution. The atmospheric concentration of methane is growing as a result of human activities in the agricultural, waste treatment, and oil and gas sectors. Capturing methane from these sources can improve pipeline safety, and provide fuel for vehicles and industrial operations that displaces fossil natural gas use.

Comments for the Revised Draft SLCP Reduction Strategy and Revised Draft Environmental Analysis can be submitted from November 28, 2016 until 5:00 pm on January 17, 2017 at the ARB Comment Submission Webpage.

**Dear Chairperson Nichols, Members of the Board, and Staff;**

Please accept the following comments, on **CARB 2030 SCOPING PLAN UPDATE Scoping Plan Discussion Draft**. Comments due December 16, 2016, 5 PM and CARB's 2030 Target Revised Draft Strategy (posted November 28, 2016), submitted on behalf of Sequoia ForestKeeper (SFK), Wasteful Unreasonable Methane Uprising, and Ventura County Climate Hub.

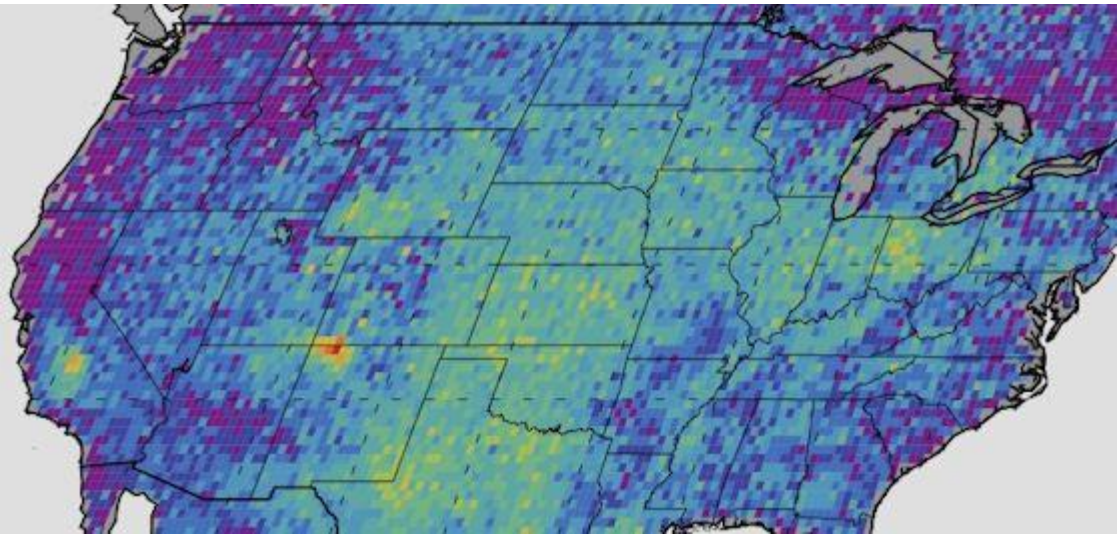
SFK's recommendations in the November 21, 2016 comment letter (160808-3.EJ-Advisory-Committee-recommendations.pdf) are included herein, by reference, in their entirety, and as an attachment to this comment letter, because our comments have not been adequately considered.

The 2030 Target Scoping Plan Update, pp 24, states that California forests provide a biodiversity hotspot and more forest products than any other state in the nation and that carbon sequestration is necessary for the wellbeing of Californians.

> Protecting, Enhancing, Innovating, and Increasing
> Sequestration in the Natural Environment and Working Lands
> **California's natural and working lands make the State a global leader in agriculture, a U.S. leader in forest products, and a global biodiversity hotspot**. These lands support clean air, wildlife and pollinator habitat, and rural economies, and are critical components of California's water infrastructure. And keeping these lands and waters intact and at high levels of ecological function, including resilient carbon sequestration, is necessary for the well-being and security of Californians in 2030, 2050, and beyond. Forests, rangelands, farms, wetlands, riparian areas, deserts, coastal areas, and the ocean store substantial carbon in biomass and soils.

CARB fails to mention that California is also NASA's second largest methane hotspot in the nation https://science.nasa.gov/science-news/science-at-nasa/2014/09oct_methanehotspot/, which is contributing to the massive tree die-off in the southern Sierra Nevada. Methane is very efficient at trapping heat in the atmosphere and, like carbon dioxide, it contributes to global warming.

This Central Valley Methane "hot spot" has possibly contributed to the increased forest temperatures and reduced snow pack that are reducing available water flow to the valley and also stressing public lands forests in California's Sierra Nevada. Federal public forestland management issues are intensified by increasing temperatures, loss of moisture, increased insect activity, and subsequent greater chance of wildfires in the forests that may, in great part, be attributed to the heat-absorbing effects of Methane on the forest.



The Four Corners area (red) is the major U.S. hot spot for methane emissions while the Central Valley is the second largest concentration based on data from 2003—2009 (dark colors are lower than average; lighter colors are higher). Image Credit: NASA/JPL-Caltech/University of Michigan.

The impacts to federal public forestlands is not just from ozone. CARB should be focusing on eliminating the methane to protect California's biodiversity hotspot, instead of proposes to remove trees from the forests, where they have been sequestering carbon for millennia.

The world's climate is changing. Increased temperatures and levels of atmospheric carbon dioxide as well as changes in precipitation and in the frequency and severity of extreme climatic events are just some of the changes occurring. These changes are being aggravated by significant methane emissions from dairies, livestock and oil fields. These changes are having notable impacts on the world's forests and the forest sector through longer growing seasons, expansion of insect species ranges, and increased frequency of forest fires.

Smog from the Central Valley has settled in Sequoia and Kings Canyon National Parks, home of the giant Sequoias. Smog from the neighboring Central Valley is making it tougher for seedlings from the giants to take hold, and the needles of surrounding Jeffrey and Ponderosa pines are yellowing, symptoms of ozone toxicity. Smog is created when the sun's rays hit pollutants such as oxides of nitrogen and volatile organic compounds that are in motor vehicle exhaust, solvents, pesticides, gasoline vapors and decaying dairy manure. (See air pollution and drought effects Sierra ecosystems http://treephys.oxfordjournals.org/content/24/9/1001.full.pdf and http://www.sfgate.com/science/article/Sequoia-National-Park-Worst-air-pollution-3591161.php)

CARB Short-lived Climate Pollutants Reduction Strategy draft document (Sept 30, 2015), https://www.arb.ca.gov/cc/shortlived/2015draft.pdf Page 39 Figure 5: California 2013 Methane Emission Sources indicates that:

Oil and pipelines represent 13% of emissions
Dairy Enteric methane is 20%,
Dairy Manure methane is 25% (for a total of methane from dairies of 45%) and
Non-Dairy Livestock methane is 10% of California's methane air pollution, which means that the total for California livestock contribute 55% of the methane pollution in California.

