Tuesday, February 27, 2024

Amanda Hansen, Deputy Secretary of Climate Change
California Natural Resources Agency
715 P Street
Sacramento, CA 95814

Subject: **Recommendations for the Grasslands, Croplands, & Cross-cutting Priorities in the Update to California's Natural and Working Lands Climate Smart Strategy**

Dear Deputy Secretary Hansen:

Thank you for the opportunity to comment on the state's update to its Natural and Working Lands Climate Smart Strategy. Please find our responses to the agency's discussion questions below for grasslands, croplands, and cross-cutting priorities. We kept our responses to questions 3 and 4 at a high-level in recognition that this is the beginning of a months-long process that includes the AB 1757 Expert Advisory Committee discussing barriers and solutions and that there are other documents that have covered these topics in significantly more depth and breadth. We encourage you and your staff to consider the following documents in addition to our brief comments below:

- The AB 1757 Expert Advisory Committee Recommendations (Nov 2023)
- A grasslands comment letter and associated spreadsheet that many sustainable agriculture groups submitted to CNRA on September 15, 2023
- A croplands comment letter and associated spreadsheet that many of sustainable agriculture groups submitted to CNRA on September 15, 2023
- A Climate Platform for California Agriculture (Oct 2023)[1], which includes over 50 policy recommendations and was developed in consultation with 60 issue area experts and 16 reviewers.

[1] Available at: https://caagriculturereclimateplatform.org/tools-for-transformation

We would be happy to discuss any of this with you and your staff. Please let us know if there are other ways we can support your work on this update.

Sincerely,

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Question 1: Are there changes you'd recommend we make to the existing priority nature-based climate solutions for each landscape?

<u>Grasslands</u>

We recommend two changes:

- In Priority A, add prescribed and cultural burns to the list of practices
- In Priority C, add shrub encroachment to the list of threats to grasslands

Rationale: In 2020, wildfires were the second largest source of GHG emissions in the state.[2] Ranchers have been on the front lines of these impacts in terms of evacuations, smoke, and lost property, livestock, crops, income, and insurance. Ranchers manage approximately 11 million acres of private and public grasslands (ten percent of the state's land mass).

Fire is an integral force in many of California's grassland ecosystems. Indigenous peoples of California have practiced extensive cultural burning for food and fiber production in grasslands (e.g., to promote grassland grains, manage acorn pests, and stimulate new shoot growth for

[2] Jerrett, M., et al. (2022). Up in smoke: California's greenhouse gas reductions could be wiped out by 2020 wildfires. *Environmental Pollution*. https://doi.org/10.1016/j.envpol.2022.119888

basketry materials) for millennia. California ranchers also historically used controlled burns in California, in part inspired by what they observed about indigenous management. Ranchers even used to form range improvement associations—what would today be called prescribed burn associations—to support each other in large-scale prescribed burns. But this practice largely stopped in the second half of the 20th century due to increasing regulations.[3] Grazing animals also play a vital role in managing invasive weeds and fine fuels (e.g., grasses and weeds that ignite easily and spread fire quickly) and ladder fuels (e.g., shrubs and small, low-hanging tree limbs that carry fire from the ground level into brush and tree canopies).

For much of the 20th century, many public agencies and conservation groups converted grasslands previously managed with fire and/or grazing into open spaces or wilderness areas with little to no vegetation management. The lack of management on these lands allowed accumulation of thatch (dead plant matter aboveground that chokes out native plants), the prolific invasion of weeds like brooms and thistle, and the encroachment of shrubs, especially *Baccharis pilularis* (coyote brush) in coastal prairies. These conditions fuel our catastrophic wildfires and contribute to a rapid decline in grassland biodiversity and habitat. The silver lining of recent catastrophic wildfires is that many public agencies have woken up to this problem and are now working to return beneficial fire and grazing to the grasslands lands they manage.

Croplands

We recommend adding “scale up organic agriculture” as a priority solution.

Rationale: Organic certification requires producers to use multiple climate-smart and healthy soil practices including composting, crop rotation, cover cropping, reduced tillage, and integrated pest management to conserve and regenerate soil, water, and air resources. Certified organic producers are also required to protect wetlands, woodlands, and wildlife by using methods including riparian buffers, hedgerows, managed grazing, and more. By implementing multiple

[3] Biswell, H., (1999). *Prescribed burning in California wildlands vegetation management*. University of California Press.

climate smart practices, organic systems build healthy soils and ecosystems that can sequester carbon and mitigate climate change.[4,5,6,7,8,9,10,11]

