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Re: Healthy Landscapes 2030: California's Climate Change Vision and Goals for Natural and Working Lands

On behalf of the **Carbon Cycle Institute**, we are writing to express our support for overall work and vision outlined in the Natural and Working Lands Discussion Paper (Paper). Below, we provide comments, suggestions, and amendments to this emerging vision, with emphasis on the role of working lands. We will provide additional comments and thoughts in response to "Discussion Topics and Questions", as the questions posed are very broad and require much time than provided to respond in a comprehensive manner.

The Carbon Cycle Institute's mission is to stop and reverse climate change by advancing natural, science-verified solutions that remove atmospheric carbon while promoting environmental stewardship, social equity and economic sustainability. To that end, we support projects that promote climate-beneficial management practices on working lands throughout California, work to build the technical capacity of land managers and producers to plan and implement impactful projects, and are heavily engaged in gathering scientific data on the important role these practices can play in sequestering carbon from the atmosphere.

California's working lands and rangelands naturally capture carbon from the atmosphere through photosynthesis and transfer it to the soil, where it provides important ecological services, including the enhancement of soil water holding capacity. Land managers can dramatically increase carbon storage in California's soils by employing a number of practices recognized by the Natural Resources Conservation Service (NRCS) as climate beneficial, including compost application, riparian restoration, no-till farming, windbreaks, agro forestry and other practices. Along with increasing long-term carbon sequestration in soils and plant material, these practices also offer additional water, habitat, and economic viability benefits for farmers and working land managers. With this as a foundation, overall we would like to see increased emphasis on the potential role of soils in helping the state meet its 2030 GHG reduction goal of 40 percent below 1990.

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SUMMARY OF COMMENTS

Vision

Page 1: We agree that "…climate strategy must explore and pursue opportunities to increase "blue carbon," but this term is not properly defined in the Vision. Blue carbon is carbon stored in the form of biomass and sediments ***of coastal and marine systems***. The major threats to these systems ***do not*** include land conversion to more intensive uses, or extreme events such as storms, wildfires, drought and heat. They ***do*** include management practices that undermine system health and resilience, increasing atmospheric CO2 leading to ocean acidification, and the expected longer-term impacts of climate change. Significant threats to blue carbon include the continued loss of soils from degraded watersheds to coastal waters, and the fertilizer nutrients, herbicides and pesticides associated with those soil sediments.

Draft Goals

Page 3: While we understand why the draft goals for natural and working lands are expressed as "reducing the rate of land converted to development or acres under management," rather than tons of greenhouse gas emissions reduced or sequestered, we urge the State to quickly move to quantification of GHG sequestration potentials on the state's working lands in order to begin to fully realize the potential of these landscapes. Acres under management may, and should, include management for enhanced terrestrial carbon capture. Failure to grasp this opportunity will severely limit the potential for working lands to contribute to the state's GHG reduction goals

While we certainly support efforts to prevent urban sprawl and the urban development of working lands, avoided conversion can only be considered additional if land protection does not result in development of natural or working land elsewhere. While urban infill may absorb some of this development, this has the potential to impact working landscapes within the urban environment, undermining the Vision goal of increasing urban access to green spaces.

Cross-referencing land protection, management and restoration activities in existing natural resource management plans that are expected to increase stored carbon resiliency and reduce GHG emissions is appropriate, but passive reliance upon incidental sequestration associated with such projects is unlikely to yield optimal or efficient sequestration results and may not achieve set goals if climate change impacts on ecosystem GHG dynamics are not taken into consideration. Such projects need to be intentionally designed to take advantage of potential synergies and realize their full potential for capturing and storing carbon long term in biomass and, particularly, soils. Importantly, doing so will, in most cases, result in optimal and efficient realization of other conservation goals, as evidenced in carbon farm plans currently being developed by Resource Conservation Districts across the state.

Land Protection and Land Use

Page 4: Increasing protections on natural and working lands "to reduce the rate of conversion to intensified uses, to both preserve lands' sequestration potential and promote infill and compact development" is intuitively attractive; however, "intensification" of land use needs to be defined. "Intensification" could involve intensified management for carbon capture and sequestration. "Conservation" of land, particularly working land, needs to be tied to management for enhanced

carbon capture and sequestration, especially in soils.

