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To Whom It May Concern:

I reviewed the draft California Carbon Action Plan (CCAP) and appreciate the opportunity to submit the following comments. As a Registered Professional Forester and forest land owner, I have worked on five National Forests and have participated in California forestry issues since 1964. While the draft Plan contains much useful information relating to the current conditions of California Forests and the subject of carbon sequestration, it does not lay out an action plan that will significantly change the amount of carbon being sequestered by California forests.

The draft plan recognizes that California's forests, particularly federal forests, are overstocked, and dying from a combination of factors including drought and insect attacks. The document calls for greatly increased prescribed burning and use of "managed" natural ignitions, without acknowledging the many practical barriers that restrict the use of managed fire in California. Even if greatly increased use of managed fire were practical, such fires release carbon to the atmosphere; presumably this is compensated by leaving the remaining stands of timber in a healthier condition to continue to grow and absorb carbon. However, as the current wave of mortality in the Sierra Nevada region shows, without reducing the density of larger, overstory trees, stand density continues to increase, leading to stand mortality and the release of most of its stored carbon over time. The practical solution to increasing carbon storage in California forests is through active management (thinning and small group silviculture) which can generate income and store or recycle the carbon in products removed from the forest.

If California is to increase its reliance on prescribed and managed fire to restore our forests, the Plan must provide the legislature and other government agencies budget estimates of the costs to implement an effective program. Additional agency personnel will certainly be needed at an unknown cost. Other problems include short favorable burning windows, air quality limits on acres burned, loss of desired understory vegetation such as planned regeneration, sugar pine seedlings, and the probability of escapes with consequential liability. Despite the best efforts of agency personnel escaped managed fires occur nearly every year.

A recent article published in The Forestry Source, by W.V. (Mac) McConnell includes the following description of the state of forest conditions in the United States, which I believe, applies equally to federal forests in California.

"Private landowners harvest about 43 percent of the gross annual growth, removing weak, over-aged, and unhealthy trees, and thus preventing mortality. Only 17 percent of the annual

growth dies. In contrast, the Forest Service harvests about 8 percent of the growth, while 56 percent of the annual growth dies. The data indicate that prudent harvesting will result in healthier, drought-resistant forests; prevent mortality; and will yield substantial economic and social benefits and society.

Given the money and enabling legislation, the Forest Service could equal or surpass California's private landowners in the quality of resource management."

The Forestry Source. P.14 December 2016. (Note: the article has graphs and a data table that show the trends of growth and mortality). There are also many other published sources of growth and mortality trends in California.

Without active management of California forests, the best that can be achieved over time is a steady state where mortality and decay equal growth and carbon storage. Thus, there will be no net carbon storage in these forests. Wilderness areas are a good example where wildfire, managed fire, and disease mortality equal, over time, net growth. Of course, in the short term, there will be irregular pulses of growth and mortality, but our forests have a definite upper limit of the amount of biomass that they can carry.

The draft Carbon Plan acknowledges that forest industry infrastructure has declined in California to point where we no longer have the capacity to process existing mortality, and to do the thinning of our overgrown forests. The Regional Forester of the Pacific Southwestern Region (R5) has called for increasing the pace & scale of forest restoration many times. Yet, there is no clear call in the Plan to maintain or increase forest industry infrastructure. If we are to change the trajectory of forest health in California the Plan must also have a clear call to restore and increase the biomass industry to increase its capacity to process the small diameter material necessary for forest restoration.

A glaring omission in the Plan is a realistic estimate of the cost of regenerating hundreds of thousand acres of non-stocked or understocked forest land lost to recent catastrophic fire and insect mortality. Although the Plan acknowledges such land needs to be regenerated to increase their ability to capture and store carbon, the magnitude of increased carbon storage through forest regeneration should be quantified for the public's information. Costs for such a program must be estimated, and existing barriers to such a large-scale forest restoration program such as costly and overly complex environmental analysis must be disclosed and recommendations for improvement suggested. The state's nursery capacity for both private and federal forest lands must be estimated and increased if necessary.

The Plan also minimizes or ignores the regulatory burden imposed on small landowners in California that prevents active management of small parcels that cumulatively make up a substantial part of the private forest land in our state. The cost of preparing a timber harvest plan, doing many required surveys for multiple wildlife species, and delays in plan approvals mean the small landowners often forego options to manage their property.

In summary, the Plan looks like a politically motivated, politically correct document that sounds good in the short term, but has little chance of meaningfully improving a significant amount of carbon sequestration in California. I suggest building on the problem statements included in the Draft Plan with practical, implementable solutions and identified funding sources for the necessary work.

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