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Re: The Trust for Public Land's Comments on Draft California Forest Carbon Plan

Dear Forest Climate Action Team,

Thank you for all the effort you have put into crafting this comprehensive Forest Carbon Plan (FCP). The Trust for Public Land works to create a healthy, climate-smart California with access to nature for all. We have worked from Main Street to mountain top protecting over 3.5 million acres across the US since our inception in 1972, including thousands of acres of conservation easements over forestland.

Our comments on the FCP span the wildland forests and urban forestry sections.

Wildland Forests

We generally support the three primary objectives for wildland forests (protect, enhance, innovate; p. 24). Careful implementation of the "protect" objective will ensure durability of the FCP's implementation outcomes.

1. Increase target for conservation easement acquisition

We are concerned that the target for increased forest conservation through conservation easements (CE) or acquisition is so low that it is less than the current rate of conservation. As written, this target reads "*By 2030, increase the acreage of forestland protected by conservation easements by ten percent above the current level, with a focus on areas under development pressure*" (p. 25). GIS analysis of the California Conservation Easement database shows that 282,303 +/- acres of conifer forestlands are in CE in California.¹ A 10% increase is 28,230 acres, which is equal to 2,016 acres per year until 2030 (with a total acreage protected of ±310,533 at that time). We argue that this is in fact lower than the current rate of conservation. For example, CAL FIRE's California Forest Legacy Program alone has purchased approximately 50,000 acres of easements in 20 years, or 2,500 acres average/year. The Wildlife Conservation Board has also conserved large acreages.

We suggest a goal of at least 10% of current protected acreage (28,230) per year, ultimately protecting under permanent easement 395,220 acres by 2030. Given that nearly 9,481,000 acres of California's approximately 31.6 million acres of forestland are privately-owned conifer or hardwood forest, this represents a minimal goal of less than 5% of current private acreage.² A goal of at least this magnitude is essential to meet the state's objectives. Assuming a typical cost of \$600/acre, this would equal an investment of \$15,138,000/year.

2. Shift focus to protection and enhancement of existing forests rather than areas subject to potential development

The current focus of target 1 on areas under development pressure is inefficient for carbon sequestration. We certainly acknowledge that protecting forestland (as well as agricultural land) along urban boundaries is an effective method to combat sprawl and associated GHG emissions – however, it should not be the highest-priority tool for forestland protection for the purpose of maximizing carbon storage.

¹ Analysis conducted through superimposing the CCED GIS layer over a California land cover map in QGIS. This number leaves out oak woodland, although much of that legally is forestland, because it has little role to play either in fire planning or carbon sequestration. Data available on request.

² http://frap.fire.ca.gov/data/assessment2010/pdfs/california_forest_assessment_nov22.pdf

The most carbon-dense forests are not in urban fringe areas, but in well-watered forests of the North Coast and Sierra. Although it is acknowledged on p. 66 that among California forest types, redwoods store by far the most carbon (and have insect and disease-resistant properties contributing to their climate resilience) the FCP's focus on forests subject to development pressure does not reflect this. Further, areas subject to development pressure are expensive and generally fragmented, leading to high easement costs for low returns.³ Instead, conservation easements should be used to secure large tracts of intact forests and to establish legally binding parameters for those forests to be managed in such a way to maximize carbon storage, watershed health, and wildlife protection goals.

4. Couple near-term restoration and improved forest management with a long-term commitment to protect forestland.

Without a plan for securing the protection of forestland over time, many of the activities described under the “enhance” strategy (restoration, reforestation, etc.) may result in GHG emissions rather than increased carbon sequestration and climate resilience. The FCP acknowledges that it can take time to realize the carbon gains from forest management treatments such as thinning; however, there is no mechanism proposed to ensure that the forest is protected from degradation, overharvest, or conversion over this time period. In some cases, it can take as long as 50 to 60 years to achieve carbon benefits from fuel reduction treatments.⁴ If the land is not protected for at least that time frame, then the emissions from fuels reduction may not be balanced by the anticipated long-term climate benefits, and the project could have a net negative impact.