Organic agriculture also advances the cross-cutting priority of “prioritizing and practicing equity” by removing synthetic inputs from farms, thereby protecting the most vulnerable farmworker and rural communities from health impacts caused by synthetic agricultural inputs. Pesticide exposure can increase risk for diabetes,[12] obesity,[13] cancer,[14] asthma and other respiratory ailments,[15] reproductive and developmental harm,[16] and neurodevelopmental damage.[17] This risk is disproportionately borne by California's predominantly Latino farmworkers and their communities. Latino children in California are 91 percent more likely than White children to attend schools with significant pesticide exposure.[18]

Organic agriculture is a verifiable and measurable solution. Thirty years of peer-reviewed research has measured the benefits of organic agriculture[19] and shown overall GHG reductions

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[4] Wolf, K. et al. (2017). Long-term agricultural experiments inform the development of climate-smart agricultural practices. *California Agriculture*. https://doi.org/10.3733/ca.2017a0022.
[5] Tuck, S.L. et al. (2014), Land-use intensity and the effects of organic farming on biodiversity: a hierarchical meta-analysis. *Journal of Applied Ecology*. https://doi.org/10.1111/1365-2664.12219
[6] Ghabbour, E. A. et al.(2017). National comparison of the total and sequestered organic matter contents of conventional and organic farm soils. *Advances in Agronomy*. https://doi.org/10.1016/bs.agron.2017.07.003
[7] Tautges, N.E. et al. (2019). Deep soil inventories reveal that impacts of cover crops and compost on soil carbon sequestration differ in surface and subsurface soils. *Global Change Biology*. https://doi.org/10.1111/gcb.14762
[8] Lal, R. (2020). Regenerative Agriculture for Food and Climate. *Journal of Soil and Water Conservation*. https://doi.org/10.2489/jswc.2020.0620a
[9] Crystal-Ornelas, R. et al. (2021). Soil Organic Carbon is affected by organic amendments, conservation tillage, and cover cropping in organic farming systems: A meta-analysis. *Agriculture, Ecosystems & Environment*. https://doi.org/10.1016/j.agee.2021.107356
[10] Smukler, S.M. et al. (2008). Transition to large-scale organic vegetable production in the Salinas Valley, California. *Agriculture, Ecosystems & Environment*.https://doi.org/10.1016/j.agee.2008.01.028.
[11] National Sustainable Agriculture Coalition. (2019). Agriculture and Climate Change: Policy Imperatives and Opportunities to Help Producers Meet the Challenge. Washington D.C. https://sustainableagriculture.net/wp-content/uploads/2019/11/NSAC-Climate-Change-Policy-Position_paper-112019_WEB.pdf
[12] Lim S., et al. (2009). Chronic exposure to the herbicide, atrazine, causes mitochondrial dysfunction and insulin resistance. *PLOS ONE*. https://doi.org/10.1371/journal.pone.0005186
[13] Ren, X.M. et al. (2020). Agrochemicals and obesity. *Molecular and Cellular Endocrinology*. https://doi.org/10.1016/j.mce.2020.110926.
[14] Lerro, C.C. et al. (2015). Use of acetochlor and cancer incidence in the Agricultural Health Study. *International Journal of Cancer*. https://doi.org/10.1002/ijc.29416
[15] Hoppin, J. A., et al. (2017). Pesticides are associated with allergic and non-allergic wheeze among male farmers. *Environmental Health Perspectives*. https://doi.org/10.1289/EHP315
[16] Whyatt, R. M., et al. (2004). Prenatal insecticide exposures and birth weight and length among an urban minority cohort. *Environmental Health Perspectives*. https://doi.org/10.1289/ehp.6641
[17] Rauh, V., et al. (2011). Seven-year neurodevelopmental scores and prenatal exposure to chlorpyrifos, a common agricultural pesticide. *Environmental Health Perspectives*. https://doi.org/10.1289/ehp.1003160
[18] California Department of Public Health, California Environmental Health Tracking Program, and Public Health Institute Agricultural (2014). Pesticide Use Near Public Schools in California. https://www.phi.org/thought-leadership/agricultural-pesticide-use-near-public-schools-in-california/
[19] Benador, L., et al. (2019). Roadmap to an organic California: Benefits Report. https://www.ccof.org/sites/default/files/CCOF-RoadmaptoOrganic-Report-Final-HighRes.pdf

in organic versus conventional agriculture expressed as per unit production area.[20] Third-party certification through USDA-accredited certification agencies verifies practice compliance and the Organic Integrity Database[21] makes it easy to verify certification without producers having to submit paperwork. Finally, CDFA's California Agricultural Organics Report[22] tracks the number of organic producers, acreage, and sales across California.

Question 2: Are there changes you'd recommend we make to the existing cross-cutting priorities?

