June 14, 2018

Shelby Livingston
Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Natural and Working Land Implementation Concept Paper

Dear Shelby Livingston:

Thank you for this opportunity to comment on the Natural and Working Land (NWL) Implementation Plan Concept Paper. Sierra Club California appreciates the State's commitment to climate mitigation via carbon sequestration and storage on natural and working lands. Please consider the following as you and the relevant agencies move forward with the Implementation Plan:

- Prioritize short-term climate change mitigation over long-term resilience
- Clarify and reassess the Plan's greenhouse gas reduction goal
- Allow a transparent review of the CALAND Model and its accompanying assumptions
- Utilize the most effective monitoring tools capable of measuring current carbon emissions as well as carbon outputs of interventions in the short term and long term
- Prioritize the Healthy Soils Program
- Explicitly include chaparral and desert ecosystems in the Plan

Prioritize Short-Term Climate Change Mitigation
The Concept Paper identifies two goals: mitigating carbon emissions and enhancing resilience. In the Plan, mitigation must clearly be defined as increasing carbon sequestration and reducing greenhouse gas emissions in both the short term and long term. Short-term mitigation ought to be the Plan's priority as climate change is an immediate and existential threat.

Co-benefits are important and enhancing resilience is a noble goal. However, the State should prioritize certain co-benefits above others. For example, biodiverse forests with uneven-aged trees are more resilient to fires and are capable of storing more carbon.

However, thinning requires more consideration. A thinning project which has an end product of a forest with very little diversity may produce the co-benefits of creating jobs and reducing fire risk in the short term, but the project will lead to increased fire risk, a less healthy forest in the long term and a short-term increase in carbon emissions.

Clarify and Reassess Reduction Goal
The Concept Paper sets a greenhouse gas emission reduction goal of 15 to 20 MMT CO2e by 2030. It is unclear how this amount was chosen and whether it is high enough. The reason for the chosen goal should be explicitly stated in the Plan and defended as an ambitious and achievable aspiration.

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It is also not clear what these reductions will be compared to. If it is a reduction from the "baseline scenario," as is implied on page 8, then a reduction of 15 to 20 MMT CO2e will still result in increased emissions by 2030. The final plan ought to clarify this goal and, if necessary, make it higher to achieve the Plan's ultimate goal.

Foster Transparent Review of the CALAND Model and Prioritize Effective Monitoring Tools

Monitoring progress in reducing greenhouse gas emissions will be based on the CALAND and COMET-Planner tools. Whether these tools are adequate for the task depends on assumptions built into the models. We cannot judge the monitoring process until we know more about these assumptions.

It has been nearly a year and a half since stakeholders were able to review the CALAND model. This model is vital to the effectiveness of the NWL Climate Change Implementation Plan and, therefore, stakeholders must see the model and all its assumptions as early as possible.

In addition to an adequate modeling tool, effective monitoring tools are key to measuring the Plan's success. While the Concept Paper did mention some monitoring tools, these tools are focused on whole-systems. The State must use monitoring tools that can accurately determine the carbon-outcomes of specific interventions.

Explicitly Include Chaparral and Desert Ecosystems

Chaparral, a vital source of carbon sequestration, is completely left out of the concept paper. The NWL Implementation Plan must distinguish this extensive ecosystem and address the threat of native shrubland loss to non-native grasslands due to increased fire frequency.

Additionally, California deserts store substantial amounts of carbon, primarily in vast caliche deposits in its inland basins. Once the surface of the desert is disturbed, this caliche releases its carbon into the atmosphere.

Currently, the ability of the desert to sequester and store carbon is under threat. Direct threats include uncontrolled off-road vehicle use, inappropriately sited large-scale solar energy projects, and water export projects from the desert to urban areas.

Appropriate steps should be taken to protect these ecosystems and their sequestered carbon.

Working Lands

The Plan should include the importance of long-term dedicated funding for carbon sequestration on working lands through programs like the Healthy Soils Program, which assists farmers' and ranchers' transition to regenerative agricultural practices.

The Healthy Soils Program was approved in September 2016 and started in 2017 but was excluded from the 2017-2018 cap and trade budget and is currently undergoing budget negotiations. Achievement of California's GHG reduction goals depends upon programs that draw carbon from the atmosphere over many years and the soil ecosystems that store it.

Finally, biodiversity should be a guiding principle for working land ecosystems. It is crucial on working lands because greater biodiversity is associated with healthier crops, less pests and less reliance on toxic inputs that compromise the accumulation of soil carbon.

Water Conservation
Water conservation and storm water management are essential to carbon sequestration on natural and working lands, with a priority on capturing runoff to support and expanding urban forests, forest-woodland, and on restoring eroded chaparral and shrublands as well as percolation into aquifers for agriculture.

Without water, the general increase in the soil carbon sponge and perennial vegetation obviously cannot grow. Restoration of small water cycles is necessary for biological carbon sequestration.

Forests
The Concept Paper includes a number of commendable provisions regarding forest management. The Concept Paper:

- Suggests scattering 50% of understory biomass be scattered as dead debris
- Encourages uneven management which enables the forest, including some large trees, to continuously sequester and store carbon
- Suggests period increasing the age at which trees are harvested

However, the Concept Paper also includes a number of troubling forest practices that would be counterproductive in reducing carbon emissions and would damage vital ecosystems. The Concept Paper:

- Aims many interventions at fuel reduction (resilience), which actually increases emissions in the short term
- Prioritizes thinning which has variable effectiveness as a forest management tool depending on where it is done, how it is done, what activities precede or follow it
- Neglects including managed fire as an important forest management tool
- Does not make any distinction between forest types (ie. moist versus dry conifer) which require very different management
- Suggests biomass incineration as a biomass utilization method which will increase emissions in the near term and leads to significant human health impacts
- Neglects to address increased fire risk associated with same-age, dense tree plantations
- Does not address greenhouse gas emissions associate with even-aged management

Moving forward with the NWL Implementation Plan, the State must continue to push for uneven management, scattering of debris and the lengthening of harvest rotation periods. These activities will result in healthier forest ecosystems which include more large trees and healthy soil, which will sequester and store more carbon.

The Plan should not look to thinning as the primary forest management tool or prioritize fuel reduction interventions. The State should look at prescribed and managed fires as two effective and natural forest management tools.

Increasing thinning increases greenhouse gas emissions in the short term with the hope of producing healthier trees and less fire in the over a longer period. The September 2017 CALAND workshop presentation showed that large amounts of thinning greatly reduced the amount of carbon stored. The amount of carbon stored dropped significantly and did not increase above the starting point until almost 2050.

Clearly increasing these actions will have an immediate, negative impact on the climate. Protection activities increase stored carbon. The plan needs to discriminate between types of forest interventions.

When thinning is necessary, the State should avoid using polluting, expensive biomass incinerators as a means for biomass utilization. Biomass incineration as a means of producing electricity is not carbon neutral or renewable and, therefore, should not be listed as such in the Plan or CALAND Model. Instead, the Plan should look for biomass utilization methods that are appropriately sized and that do not emit carbon.

Again, Sierra Club California thanks you and the State for recognizing the importance of carbon sequestration and storage in our statewide and global climate mitigation goals.

Sincerely,

Daniel Barad
Organizer
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