Additionally, improved forest management is far more effective in terms of enhancing carbon storage than reforestation and afforestation (reforestation goals are discussed on p. 30) – for example, more carbon is stored in older forests, and it takes many years for young trees to grow large enough to store comparable amounts of carbon.^{5, 6} In fact, improved forest management is responsible for at least 95% of the forest carbon tonnes registered on the CAR/ARB website⁷, demonstrating the usefulness of these project types for carbon storage beyond what would naturally occur. Many private and industrial forestland owners are ready to sequester more carbon (by longer rotations or other methods) with the proper financial incentives such as conservation easements. We suggest that by nesting restoration and improved forest management strategies under the “enhance” section with the protection of that land, it ensures that forests have the time they need to grow older trees and become resilient stores of carbon for the long-term.

5. Funding for conservation easements over forestland

Several granting agencies are noted that provide funding for forestland conservation easements (including Forest Legacy and the Wildlife Conservation Board). It should be noted that current public funding sources for forestland protection will be inadequate to cover the expanded scope of forest protections needed (see Section 1. above). The state will be required to take bold action to fund these programs and/or develop other funding mechanisms essential to large-scale forest conservation and carbon sequestration.

³ Re: conversion, Gonzales et al. (2015) showed that over 60% of net carbon loss in California forests between 2001 and 2008 was due to “decreasing carbon density”, and only 39% to conversion to other uses;

Gonzalez, P., J.J. Battles, B.M. Collins, T. Robards, and D.S. Saah. (2015). Aboveground live carbon stock changes of California wildland ecosystems, 2001-2010. *Forest Ecology and Management* 348: 68-77

⁴ Loudermilk, E.L., Scheller, R.M., Weisberg, P.J. et al. *Landscape Ecol* (2016). doi:10.1007/s10980-016-0447-x.

⁵ Stephenson, N.L. et al., (2014). Rate of tree carbon accumulation increases continuously with tree size. *Nature* 507, 90–93.

⁶ 2) van Mantgem, P and DA Sarr. (2015). Structure, diversity, and biophysical properties of old-growth forests in the Klamath region, USA. *Northwest Science* 89(2): 170-181.

⁷ <https://thereserve2.apx.com/myModule/rpt/myrpt.asp?r=111>

6. Provisions for the protection of mountain meadows

Meadows in the state are at risk of conversion, especially given that over 28% of Sierra meadows are in private ownership.⁸ The many ecosystem and recreational benefits of meadows can be permanently impacted through subdivision and development; human stressors associated with development can further erode meadow habitats.

We support the FCP's consistency with state and federal targets for the restoration of mountain meadows. However, due to the threat meadows face from conversion and degradation, and similar to the argument made in 4. above, restoration activities must be coupled with securing the long-term protection of these systems to ensure the permanence of these benefits. Mountain meadows are uniquely threatened by post-restoration development, infrastructure development such as road building, and livestock grazing due to their open and relatively flat landscapes. We suggest this section heading is revised to "*Protect and Restore Mountain Meadow Habitat* to reflect this need and mirror other state planning efforts.^{9,10, 11} Although by definition mountain meadows are not themselves forested, they form a vital component of the patchwork of these forested mountain landscapes that serve as the headwaters for the state. The water storage potential, downstream water quality benefits, and habitat value of mountain meadows are well known.

Urban Forestry

Overall we are pleased to see the FCP incorporate urban forestry, in addition to wildland forests, and acknowledge their importance in meeting California's GHG reduction goals – both in terms of their role in direct carbon sequestration and the broader role green infrastructure can play in creating sustainable, low carbon communities. We also approve the inclusion of information and case studies on urban heat island effects and the co-benefits of urban forestry (p. 80-84).