We recommend three changes:

- Split the third priority (starting with "empower all Californians") into two priorities, with one focused on youth outreach and education and the other focused on technical assistance, workforce development, and capacity-building to support natural and working lands solutions.

Rationale: To achieve any level of ambitious target for climate solutions within the working lands sectors, we will need sufficient *boots on the ground* with the training, expertise and institutional support to plan, implement, and adaptively monitor and manage nature-based projects at scale. The strategies and investments to achieve this capacity merit their own discussion, separate from youth outreach and education.

- Add a new priority: Research, pilot, and remove regulatory barriers to agrivoltaics and ecovoltaics[23] to maintain agricultural production amidst increasing utility-scale solar development, conserve water, avoid bare soil and associated dust and weed challenges, and reduce the need for conversion of intact ecosystems (e.g. deserts) for solar development.

Rationale: A report by the Public Policy Institute of California found the following: "As of 2019, there were about 20 gigawatts (GW) of installed solar capacity (including utility-scale and distributed generation) throughout the state, with about 3 GW of that located in the San Joaquin Valley—in both cases, roughly half of this capacity was installed in the last five years. Capacity is expected to increase rapidly in the coming decades, and eventually exceed 70 GW if California reaches its 2045 renewable energy goals (California Energy Commission 2021), with potential for 100 GW or more, depending on the extent of electrification in the rest of the economy." If not sited carefully, utility-scale solar development can present a threat to both natural and working lands climate solutions by disturbing intact ecosystems and/or removing

[20] Reganold, J. and Wachter, J. (2016). Organic agriculture in the twenty-first century. *Nature Plants*. https://doi.org/10.1038/nplants.2015.221
[21] Organic Integrity Database available at: https://organic.ams.usda.gov/integrity
[22] CDFA's California Agricultural Organics Report available at: https://www.cdfa.ca.gov/is/organicprogram/reports.html
[23]Tölgyesi et al (2023). Ecovoltaics: Framework and future research directions to reconcile land-based solar power development with ecosystem conservation. https://doi.org/10.1016/j.biocon.2023.110242.

agricultural land from production and reducing it to herbicide-maintained bare soil. Farmland and rangeland is attractive to solar developers because it tends to be flat, with good exposure to sun, and relatively cheap to develop. There is a groundswell of interest and research in agrivoltaics and ecovoltaics technology that generates solar energy in a way that is compatible with crop or livestock production and fallowed lands while maintaining important ecosystem services.

One approach is to graze animals beneath solar arrays where they manage weeds and grasses, eliminating the need to spray fossil fuel-based herbicides while still sequestering carbon and producing food and fiber. Another approach is to grow crops in between or underneath different solar panel configurations.The shade provided by solar panels can be beneficial for the people who grow our food, for cool season crops such as brassicas and lettuces, and potentially even for heat-tolerant species as climate change leads to more extreme heat days. The shade also reduces the amount of water that evaporates from soils and plants, and in turn plant evapotranspiration cools the panels and improves their efficiency. Frost protection may also be a benefit in some crops and seasons. The new concept of ecovoltaics, which co-prioritize energy production and ecosystem services during the design and management phases of solar development, offers another approach that could increase pollinator habitat and biodiversity underneath solar panels on previously disturbed or fallowed lands. More research is needed to better understand the optimal conditions for scaling up this technology, as well as pilot projects in partnership with farmers willing to experiment with it.

- Add a new priority: Improve regulatory efficiency for land stewardship practices that mitigate climate change and increase resilience

Rationale: Regulatory inefficiencies negatively impact and disincentivize many land stewardship practices. For example, RCDs and Fire Safe councils we work with who are trying to scale up prescribed grazing as a fire risk reduction strategy are finding that the CEQA process alone costs a minimum of $80,000 and takes at least 6-12 months. This cost takes a significant portion of the project funds and the delays have made planning extremely challenging for prescribed graziers who have to grow their herds in anticipation of the new project and then scramble to find a way to keep them fed for months while the new project faces delays.

Growers in our network also report that food safety regulations discourage integrating grazing animals in croplands to terminate cover crops and have caused leafy greens processors to discourage hedgerows and other field border conservation plantings – in both cases based on scant or nonexistent evidence supporting those regulations or interpretations.

Finally, growers and technical assistance providers in our network have shared that the nutrient management reporting required by the Irrigated Lands Regulatory Program disproportionately burdens and discourages farmers who use healthy soils practices, including compost application, cover cropping, and crop rotation.

Questions 3 & 4: What are the biggest barriers to implementing these nature-based climate solutions? What solutions exist to overcome these barriers, and how can state government most usefully advance them?