**Figure 5: California 2013 Methane Emission Sources***


> California can cut methane emissions by 40 percent below current levels in 2030 by avoiding or capturing methane from manure at dairies, meeting national industry targets for reducing methane emissions from enteric fermentation, effectively eliminating disposal of organics in landfills, and reducing fugitive methane emissions by 40-45 percent from all sources. (CARB Short-lived Climate Pollutants Reduction Strategy draft document (Sept 30, 2015))

**CARB must not plan to log trees from the southern Sierra Nevada forests that are being stressed and killed by California's methane hotspot and ignore or delay regulating the causes of the massive tree die-off in the southern Sierra Nevada, which are in great part due to California's Central Valley air pollution and methane hotspot. CARB goals should go beyond requirements of SB 1383 and regulate methane quickly.**

Delaying the regulation of methane and instead enabling forest biomass to energy facilities to supposedly sequester black carbon outside the forests, which would exacerbate climate change, damage California's forests, wildlife habitats and global biodiversity hotspot, and forest watersheds, which provide clean drinking water to drought-stricken Californians.

According to an alert released on 21 November 2016, the US Forest Service, Caltrans, and Southern California Edison plan to remove so-called "hazard trees" from within 300 feet of both sides of roads.

> Kernville, Ca. – November 21, 2016 – The Sequoia National Forest, Kern River Ranger District, (KRRD) is working in conjunction with the California Department of Transportation (Caltrans) and Southern California Edison (SCE) to reduce hazardous tree conditions, along Highway 155, between Wofford Heights and Glennville.

> Caltrans will have contract fallers removing dead and dying trees along Highway 155 and hauling them to processing sites, on the forest, for chipping and sorting. A portion of the chipped wood will be spread along areas, within the Cedar Fire perimeter, left with high erosion potential. The project should commence this month.

Removing trees from along roads throughout California's forests would devastate much of California's forested areas contain California spotted owls, Pacific fishers, and Northern goshawks, all of which must live heavily forested areas to escape from predators—forested areas that contain overstory, mid-story, and understory trees, as well as areas of brush and volumes of down woody material greater than 12-inch diameter.

CARB must enact regulations that inhibit all agencies that manage California's forests from removing forest biomass to biomass facilities that would degrade the forested home of the California spotted owls, Pacific fishers, and Northern goshawks.

Attached are two comment letters by the Center for Biological Diversity and John Muir Project Earth Island Institute submitted on 30 November 2016 (Cedar-fire-haz-tree-scoping-comments-JMP&CBD-30Nov16.pdf) and 15 December 2017 (Cedar-fire-haz-tree-scoping-comments-15Dec16.pdf) on the projects in Sequoia National Forest that would remove so-called "hazard trees" from California spotted owls, Pacific fishers, and Northern goshawks habitat. Also attached are the California spotted owl listing petition of 23 December 2014 (CSO-FESA-Petition-23Dec14-Final.pdf) submitted to the US Fish and Wildlife Service and the 90-day determination letter of 18 September 2016 (CSO-FESA-USFWS-90-day-determination-18Sept15.pdf). These documents detail the habitat requirements for the owl that would be devastated by a CARB regulation that would enable removing massive amounts of trees from its habitat.

The 2030 Target Scoping Plan Update, pp 109 acknowledges that California forests are biodiverse and that there are global efforts to prevent further degradation to forests, but the 2030 Target Scoping Plan Update is promoting logging forest biomass to generate electrical power, which will deforest California, degrade California's biodiversity, and release California's carbon stocks, all of which would continue to put pollution into the atmosphere.

> Linkage with a state-of-the-art, jurisdictional sector-based offset program can provide significant benefits to California's Cap-and-Trade Program by assuring an adequate supply of high-quality compliance offsets to keep the cost of compliance within reasonable bounds, up to the quantitative usage limit for sector-based offsets. Linkage would also support California's broad climate goals, as well as global biodiversity and tropical forest communities. Furthermore, reducing emissions from tropical deforestation is a key topic within the United Nations Framework Convention on Climate Change (UNFCCC) and between national and subnational jurisdictions, including through collaboration between California and the U.S. Department of State. (The 2030 Target Scoping Plan Update, pp 109)

The 2030 Target Scoping Plan Update, pp 58, acknowledges that forest carbon stocks are NOT in immanent-danger of being emitted to the atmosphere. But CARB claims that an estimated 150 MMTCO2e was lost to disturbance over the period 2001-2010, with the majority – approximately 120 MMTCO2e– lost through wildland fire. Even though 20 percent of the disturbance in the time period 2001-2010 was most likely due to logging, CARB proposes to turn our natural forests into commercial forests to produce biomass for energy production, supposedly to prevent wildfires. It's true that if you remove the trees from the forest, the trees won't be burned, but logging and thinning are not restoration.

> While not all of this stored carbon is in imminent danger of being emitted to the atmosphere, recent trends indicate that significant pools of carbon are at risk of reversal: an estimated 150 MMTCO2e was lost to disturbance over the period 2001-2010, with the majority-approximately 120 MMTCO2e– lost through wildland fire. At the same time, the agricultural sector accounts for eight percent of the emissions in the statewide GHG inventory. While growing trees and other plants, and soil carbon sequestration, make up for some of these losses, climate change itself is expected to further stress many of these systems and significantly impact the ability of California's landscapes to maintain its carbon sink without proactive management. There are ways to slow and reverse this trend, in concert with other productive and ecological objectives of land use, and the State will continue to rely on best available science to promote those actions. These efforts can not only protect California's natural carbon stocks, they can also improve quality of life in urban and rural communities alike and increase the climate resilience of agricultural, forestry and recreational industries and the rural communities they support; the State's water supply; globally significant biodiversity; and the safety and environmental health of all who call California home.

In the paper published in the journal Science of 14 October 2016, titled, *Positive biodiversity-productivity relationship predominant in global forests* Jingjing Liang et, al*.,* 85 scientists cite to 78 papers on the issue of the economics of maintaining forest biodiversity. The paper concludes that globally maintaining commercial forests is two to six times more costly than maintaining natural forests. http://science.sciencemag.org/content/354/6309/aaf8957

> **We further estimate that the economic value of biodiversity in maintaining commercial forest productivity alone is $166 billion to $490 billion per year. Although representing only a small percentage of the total value of biodiversity, this value is two to six times as much as it would cost to effectively implement conservation globally.**
>
> INTRODUCTION: The biodiversity-productivity relationship (BPR; the effect of biodiversity on ecosystem productivity) is foundational to our understanding of the global extinction crisis and its impacts on the functioning of natural ecosystems. The BPR has been a prominent research topic within ecology in recent decades, but it is only recently that we have begun to develop a global perspective.