Similarly, prioritizing agricultural and open space conservation investments on lands that are under the greatest threat of conversion is intuitively attractive, yet the plan must address how this will prevent development from simply occurring elsewhere. In other words, how will leakage be avoided in this context? As noted above, while urban infill may absorb some of this development, this has the potential to undermine the Vision goal of increasing urban access to green spaces.

Strategies to implement Objectives 1 and 2 need to be coordinated in order to prioritize both protection and management on lands with the highest potential to reduce GHG and provide environmental co-benefits. We support coordination of state-funded initiatives, but these should also include coordination with federally funded programs such as (NRCS) and land management agencies (i.e. BLM).

Enhance: Management and Restoration

Page 5: In order to engage local communities and private landowners, an outreach and education effort will be needed. Implementation should be supported by technical assistance and also funding. Support should be given to existing successful providers of this type of assistance (i.e. Resource Conservation Districts, NRCS, UC Cooperative Extension, non-profit organizations (i.e. Point Blue, Audubon, land trusts, etc), so that the State can leverage existing infrastructure and know-how.

To prioritize investments for climate-driven projects, spatially explicit data should be used in conjunction with broad conservation strategy documents.

Oceans and Coast

Page 7: The State should absolutely "support ocean management actions that result in protection of subtidal habitats such as eelgrass and kelp, to avoid loss of these systems that sequester carbon and provide habitat benefits." However, this focus on blue carbon must involve coordination with relevant state agencies, particularly the Department of Fish and Wildlife and the Fish and Wildlife Commission, who has recently as 2014 divested the state of 55% of its sustainable shellfish aquaculture production capacity in Drakes Estero without any consideration of the climate change implications of that decision. Without a willingness on the part of the State as a whole to protect its blue carbon infrastructure and resources, pronouncements from ARB in this regard are likely to be meaningless and such travesties likely to reoccur. Assessment of "blue carbon" projects "along the entire coastline of the state to analyze carbon sequestration outcomes across a range of conditions, paired with green infrastructure climate change work," must include a full consideration of the role of shellfish aquaculture in the provision of ecosystem services, including human food resources, in "an integrated approach to both achieving GHG reductions and ensuring food security in the face of climate change."

Significant threats to our ocean and coast include the exacerbation of coastal "dead-zones" by continued loss of soils from degraded watersheds to coastal waters, and the waterborne sediments, fertilizer nutrients, herbicides and pesticides associated with unsustainable

management of the State's working lands.

Farmlands and Ranchlands

Page 7: We fully support the Healthy Soils Initiative to reduce GHG emissions and improve drought resiliency by engaging farm and ranch lands to build soil organic matter and promote on-farm and ranch management practices that sequester carbon or reduce GHGs. While USDA-NRCS has several hundred Conservation Practice Standards in place, approximately 36, including the six listed in figure 2, have been identified as having GHG/climate benefit. As noted in the Vision Document, the GHG benefits of these broadly applicable practices can now be quantified, albeit very conservatively, using the USDA tools COMET-Planner and COMET-Farm.

Recent work by the USDA NRCS has yielded models that allow for the scientific estimation of greenhouse gas reductions associated with several soil management practices (COMET-planner.com). These management practices can be implemented on a wide range of croplands and rangelands. On-the-ground work is supported by partnerships with the NRCS and Resource Conservation Districts, University of California Cooperative Extension, and other organizations, such as CCI. These collaborations require significant additional resources to enable scaling statewide.

We estimate that California agriculture can completely offset its GHG emissions with sequestration of equivalent quantities of soil organic carbon, if such practices, including compost applications where appropriate, are scaled to even half of the state's 10 million acres of cropland and 10 million acres of grazed grasslands. Voluntary participation of private farm and ranchland owners and operators is essential to the success of this effort, underscoring the importance of incentives, such as those emerging from the Healthy Soils Initiative and elsewhere.

Urban Forestry and Green Infrastructure

Page 9: It is not clear if Urban Heat Island reduction goal of 3°F degrees is for day or night temperatures. A 3°F reduction in daytime temperatures is significant, while 3°F reduction in night temperatures may not be, given the latter may be as much as 22°F higher than outlying rural areas. The stated goal of increasing urban tree canopy statewide by 5% by 2030 and 20% by 2050 seems extremely conservative, and unlikely to lead to significant decreases in UHI effects. 2030 and 2050 urban tree canopy increase goals of 50% and 100% seem much more likely to achieve the stated desired impacts, including the goals of Increasing the percentage of people living within 1⁄4 mile of open spaces, and widespread use of trees to sequester carbon and provide shade for pedestrians and bicyclists.