Grasslands

Barriers:

- Funding for prescribed grazing infrastructure. A recent survey conducted by UC Berkeley of 79 public and private land managers found that water and fencing infrastructure was a key practical barrier to cattle grazing for wildfire fuels management.[24]
- Environmental permitting delays and costs (see prescribed grazing example in the section above).
- Limited technical expertise and capacity in grazing and grassland ecology in certain state agencies that manage or regulate grasslands

Solutions:

- Make prescribed grazing infrastructure eligible for state funding in grant programs that affect grasslands
- Cut green tape and improve regulatory efficiencies for prescribed fire and prescribed grazing
- Increase staff capacity at the Range Management Advisory Committee, which is intended to be the science and technical advisory committee on range management to multiple agencies, but only has one less-than-half-time staff person

Croplands

Barriers and solutions to scaling up organic agriculture:

- Barriers:
    - During the required three-year organic transition period, farmers must make significant investments and carry additional risk without the ability to sell products under the organic label to obtain premium pricing. Many farmers experience yield losses and higher production costs as the soil adjusts to ecological management and the farmer learns and invests in new practices. This often creates an insurmountable barrier to entry for limited resource and socially disadvantaged farmers and ranchers, who manage their businesses on thinner margins, often have insecure land tenure, and face discrimination that limits access to resources and markets. Historically, there has been little government investment in supply chains and market opportunities for organic producers, and today, they face many barriers in accessing key markets, including institutions.
- Solutions:

[24] Peterson (2023). Presentation at the Central Coast Rangeland Coalition spring meeting. Available at: https://ucanr.edu/sites/CCRC/files/383684.pdf

- The foundation to scale up organic in California already exists. The 2022 California Climate Scoping Plan sets a target of 20% organic acreage by 2045, and the AB 1757 Expert Advisory Committee (EAC) Recommendations for Implementation Targets for Natural and Working Lands (NWL) Sector Climate Actions Recommendations reinforced that target and expanded on it by emphasizing the need to support as many farming operations (not just acres) as possible in transitioning to organic. We believe the state ought to be able to achieve the Scoping Plan target well before 2045.
- Continue investing in the organic transition process through CDFA's Organic Transition Pilot Program, funded at $10M in 2023-2024. We strongly support the EAC recommendations to make the program permanent and allocate ongoing funding to CDFA at $25 million annually to provide wrap-around technical support for the transition to organic agriculture. Funds should be distributed first to limited resource farmers or applicants, and lastly, to remaining farmer applicants.
- Continue building access to market opportunities for organic products through CDFA's Farm to School Incubator Grant Program, which defines certified organic and transitioning to organic as "verified climate smart agriculture production systems"[25] and is funded at $60M in 2023-2024. We strongly support the EAC recommendations to establish a permanent CDFA Farm to School Program where at least 20% of procurement funds are targeted toward organic producers; and establish and implement a state procurement program prioritizing purchase of California grown organic foods. In addition, we recommend prioritizing organic in public institutional procurement efforts across schools, hospitals, prisons, elder care, group homes, and CALFire.
- Invest in a coordinated and comprehensive technical assistance system to support all farmers, including small, socially disadvantaged, and organic farmers to achieve the state's climate targets.

Barriers and solutions to other existing priority nature-based solutions

Other documents we recommended at the top (EAC Recs, previous comment letters, Climate Platform for CA Agriculture) describe barriers and strategies to advancing the existing priority nature-based solutions in significant breadth and depth. Rather than repeat those other documents here, we offer this summary of high-level barriers and proposed solutions:

Barriers:

- Insecure land tenure
- Limited technical assistance capacity
- Insufficient workforce to plan, implement and adaptively managed nature-based solutions, including inadequate workforce development and training
- Limited access to capital and equipment to implement climate smart practices
- Insufficient and volatile incentive funding

[25] See the Farm to School Incubator Grant Program Request for Applications at: https://www.cdfa.ca.gov/caf2sgrant/docs/2023-24_RFA_CA_Farm_to_School_IGP.pdf

- Research and data gaps

Solutions:

- Support land access and succession planning programs like those offered by California FarmLink, ALBA, and American Farmland Trust
- Secure flexible baseline funding for Resource Conservation Districts and invest in training, workforce development, and capacity-building for conservation planners and technical assistance providers
- Fund equipment-sharing programs like those successfully piloted by the UC Small Farm Program and California Plowshares
- Diversify and stabilize incentive funding by supporting increases in the fertilizer and pesticide mill fees and using the revenue to support farmers in adopting safer and sustainable alternatives
- Develop research priorities in consultation with stakeholders and use research funding available through existing programs to advance those priorities. Recognize that co-benefits (especially public health and economic benefits) are key to scaling up adoption and support.

Thank you for your consideration of our recommendations.