RATIONALE: Forests are the most important global repositories of terrestrial biodiversity, but deforestation, forest degradation, climate change, and other factors are threatening approximately one half of tree species worldwide.

The forest BPR represents a critical missing link for accurate valuation of global biodiversity and successful integration of biological conservation and socioeconomic development. Until now, there have been limited tree-based diversity experiments, and the forest BPR has only been explored within regional scale observational studies. Thus, the strength and spatial variability of this relationship remains unexplored at a global scale. RESULTS: We explored the effect of tree species richness on tree volume productivity at the global scale using repeated forest inventories from 777,126 permanent sample plots in 44 countries containing more than 30 million trees from 8737 species spanning most of the global terrestrial biomes. Our findings reveal a consistent positive concave-down effect of biodiversity on forest productivity across the world, showing that a continued biodiversity loss would result in an accelerating decline in forest productivity worldwide. The BPR shows considerable geospatial variation across the world. The same percentage of biodiversity loss would lead to a greater relative (that is, percentage) productivity decline in the boreal forests of North America, … however, the same percentage of biodiversity loss would lead to greater absolute productivity decline.

CONCLUSION: Our findings highlight the negative effect of biodiversity loss on forest productivity and the potential benefits from the transition of monocultures to mixed-species stands in forestry practices. The BPR we discover across forest ecosystems worldwide corresponds well with recent theoretical advances, as well as with experimental and observational studies on forest and nonforest ecosystems. On the basis of this relationship, the ongoing species loss in forest ecosystems worldwide could substantially reduce forest productivity and thereby forest carbon absorption rate to compromise the global forest carbon sink. **We further estimate that the economic value of biodiversity in maintaining commercial forest productivity alone is $166 billion to $490 billion per year. Although representing only a small percentage of the total value of biodiversity, this value is two to six times as much as it would cost to effectively implement conservation globally.** These results highlight the necessity to reassess biodiversity valuation and the potential benefits of integrating and promoting biological conservation in forest resource management and forestry practices worldwide.

The 2030 Target Scoping Plan Update, pp 59, intimates that SLCP Strategy would manage forests to reduce forest wildfire events by removing trees from forests, even though biomass utilization would have to be innovative, which is speculative.

California's climate objective for natural and working lands is to maintain them as a resilient carbon sink (i.e., net zero or even negative GHG emissions) to 2030 and beyond, and minimize the net GHG and black carbon emissions associated with

management, biomass disposal, and wildfire events to 2030 and beyond. This will include establishment of agriculture sector GHG emission reduction planning targets for the mid-term time frame and 2050.
**Implementation will take many policy and program pathways**, and is built on activities related to land protection; enhanced carbon sequestration; **and innovative biomass utilization:**

While California's climate objective of managing forests to minimize GHG emissions is lauded, nature already accomplishes negative GHG emissions without interference by humans. Human management of forests requires energy to be consumed that creates GHG emissions when trees are marked for removal, felled, hauled to transport locations, loaded into logging trucks, hauled down the mountain to the sawmill or biomass-energy facility, processed to the size convenient for incineration or sale as lumber, stacked, unstacked, loaded, hauled, unloaded, and reloaded into the warehouse for sale. This does not count the energy required to gasify the pellets, if incineration is the end result of this management step that prevents the forest from naturally sequestering forest carbon in the forest. If these pellets are shipped to Europe to be burned in incinerators, more energy is consumed and turned into heat and GHGs. Basing the SLCP Strategy on innovative, unproven, and speculative theories is not sound, scientific planning—it is voodoo science and voodoo economics.

The journal Science from 14 October 2016 contains an article titled *The trouble with negative emissions* - Reliance on negative-emission concepts locks in humankind's carbon addiction*, By* Kevin Anderson *and* Glen Peters. *http://www.geoengineeringmonitor.org/2016/10/the-trouble-with-negative-emissions/*, which was originally published in the Journal Science. *http://science.sciencemag.org/content/354/6309/182* . The paper lists 16 research references. Excerpts are shown below:

> In December 2015, member states of the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Paris Agreement, which aims to hold the increase in the global average temperature to below 2°C and to pursue efforts to limit the temperature increase to 1.5°C.
>
> The Paris Agreement requires that anthropogenic greenhouse gas emission sources and sinks are balanced by the second half of this century. Because some nonzero sources are unavoidable, this leads to the abstract concept of "negative emissions," the removal of carbon dioxide (CO2) from the atmosphere through technical means. The Integrated Assessment Models (IAMs) informing policy-makers assume the large-scale use of negative-emission technologies. If we rely on these and they are not deployed or are unsuccessful at removing CO2 from the atmosphere at the levels assumed, society will be locked into a high-temperature pathway.
>
> **Bioenergy, combined with carbon capture and storage** (BECCS), is the most prolific negative-emission technology included in IAMs and is used widely in emission scenarios.

It has the distinct feature of providing energy while also, in principle (*12*), removing CO2 from the atmosphere.

The idea behind BECCS is to combine bioenergy production with CCS, but both face major and perhaps insurmountable obstacles. Two decades of research and pilot plants have struggled to demonstrate the technical and economic viability of power generation with CCS, even when combusting relatively homogeneous fossil fuels (*14*). Substituting for heterogeneous biomass feedstock adds to the already considerable challenges. **Moreover, the scale of biomass assumed in IAMs—typically, one to two times the area of India—raises profound questions** (*10*) about carbon neutrality, land availability, competition with food production, and competing demands for bioenergy from the transport, heating, and industrial sectors. **The logistics of collating and transporting vast quantities of bioenergy—equivalent to up to half of the total global primary energy consumption—is seldom addressed.** Some studies suggest that BECCS pathways are feasible, at least locally (*15*), but globally there are substantial limitations (*10*). BECCS thus remains a highly speculative technology.

If negative emission technologies fail to deliver at the scale enshrined in many IAMs, their failure will be felt most by low-emitting communities that are geographically and financially vulnerable to a rapidly changing climate.

**If negative-emission technologies do indeed follow the idealized, rapid, and successful deployment assumed in the models, then any reduction in near term mitigation caused by the appeal of negative emissions will likely lead to only a small and temporary overshoot of the Paris temperature goals** (*3*). **In stark contrast, if the many reservations increasingly voiced about negative-emission technologies (particularly BECCS) turn out to be valid, the weakening of near-term mitigation and the failure of future negative-emission technologies will be a prelude to rapid temperature rises reminiscent of the 4°C "business as usual" pathway feared before the Paris Agreement** (*5*). Negative-emission technologies are not an insurance policy, but rather an unjust and high-stakes gamble. There is a real risk they will be unable to deliver on the scale of their promise. If the emphasis on equity and risk aversion embodied in the Paris Agreement are to have traction, negative-emission technologies should not form the basis of the mitigation agenda.