7. Broaden the inclusion of green infrastructure throughout the section to reflect goals and management actions

Within the introductory section (p. 80) we suggest that the topic of green infrastructure as a component of urban forestry should be introduced because the management actions (p. 86) largely focus on green infrastructure solutions and interventions, yet the term is not introduced until that section.

Multiple-benefit green infrastructure can connect communities with daily destinations such as work and school as well as trails and transit lines; reduce the urban heat island effect; absorb rainfall, reduce flooding, and recharge drinking water supplies; and protect communities from rising seas, and coastal storms. The term is often used interchangeably with "urban greening" but is more inclusive of the storm water recharge and water quality interventions that can be combined with more traditional greening such as planting of trees and other vegetation. Green infrastructure can also provide close-to-home play and recreational opportunities, improving community health and quality-of-life.

Furthering this point, in the second paragraph on p. 81 we suggest the addition "Trees are therefore a critical component to broader urban greening *and green infrastructure* programs and objectives statewide".

8. Set a more ambitious goal to increase urban tree canopy

⁸ Sierra Meadows Partnership. Sierra Meadows Strategy <http://caltrout.org/book/sierra-meadows-strategy/> p. 14

⁹ 2016 California Water Action Plan.

¹⁰ Sierra Meadows Partnership. Sierra Meadows Strategy <http://caltrout.org/book/sierra-meadows-strategy/>

¹¹ National Fish and Wildlife Foundation. Sierra Nevada Meadows Restoration Plan. <http://www.nfwf.org/sierranevada/Pages/home.aspx>.

As currently written, the FCP's primary urban forestry goal is to "increase urban tree canopy by 1/3 above current levels to 20% coverage of urban areas by 2030". On p. 85 it is stated that current canopy coverage is 15% of urban areas, indicating that the state's goal is only a 5% increase over current levels. We suggest a more ambitious goal of 25% coverage of urban areas.

9. Acknowledge unequal distribution of urban tree canopy and include a goal to increase the urban forest within disadvantaged communities

It should be noted in the introductory section (p. 80) that urban trees are disproportionately more abundant in wealthier communities; in fact, household income within census block groups can be a predictor of tree canopy.¹² Urban tree planting should be focused in disadvantaged communities which suffer greater impacts from climate change and benefit the most from interventions such as greening.

We suggest that a 3rd goal on p. 85 is added that sets a more aggressive target for tree canopy increase in disadvantaged communities throughout the state.

10. Provide a concrete series of management actions that will lead to implementation of goals

The management actions described on p. 86 are thorough, but do not appear to be clearly linked to the overall goals for urban forestry. For example, if the list of management actions are to include those described in CAL FIRE's Urban and Community Forestry Program (as indicated on the bottom of p. 85) they should also be included in the list on p. 86.

Combining bullets 4 and 5 may make a stronger argument for providing technical assistance to communities. Rather than just "assist local governments" in assessing urban forest resources, language on technical assistance could be included. Technical assistance should include resources, leadership, and partnership development in disadvantaged communities, leveraging existing programs and partnerships to accomplish *urban forestry* goals at the local level.

References section error:

Christensen, G.A., Campbell, S.J., & Fried, J.S., tech. eds. (2008). California's forest resources, 2001-2005: five-year Forest Inventory and Analysis report. Gen. Tech. Rep. PNW-GTR-7632 ****should be PNW-GTR-763**** Portland, OR. U.S. Department of Agriculture, Forest Service, Pacific Research Station. 183p.

We appreciate the opportunity to comment on the FCP and look forward to working with the FCAT in the future to implement the goals of this effort.

Sincerely,



Mary Creasman
California Director of Government Affairs

¹² Schwarz K, Fragkias M, Boone CG, Zhou W, McHale M, Grove JM, et al. (2015) Trees Grow on Money: Urban Tree Canopy Cover and Environmental Justice. PLoS ONE 10(4): e0122051. doi:10.1371/journal.pone.0122051