Discussion Topics and Questions for Public Input

As mentioned above, we will provide additional comments and thoughts in response to "Discussion Topics and Questions", as the questions posed are very broad and require much time and effort to respond to in a comprehensive manner. Below, we provide some initial responses for your consideration in the revision of this preliminary draft.

Quantitative Targets for the 2030 Scoping Plan Update

The challenge is to manage working lands to store additional carbon on an ongoing basis, most preferably as soil organic carbon, as working lands already store significant quantities of carbon, while offering significant opportunities to increase that amount through management. CCI is working with several stakeholders to propose a framework for providing quantitative targets for working lands.

We suggest that the State provide financial support to strengthen existing voluntary programs that have been implementing conservation program successfully for years. Examples include:

- Resource Conservation Districts have been successfully and efficiently implementing conservation practices in partnership with NRCS for decades.
- Partners for Fish and Wildlife program also offers financial and technical assistance to private landowners that the State could leverage to attain climate and GHG benefits.
- The CA Department of Fish and Wildlife's Landowner Incentive Program (LIP).
- Non-profit organizations such as Point Blue, Ducks Unlimited and Audubon California have successful landowner programs that could be strengthen and leveraged.
- UC Cooperative Extension is another successful organization that should play an essential role in implementation, as they provide applied research, technical assistance, and support to land managers that could be employed to manage their working landscapes for enhanced carbon sequestration and other important ecosystem benefits that provide adaptation benefits.
- Support and strengthen Partnerships like the California Rangeland Conservation Coalition, The Central Coast Rangeland Coalition, and Fish Friendly Farming Program. Point Blue's Rangeland Watershed Enhancement Program is another model for this kind of collaboration.
- The Carbon Cycle Institute is working in several regions with RCDs, land trusts and other land management institutions to engage land managers and working lands producers to implement climate- and carbon-beneficial practices, focused on soils, vegetation, adaptation, and ecosystem services.
- Fund and reform the Williamson Act by measuring the provision of ecosystem services (including GHG reductions) on working lands and compensating landowners for their protection, stewardship and management of working lands. for GHG reduction.
- The private sector needs to be engaged and contribute financially to leverage public funding. Philanthropy and private companies should have mechanisms and incentives in place to do so.

Engaging Local Communities through Innovation

In order to engage local communities and private landowners, outreach and education programs are essential. Effective outreach and education has been proven to lead to more impactful

projects, which tend to generate long-term impacts through landowner ownership and adoption. Technical assistance and funding resources, leveraging existing local, State and Federal programs should support implementation. Support should be given to existing successful providers of this type of assistance (Resource Conservation Districts, NRCS, UCCE, non-profit, such as Point Blue, Audubon, land trusts). The stakeholders mentioned above (including private and public landowners) should participate in the development of incentive programs.

Use Valuation and Co-Benefits

Several academic institutions and non-profit organizations, such as Earth Economics, Duke University and the USGS, have done studies and developed tools to quantify the value of ecosystem services. The Natural Capital Project (a partnership between Stanford University and the University of Minnesota, The Nature Conservancy, and the World Wildlife Fund) has created a tool to value ecosystem services (INVEST: http://www.naturalcapitalproject.org/invest/).

The Santa Clara Open Space authority has recently published The *Healthy Lands & Healthy Economies* Initiative. The initiative is a comprehensive economic valuation of natural capital and ecosystem services completed in Santa Clara, Sonoma, and Santa Cruz Counties. The focus of this landmark effort is to determine the economic value of protecting and stewarding natural capital.

In response to the question "How should Agencies balance the climate benefits of conservation stewardship activities with other environmental objectives?" we suggest that science-based and proven conservation stewardship have inherent climate benefits. There is no need to "balance" these mutually compatible objectives.

The economic value of natural and working lands needs to be established at local level. Local land-use decision makers (cities and counties) need the technical tools and capacity to prioritize land use to ensure the protection of land with high output of ecosystem services. Federal agencies are mandated to incorporate ecosystem services in their decision-making process (https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-01.pdf). State agencies should do the same.

Conclusion

We appreciate the opportunity to provide our comments and perspectives on the Paper. Again, we will develop more comprehensive comments and suggestions to the Discussion Questions (above) in the near future. We look forward to continued participation and engagement with the lead agencies in this Scoping Plan effort. Please feel free to contact us if you have any questions.

Sincerely yours,

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