Another study from 26 October 2016 by Curtis M. Bradley, Chad T. Hanson, and Dominick A. DellaSala, titled *Does increased forest protection correspond to higher fire severity in frequent-fire forests of the western United States?* http://onlinelibrary.wiley.com/doi/10.1002/ecs2.1492/full. Bradley et al., finds that forests with the highest levels of **protection from logging tend to burn least severely.**

ABSTRACT: "There is a widespread view among land managers and others that the protected status of many forestlands in the western United States corresponds with higher fire severity levels due to historical restrictions on logging that contribute to

greater amounts of biomass and fuel loading in less intensively managed areas, particularly after decades of fire suppression. This view has led to recent proposals—both administrative and legislative—to reduce or eliminate forest protections and increase some forms of logging based on the belief that restrictions on active management have increased fire severity. We investigated the relationship between protected status and fire severity using the Random Forests algorithm applied to 1500 fires affecting 9.5 million hectares between 1984 and 2014 in pine (*Pinus ponderosa, Pinus jeffreyi*) and mixed-conifer forests of western United States, accounting for key topographic and climate variables. We found forests with higher levels of protection had lower severity values even though they are generally identified as having the highest overall levels of biomass and fuel loading. Our results suggest a need to reconsider current overly simplistic assumptions about the relationship between forest protection and fire severity in fire management and policy."

Conclusions

In general, our findings—that forests with the highest levels of protection from logging tend to burn least severely—suggest a need for managers and policymakers to rethink current forest and fire management direction, particularly proposals that seek to weaken forest protections or suspend environmental laws ostensibly to facilitate a more extensive and industrial forest–fire management regime. Such approaches would likely achieve the opposite of their intended consequences and would degrade complex early seral forests (DellaSala et al. 2015). We suggest that the results of our study counsel in favor of increased protection for federal forestlands without the concern that this may lead to more severe fires.

Allowing wildfires to burn under safe conditions is an effective restoration tool for achieving landscape heterogeneity and biodiversity conservation objectives in regions where high levels of biodiversity are associated with mixed-intensity fires (i.e., "pyrodiversity begets biodiversity," see DellaSala and Hanson 2015b). Managers concerned about fires can close and decommission roads that contribute to human-caused fire ignitions and treat fire-prone tree plantations where fires have been shown to burn uncharacteristically severe (Odion et al. 2004). Prioritizing fuel treatments to flammable vegetation adjacent to homes along with specific measures that reduce fire risks to home structures are precautionary steps for allowing more fires to proceed safely in the backcountry (Moritz 2014, DellaSala et al. 2015, Moritz and Knowles 2016).

Continued –

The 2030 Target Scoping Plan Update, pp 61, intimates that the CARB Plan is compelled to consider the best uses for dead and dying trees in the forest.

> Productive utilization of dead and dying trees is a significant focus of the Governor's Tree Mortality Task Force, and efforts to resolve the current shortfall in utilization capacity is addressed in that State of Emergency Declaration as well as SB 859.

While the Governor, the Task Force, and SB 859 may address the issue of dead and dying trees in the forest, CARB must reach conclusions that will lead California to produce much less Short-lived Climate Pollutants and sequester the most amount of carbon to "achieve deep reductions in short-lived climate pollutant (SLCP) emissions by 2030 to help avoid the worst impacts of climate change and meet air quality goals."

As stated in our attached (160808-3.EJ-Advisory-Committee-recommendations.pdf) and previously submitted comments to CARB and the State Water Resources Control Board (SWRCB), the best and most productive utilization of dead and dying trees to resolve the current shortfall in utilization capacity by forest ecosystems, is to leave the trees in the forest, so they will contribute nutrients to the soil, moisture holding capacity to ecosystem services, and carbon to the growth of new forests.

CARB is charged with the task of assuring the people of California that the greenhouse gasses that are causing climate change and polluting the air we breathe will be reduced. CARB is, therefore, responsible for controlling the decisions made by SWRCB regarding the beneficial uses of California's surface water and ground water, which SWRCB may believe are beneficial. If SWRCB enables water to be used for oil production that releases methane and carbon dioxide to the atmosphere or livestock feed crops for dairy cows or livestock that create methane, all of which contribute to the second largest methane hotspot detected by NASA in the United States, those uses of California's water must be seriously considered by CARB as wasteful and NOT beneficial uses of California's water. Thus CARB must prevent water uses that cause GHGs and exacerbate climate change and the drought. CARB must determine that these uses are not beneficial applications of California's water and should be prevented by CARB's Short-lived Climate Pollutant Reduction Strategy (SLCP Strategy).

The 2030 Target Scoping Plan Update, pp 64, indicates that CARB could approve biomass-to-energy facilities, if they only generate minimum amounts of GHG and carbon emissions. But heat and any residual amounts of GHGs generated by those biomass-to-energy facilities will continue to exacerbate climate change. Leave it in the forest is the only science-based decision to make regarding what to do with forest biomass!

> Excess biomass generated by forestry operations, as well as biomass produced through forest health and restoration treatments, must be disposed of in a manner that minimizes GHG and black carbon emissions.

But forest biomass is not waste to be disposed. Science indicates that forest biomass is required to maintain and regenerate forests and the species in the forest. And the best and most productive utilization of dead and dying trees should be used in the forest to resolve the current shortfall in utilization capacity by forest ecosystems. Leave the trees in the forest, so

they will contribute nutrients to the soil, moisture holding capacity of ecosystem services, and carbon to the growth of new forests.

Even if biomass-to-energy facilities were approved by CARB, they will generate GHGs and carbon emissions, and they will constantly be adding heat to the global condition that will continue to exacerbate climate change. Leave it in the forest is the only science-based decision to make regarding what to do with forest biomass!

The 2030 Target Scoping Plan Update, pp 66, indicates some potentially positive as well as negative aspects of using forest biomass for electrical power generation.

> The **drop in carbon storage** during treatment years (2017-2030) seen in both of the management scenarios **is largely the result of forest biomass removal associated with fuel reduction and prescribed burn treatments**. The results capture the expected increase in carbon sequestration rates on treated forest acres; the more aggressive management scenario results in a higher increase in the overall rate of forest carbon sequestration relative to both the business-as-usual and low management scenarios. The initial carbon loss visualized here represents the potential for innovative biomass utilization pathways to literally fill the gap – to use this land-based carbon to increase carbon stored in durable wood products and agricultural soils and offset use of fossil fuels consumed for electricity and fuels.

Please provide the published and peer-reviewed research that indicates the conclusion "the expected increase in carbon sequestration rates on treated forest acres": we question this statement. But this wildly speculative plan sounds like forest trees would be removed and incinerated to make energy and the ash and black carbon from the incineration process would be used in urban areas to supposedly enhance the soil and sequester carbon. Why not allow the carbon to be sequestered in the forest where it has historically been sequestered by nature to grow future forests?

The 2030 Target Scoping Plan Update, pp 68 and 71, indicate that CARB acknowledges that forest biomass used for bioenergy is not absolute, but speculative. If CARB must INNOVATE to use forest biomass for bioenergy, CARB would not be a science-based decision on which to establish California's solution to climate change.

> Scale bioenergy capacity to contribute significantly to meeting community and regional agricultural and forest biomass disposal needs over time, in a manner that protects public health.
>
> Production and **use of bioenergy in the form of biofuels** and renewable natural gas **has the potential to reduce dependency on fossil fuels** for the transportation sector. For the energy sector, however, renewable natural gas faces significant safety, feasibility, and cost issues.

Given the breadth and depth of fundamental uncertainties associated with negative-emissions technologies (ref. *1–6 below*), including biomass to energy, a program of timely and deep mitigation in line with 2°C budgets should assume that they will not be deployed at a large scale.

A mitigation agenda that does not rely on future large-scale application of negative-emissions technologies will require a legislative environment that delivers profound social and behavioral change by high-emitters, rapid deployment of existing low-carbon energy technologies, and urgent research and development of new promising energy technologies, including negative-emissions technologies. If negative-emissions technologies do indeed prove to be successful, then a lower temperature rise can be subsequently pursued.

Evidence indicates that an assumption of negative-emissions success delays conventional mitigation. Without negative-emissions technologies, much more ambitious and far reaching mitigation is required (ref. *2 below*). The 2 degree C scenarios assessed by the IPCC that do not include negative emissions, but do allow afforestation have considerably lower fossil-fuel consumption than scenarios that include negative emissions [e.g., Fig. S4 in (ref. *7 below*)]. The "emissions gap" (ref. *8*, *9 below*) between the necessary level of mitigation to deliver on the Paris goals and the collective proposition of governments (i.e., the sum of the Intended Nationally Determined Contributions) would be much larger if negative emissions were excluded.

Postulating large-scale negative emissions in the future leads to much less mitigation today. Negative emissions facilitate the appealing option (ref. *10 below*) of exceeding tight carbon budgets and assuming that the debt will be paid back later. If we cannot pay back our carbon debt because the negative-emissions technologies do not deliver as planned, then we have saddled the vulnerable and future generations with the temperatures we seek to avoid in the Paris Agreement.

The following analogy is appropriate: we knowingly let someone jump into a raging torrent, telling them we may be able to save them with a technology we have yet to develop.

We believe that CARB should not rely on speculative, negative emissions technologies at such a critical time in this global human survival drama.

We note for the record that, SB 1383 excludes forest black carbon from inclusion in the strategy.

**IV. Reducing Anthropogenic Black Carbon Emissions**

**Figure 1: California 2013 Anthropogenic Black Carbon Emission Sources*** Wildfire is the largest source of black carbon in California. Prescribed fires also emit black carbon, but are an important tool for forest managers. However, since the legislative direction and intent of SB 1383 is to include only non-forest sources of black carbon in the target, a target for forest-derived black carbon emission reductions is not included in this SLCP

> Strategy. For reference, estimates for 10-year annual average black carbon emissions from fires that occurred in forests and other lands are provided in Table 6. Emissions from fires in forests and other lands vary dramatically from year-to-year, and these inventories contain higher uncertainty86 than the anthropogenic sources in Figure 1.

However, CARB's Revised Draft Proposed SLC Pollutant Reduction Strategy, pages 45-46, discuss forest treatments with justifications, claims, and citations supposedly to reduce wildfires.

> For reference, estimates for 10-year annual average black carbon emissions from fires that occurred in forests and other lands are provided in Table 6. Emissions from fires in forests and other lands vary dramatically from year-to-year, and these inventories contain higher uncertainty86 than the anthropogenic sources in Figure 1.

**Table 6: 10-Year Average California Black Carbon Emissions: Wild and Prescribed Fire**

| Source | 10-Year Average Emissions (MMTCO2e)* |
|---|---|
| Prescribed Burning | 3.6 |
| Wildfire | 86.7 |

*Using 20-year GWP

> In general, forests are burning at increasing rates and at increasing levels of severity.87 This trend raises concern over the long-term health of these forests and ability to sequester carbon and provide resource amenities.88 Many studies have demonstrated net benefits for fuel treatments and forest management activities designed to reduce both fire spread and fire severity at the experimental unit or stand level, both in modeled and real world scenarios. 89,90,91,92,93,94,95,96,97,98,99 Fuel treatments are key elements of forest restoration strategies,100 and are embedded in management strategies at local, state and national levels.101,102 Fuel treatments are key elements of forest restoration strategies,100 and are embedded in management strategies at local, state and national levels.101,102 The Forest Carbon Plan, as well as the 2030 Target Scoping Plan Update, will continue to explore the interrelation of climate change and natural lands.

CARB makes claims that forests are burning at increasing rates and at increasing levels of severity, attempting to justify tree removal as a means of reducing climate change. However, CARB has failed to adequately consider science provided in our previous submission, which is restated herein. CARB must consider that the most current studies consistently find that forests with the greatest number of dead trees do not burn more intensely. They often burn less intensely, because combustible oils in pine needles begin to dissipate quickly after trees die.

Fire does not destroy wildlife habitat – logging does. Recently, more than 250 scientists informed Congress that patches of mostly dead trees are "quite simply some of the best wildlife habitat in forests."
http://www.californiachaparral.com/images/Scientist_Letter_Postfire_2013.pdf

Finally, claiming that increasing logging of our California forests will curb large wildfires misunderstands the issue. Hot, dry, windy weather rather than forest density determines fire intensity and spread.

Let's let science be our guide, rather than superstition and outdated assumptions that snag patches substantially increase fire intensity and spread or that fuel treatments are key elements of forest restoration. Fire is the key element of forest restoration – not logging. If forests are thinned they will store less carbon in the soil, root/fungi systems, and trees. Retaining burned and dead trees will maintain carbon stores in the forest to grow healthy, future forests.

There are three empirical studies that have investigated the effects of actual fires in areas with known pre-fire snag levels from recent drought and bark beetles, and which pertained to ponderosa pine and mixed-conifer forests. The first, Bond et al. (2009), which was conducted in mixed-conifer and ponderosa/Jeffrey-pine forests of the San Bernardino National Forest in southern California, where fires occurred immediately after a large pulse of snag recruitment from drought/beetles. Bond et al. (2009) "found no evidence that pre-fire tree mortality influenced fire severity". http://www.academia.edu/download/40465528/Bond_et_al.pdf

The second, Hart et al. (2015), which was published in the Proceedings of the National Academy of Sciences, investigated whether there is a relationship between snag levels from drought/beetles and the rate of fire spread in conifer forests across the western U.S., including ponderosa pine-dominated forests of California. Hart et al. (2015) found the following:

> Contrary to the expectation of increased wildfire activity in recently infected red-stage stands, we found no difference between observed area and expected area burned in red-stage or subsequent gray-stage stands during three peak years of wildfire activity, which account for 46% of area burned during the 2002–2013 period. Area burned in the western United States is unaffected by recent mountain pine beetle outbreaks

In other words, in both the initial stage of snag recruitment, when dead needles are still on the trees ("red-stage"), and in the later stage, years later, after needles and some snags have fallen ("gray-stage"), fire did not spread faster or burn more area in forests with high levels of snags from drought and native beetles. This was also true specifically in ponderosa pine forests, where there was no significant effect on fire spread of tree mortality from drought/beetles, and where fire spread was nearly identical regardless of snag levels (see Hart et al. 2015, Figure 3D).

The third, Meigs et al. (2016), was conducted in mostly mixed-conifer and ponderosa pine forests of the Pacific Northwest (south to the California border), and found the following:

> In contrast to common assumptions of positive feedbacks, we find that insects generally reduce the severity of subsequent wildfires. Specific effects vary with insect type and timing, but both insects decrease the abundance of live vegetation susceptible to wildfire at multiple time lags. By dampening subsequent burn severity, native insects could buffer rather than exacerbate fire regime changes expected due to land use and climate change. Do insect outbreaks reduce the severity of subsequent forest fires?

Specifically with regard to the mountain pine beetle, a native species associated with the current snag recruitment in California's ponderosa pine and mixed-conifer forests, Meigs et al. (2016) found that fire severity was the same between stands with high levels of snags from drought/beetles and unaffected forests, when fires occurred during or immediately after the pulse of snag recruitment, and then fire severity consistently ***declined*** in the stands with high snag levels in the following decades (see Meigs et al. 2016, Figure 3a).

Ken Pimlott, Director of CalFire, recently stated that he does not dispute this science (http://www.sandiegouniontribune.com/news/2016/jul/25/california-gov-wildfire-prevention-strategies/). Yet the State of California continues to disseminate information—web-based and otherwise—claiming that snag patches substantially increase fire intensity and spread, and the Governor's emergency proclamation, which makes this same incorrect assertion, has not been withdrawn or modified. Nor has the State withdrawn the proposal, which is promoted on this same incorrect basis, to facilitate widespread logging of recent snags across vast areas of public forestlands in remote "Tier Two" forests (forests that are not immediately adjacent to roads, powerlines, and homes).

The 2030 Target Scoping Plan Update, pp 75 under the heading of *New Potential Measures or Supporting Action - Potential new measures are known to reduce GHGs, but may have technology, cost, or statutory barriers that may need to be addressed before they can be deployed in the near term.* This is yet another future development attempt that may, but may not be scientifically feasible, but CARB is relying on this speculative conjecture to solve the global climate puzzle.

> Developing sustainable options for processing woody debris from urban areas, forests, and agriculture.

The 20 May 2016 issue of SCIENCE contains an interesting article, titled, *City-integrated renewable energy for urban sustainability*, which reviews 79 research papers on the subject of urban needs to decarbonize by 2050, including renewable energy, transportation, urban design, policies, and behavior changes necessary to be sustainable. While the article suggests that innovations in nuclear power could help achieve a decarbonized urban 2050, with which we strongly disagree, an excerpt specific to the issue of biomass is pasted below and the abstract is found at http://science.sciencemag.org/content/352/6288/922.abstract.

> **Biomass energy** Power densities for biomass energy are highly dependent on the regional climate, because it affects which plants are able to grow locally. Conventional crops have a range of power densities from roughly 0.05 to 1.7 W/m2; the highest densities come from crops grown in tropical locations with genetic modification, fertilizer, and irrigation (8). The ongoing debate over biofuel sustainability and social and environmental justice considerations places this potential energy source in a complex and unsatisfactory position. Direct combustion of urban biomass offers at least a clearer life-cycle path to evaluate than conversion and use of biomass as biofuels. If short-rotation poplar was grown on marginal lands in Boston, for example, it could satisfy 0.6% of the yearly primary energy demand in Massachusetts (35).

> Given the low power densities, urban agriculture may be better suited for food than for energy. Urban farms help reduce urban heat-island effects, mitigate urban stormwater impacts, and lower the energy needed for food transportation (36). A life-cycle analysis of a community farm in South London has shown that urban food supply systems can achieve reductions in greenhouse gas emissions that are potentially larger than those of parks and urban forests (37).

Listed below are other papers that discuss the drawbacks of thinning forests and forest biomass to energy facilities.

Thinning Combined With Biomass Energy Production May Increase, Rather Than Reduce, Greenhouse Gas Emissions, D.A. DellaSala and M. Koopman, Report by Geos Institute, November 2015 (Scientific report rather than peer-reviewed study)

Forest soil carbon is threatened by intensive biomass harvesting, David L. Achat et al, Scientific Report, November 2015

How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues, Mirjam Röder et.al., Biomass and Bioenergy, August 2015 [This article looks at methane emissions from woodchip and pellet storage.]

Quantifying consequences of removing harvesting residues on forest soils and tree growth – A meta-analysis, D.L. Achat et al, Forest Ecology and Management, July 2015 [This meta-analysis looks at the impacts of 'whole tree harvesting', which is increasingly practiced for bioenergy, on soil nutrients and future tree growth and finds serious negative impacts.]

Limits to Sustainable Use of Wood Biomass, Janis Abolins and Janis Gravitis, Sustainable Development, Knowledge Society and Smart Future Manufacturing Technologies, World Sustainability Series 2015, April 2015 [The authors looked at bioenergy sourced from fast growing tree plantations and "argue that generating electricity by burning wood is an extremely inefficient use of land under conditions of sustainable supply of the fuel and conclude that transfer to bio-energy without radical changes in the existing economic system would further aggravate the environmental crisis."]

Avoiding Bioenergy Competition for Food Crops and Land, Creating a Sustainable Food Future, Tim Searchinger and Ralph Heimlich, published by World Resources Institute, January 2015 [Scientific report, not peer-reviewed study]

The Burning Question: Does Forest Bioenergy Reduce Carbon Emissions? A Review of Common Misconceptions about Forest Carbon Accounting, Michael T. Ter-Mikaelian et al, Journal of Forestry, November 2014

Projected CO2 Emissions Due to Increased Logging Under Senator Ron Wyden's "Oregon and California Land Grant Act of 2013" by Dr. Olga Krankina, Courtesy Faculty, Department of Forest Ecosystems & Society, College of Forestry, Oregon State University, September 2014 [Note increased logging is proposed in part to serve the needs of energy companies seeking to burn biomass in the US.]

Life-Cycle Impacts of Biomass Electricity in 2020, Dr. Anna Stephenson and Professor David MacKay, DECC, July 2014 [This study looks at a range of different scenarios for life-cycle CO2 emissions associated with pellets imported from North America to the UK.]

Forest biomass for energy in the EU: current trends, carbon balance and sustainable potential, IINAS, EFI and Joanneum Research, prepared for BirdLife Europe, EEB and Transport Environment, May 2014

Forestry Bioenergy in the Southeast United States: Implications for Wildlife Habitat and Biodiversity, J.M. Evans et al, National Wildlife Federation, December 2013 [This is not a peer-reviewed study but a report produced through a collaboration of researchers at different universities.

Ecological limits to terrestrial carbon dioxide removal, Lydia J. Smith and Margaret S. Torn, Climatic Change (2013) [Note: This article specifically looks at Bioenergy with Carbon Capture and Storage as well as at tropical 'afforestation', which the authors define as meaning primarily industrial pine and eucalyptus plantations established at the expense of shrubland and grassland. Many of the findings are relevant to large-scale bioenergy in general.]

The 'debt' is in the detail: A synthesis of recent temporal forest carbon analyses on woody biomass for energy, Patrick Lamers and Martin Junginger, Biofuels, Bioprod, July/August 2013 [Note that the authors presume that most wood pellets are currently produced from residues. There is evidence to the contrary from the southern US and no independent analysis has been carried out in other regions.]

JRC Technical Reports – Carbon Accounting of forest bioenergy, Conclusions and recommendations from a critical literature review, Joint Research Centre, European Commission, 2013

Dead Forests Release Less Carbon Into Atmosphere Than Expected Trees killed in the wake of widespread mountain pine beetle infestations have not resulted in a large spike in carbon dioxide released into the atmosphere, contrary to predictions, a University of Arizona-led study has found. Published in Ecology Letters March 2013 as: Persistent reduced ecosystem respiration after insect disturbance in high elevation forests
Mineral soil carbon fluxes in forests and implications for carbon balance assessments, Thomas Buchholz et al, GCB Bioenergy, January 2013 – See here for a Science Daily article summarizing the key findings, including: "The findings suggest that calls for an increased reliance on forest biomass be re-evaluated and that forest carbon analyses are incomplete unless they include deep soil, which stores more than 50 percent of the carbon in forest soils."

Site-specific global warming potentials of biogenic CO2 for bioenergy: contributions from carbon fluxes and albedo dynamics, Francesco Cherubini et al, Environmental Research Letters, November 2012 – for an interview with the lead author see here.
The outcome is in the assumptions: analyzing the effects on atmospheric CO2 levels of increased use of bioenergy from forest biomass, Bjart Holtsmark, 5th October 2012, GCB Bioenergy

Sound Principles and an Important Inconsistency in the 2012 UK Bioenergy Strategy, Tim Searchinger, September 2012

Global Consequences of the Bioenergy Greenhouse Gas Accounting Error, Tim Searchinger, 2012 (for a background presentation by the author, see here)

Using ecosystem CO2 measurements to estimate the timing and magnitude of greenhouse gas mitigation potential of forest bioenergy, Pierre Bernier and David Paré, July 2012 (looking at the carbon impact of sourcing wood from boreal forests in Canada for energy)

Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral, Ernst-Detlef Schulze et al, April 2012

Biogenic vs. geologic carbon emissions and forest biomass energy production, John S Gunn et al, GCB Bioenergy, April 2012

Biomass Supply and Carbon Accounting for Southeastern Forests, Biomass Energy Resource Center, the Forest Guild, and Spatial Informatics Group for Southern Environmental Law Center and National Wildlife Federation, February 2012

Carbon debt and carbon sequestration parity in forest bioenergy production, Stephen R. Mitchell et al, January 2012

Carbon emissions associated with the procurement and utilization of forest harvest residues for energy, northern Minnesota, USA, Grant M. Domke et.al., Biomass and Bioenergy, January 2012

Is woody bioenergy carbon neutral? A comparative assessment of emissions from consumption of woody bioenergy and fossil fuel, Giuliana Zanchi et al, December 2011 – For a background presentation by one of the authors, see here.

Can fuel-reduction treatments really increase forest carbon storage in the western US by reducing future fire emissions?, John L. Campbell et al, Frontiers in Ecology and the Environment, December 2011 [Note: This article specifically looks at the carbon impacts of forest thinning for fire prevention, rather than at how the timber from forest thinning is then used. However, wood from forest thinning for this purpose is being widely promoted as 'sustainable' bioenergy.]

Regional carbon dioxide implications of forest bioenergy production, Tara W. Hudiburg et al, Nature Climate Change, 23rd October 2011

Opinion of the European Environment Agency Scientific Committee on Greenhouse Gas Accounting in Relation to Bioenergy, September 2011

Harvesting in boreal forests and the biofuel carbon debt, Bjart Holtsmark, August 2011
Forest Bioenergy or Forest Carbon? Assessing Trade-Offs in Greenhouse Gas Mitigation with Wood-Based Fuels, J. McKechnie et al, March 2011, summarized here

Effect of policy-based bioenergy demand on southern timber markets: A case study of North Carolina, Robert C. Abt et al, Biomass and Energy (34)

Review of the Manomet Biomass Sustainability and Carbon Policy Study, Mary Booth for the Clean Air Task Force, July 2010

The upfront carbon debt of bioenergy, Joanneum Research, July 2010
Biomass Sustainability and Carbon Policy Study, Manomet Center for Conservation Sciences, June 2010

Implications of Limiting CO2 Concentrations for Land Use and Energy, (click here for a similar publicly available article by the authors) Marshall Wise et al, May 2010

Forest carbon storage in the northeastern United States: Net effects of harvesting frequency, post-harvest retention, and wood products, Jared S. Nunery and William S. Keeton, Forest Ecology and Management, March 2010 [Not specifically about bioenergy, this article compares carbon impacts of leaving mature northern hardwood forests undisturbed with those of different logging practices and finds that "even with consideration of C sequestered in harvested wood products, unmanaged northern hardwood forests will sequester 39 to 118% more C than any of the active management options evaluated.]

Fixing a Critical Climate Accounting Error, Timothy Searchinger et al, October 2009

Energy Sprawl or Energy Efficiency: Climate policy impacts on natural habitats for the United States of America, Robert I McDonald et al, PLoS ONE 4(8): e6802. doi:10.1371/journal.pone.0006802, August 2009

All The Carbon Counts: Including Land-Based Carbon In Greenhouse Gas Control Strategies Lowers Costs And Preserves Forests, Science Daily, June 2009

Goodbye to Carbon Neutral, Eric Johnson, 2008

California Senator Kevin de León told the Los Angeles Times that their 15 December 2016 "article on the implementation of California's world-class climate change policies completely ignores statutes put in place that require extensive study and review of impacts on jobs, the state's economy, the departure of businesses to other states and numerous other economic factors before the adoption of any regulations.
The critics of California's emissions reduction efforts cited in the article made the same arguments when we first started these programs a decade ago, and they have been proved wrong ever since. California's economy has grown into the sixth largest in the world and has created a thriving clean-energy sector that has sped up innovation and job creation. California leads with vision in the energy sector, so it is disappointing your readers have to settle with reporting that is so shortsighted. Sen. Kevin de León (D-Los Angeles)
http://www.latimes.com/opinion/readersreact/la-ol-le-climate-change-california-20161215-story.html

Sequoia ForestKeeper was part of a network of concerned organizations that sent a letter to Mary Nichols, on 23 September 2009. The letter was to register our opposition to logging in the Sierra Nevada in light of climate change, the need for Greenhouse Gas Accounting, and the need to protect natural forests of California. The letter found on your web site https://www.arb.ca.gov/lists/forestry09/17-group_letter_to_carb_re_forest_protocols_09_23_09_final.pdf and pasted below in its entirety, was sent to Mary Nichols, Chair California Air Resources Board from all of your friends.

Audubon California • Battle Creek Alliance • Butte Environmental Council
Cascade Action Now • Center for Biological Diversity • Central California Forest Watch
Central Sierra Environmental Resource Center • Conservation Congress
Defenders of Wildlife • Ebbetts Pass Forest Watch • Environment Now
Environmental Protection Information Center • Forest Ethics • Forest Forever
Forest Issues Group • Forest Unlimited • Friends of Lassen Forest • Friends of the Earth
John Muir Project • Northcoast Environmental Center • Sequoia ForestKeeper
Sierra Club California • Sierra People's Forest Service • StopClearcuttingCalifornia.org

September 23, 2009

Mary Nichols, Chair
California Air Resources Board
1001 I. Street
P.O. Box 2815
Sacramento, CA 95812

**Re: Opposition to the Forest Clearcutting Provision in the Forest Project Protocols**

Dear Chairman Nichols and members of the California Air Resources Board:

We are writing on behalf of the undersigned organizations to express our strong opposition to the forest clearcutting provision in the current version of the forest project protocols, and to urge you not to adopt the protocols with this provision included.

At the upcoming September 24 meeting, the California Air Resources Board is scheduled to consider for adoption the "Updated Forest Project Protocols for Greenhouse Gas Accounting." These protocols contain a provision, inserted as a single new paragraph by Climate Action Reserve staff into the June 22, 2009, version of the updates, which appears intended to allow clearcutting:

> *Harvesting using even-age management must be conducted in stands no greater than 40 acres. Stands adjacent to recently harvested (even-age) stands must not be harvested using an even aged regeneration harvest until a recent even-aged regeneration harvested stand is 5-years old, or the average height of the regeneration in the recently harvested stand has achieved a height of 5 feet. On a watershed scale up to 10,000 acres all projects must maintain, or make progress toward maintaining, no more than 40 percent of their forested acres in ages less than 20 years. Areas impacted by a Significant Disturbance are exempt from this test until 20 years after reforestation of such areas.* (Section 3.9)

This paragraph is entirely inconsistent with, and explicitly contradicted by, the definition of "natural forest management" in the same protocols, which requires forest projects to "*promote and maintain a diversity of native species and utilize management practices*

*that promote and maintain native forests comprised of multiple ages and mixed native species at multiple landscape scales*." (Sec. 3.9.2). It is impossible for even-aged management, particularly clearcutting, to meet those overarching requirements.

Forest clearcutting is not the solution for achieving greenhouse gas reductions in California. Scientific studies show that forest clear-cutting is the worst option for reducing forest carbon emissions, and that it has devastating impacts on California's forests, water, biodiversity, and fish and wildlife. Moreover, the forest protocols were purportedly designed not only to help achieve greenhouse gas reductions, but also to provide a range of significant public and environmental benefits including clean water, biodiversity, fish and wildlife habitat, recreation, and aesthetics. The newly included paragraph incorrectly implies that clearcutting can achieve these goals, when in actuality the new paragraph would allow practices that exacerbate climate change while simultaneously causing a loss of important co-benefits for fish and wildlife habitat and biodiversity in California and other states.

If the intention of the new paragraph is to extend to other states the environmental safeguards currently applied to California's forests, then it is severely lacking. By offering a definition of clearcutting that omits critical regulations that limit clearcutting in California, the protocols succeed only in watering down California's forest protections to the point that they are seriously deficient and unrecognizable. Furthermore, the California Air Resources Board should not be in the business of encouraging the clearcutting of California or any other state, particularly when such practices are likely to exacerbate climate change while simultaneously degrading forest ecosystems and fish and wildlife habitat.

Given the misleading nature of the provision, and the potentially extreme negative environmental impacts associated with clearcutting, we urge the Air Resources Board to eliminate the forest clearcutting provision before adoption of the protocols. At the very least, we ask that you postpone adoption of the protocols to allow the Air Resources Board time to consider the implications of the provision following the September Board meeting.

Thank you for considering these comments.

Sincerely,

Brian Nowicki
Center for Biological Diversity

Michael Endicott
Sierra Club California

Susan Robinson
Ebbetts Pass Forest Watch

Kim Delfino
Defenders of Wildlife

Scott Greacen
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Sue Lynn
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Marily Woodhouse
Battle Creek Alliance

Terry O'Day
Environment Now

Stephanie Tidwell
Klamath-Siskiyou Wildlands Center

Rene Voss
John Muir Project

Jim Brobeck
Butte Environmental Council

**CONCLUSION**

The SLCP Reduction Plan must be crafted to reduce GHGs rather than enable GHGs to continue to be produced and the Plan must restore our forests rather than degrade our forests. We urge CARB goals to go beyond requirements of SB 1383 and regulate methane, sooner, to not write a plan for timber, ranching, or energy interests, and to respond to and incorporate our concerns in a Plan for review that serves the public, wildlife, and the environment of which we humans are a small part.

Respectfully submitted,

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