November 13, 2015

Mary Nichols

Chairman

California Air Resources Board   
1001 I Street   
Sacramento, CA 95814

Shelby Livingston

Climate Investments Branch Chief

California Air Resources Board

1001 I Street

Sacramento, CA 95812

Re: Cap-and-Trade Auction Proceeds Second Investment Plan Concept Paper

Dear Ms. Nichols and Ms. Livingston:

The Carbon Cycle Institute (CCI) appreciates this opportunity to comment on the California Air Resources Board’s (ARB’s) Draft Second Investment Plan (Plan). CCI is committed to addressing climate change by advancing science-based solutions, particularly in working and natural lands, that remove atmospheric carbon, while promoting environmental stewardship, social equity and economic sustainability. These comments are supplemental and reinforce the comments and recommendations made in CCI’s comment letter submitted on August 30, 2015 in response to the ARB’s draft concept paper. We are pleased by ARB’s continued focus and refined strategies on Working and Natural Lands in the Plan. We also applaud the creation and diligent work of the Natural and Working Lands Working Group that is bringing together state agencies to develop the critical strategies identified in the Plan. The Plan creates a solid foundation and emerging framework to achieve climate change goals, including carbon sequestration and GHG reductions, in the Working and Natural Lands sector. CCI offers these comments to enhance and strengthen the strategies outlined in the Plan for Working and Natural Lands, including agriculture.

**Support the *Protect and Grow Carbon Stock on Natural and Working Lands* section of the Plan**

CCI enthusiastically supports the overall goal of protecting carbon stocks in California working and natural lands. Furthermore, we believe those protected working lands can be managed to achieve healthier, carbon-rich soils that can hold more atmospheric carbon, while providing critical ecosystem and climate resilient benefits. From our perspective, the State should invest significantly in managing and restoring our working and natural landscapes, at least on par with conserving and protecting those landscapes from conversion to more carbon intensive land uses. CCI recommends that the Plan propose a significantly greater and sustained investment in the working and natural lands sector, especially as one of the five pillars identified by the State to reach its long-term climate and GHG reduction goals. Currently, the working and natural lands sector is under-funded and the lack of consistent funding creates challenges for developing and advancing reductions in this sector.

**Working and Natural Lands are Critical to Addressing Climate Change**

CCI supports aggressive support for GHG emission reductions, as outlined in the Governor’s Five Pillars. Unfortunately, GHG emissions reductions alone will not be sufficient to address climate change and our need to reduce carbon in the atmosphere to 350 ppm. This fact is recognized in the IPCC recent report in 2014: ”A large fraction of anthropogenic climate change resulting from CO2 emissions is irreversible on a multi-century to millennial time scale, ***except in the case of a large net removal of CO2 from the atmosphere over a sustained period.”*** Working and natural lands in California and globally hold a unique potential in achieving the large net removal of CO2 the IPCC refers to above, by storing atmospheric carbon in terrestrial vegetation and in soils. Based on our calculations, if the state’s combined 46 million acres of grasslands, pastures and arable lands achieved even a 1% increase in soil organic carbon (from the statewide average of 1% to just 2%) in the plow layer alone, the associated water holding capacity increase would be roughly 6.6 million acre feet and the CO2e sequestered would be 1.5 billion tonnes. The French government understood this potential when it recently launched its 4‰ Initiative: <http://agriculture.gouv.fr/sites/minagri/files/4pour1000-gb_nov2015.pdf>. The State of California should consider its own voluntary initiative to increase carbon in its agricultural soils.

**Quantifying Soil and Ecosystem Carbon and GHG Reduction Benefits**

As robust, peer reviewed research on over 70 years of Natural Resources Conservation Service (NRCS) conservation practices and the research of the Marin Carbon Project have shown, a variety of land management practices can lead to increases in soil organic matter (SOM), of which approximately 58% is soil organic carbon (SOC). Properly implemented and maintained, such practices can lead to improved productivity on rangelands, pastures and croplands; increased water retention in soils; increase carbon sequestration in soils and vegetation; and decrease GHG emissions from farming and grazing systems, as well as having significant co-benefits for water quality, biodiversity and habitat, and climate adaptation. There are existing measurement methodologies and tools, including COMET-Planner and COMET-Farm, that can be deployed to quantify these benefits, including GHG reductions and soil carbon sequestration. CCI supports the continued investment in the refinement and deployment of these tools, including COMET, to support the priorities identified in the Plan for the working and natural lands sector. We also support investment in additional research on conservation, soil, and land management practices to create additional methodologies that can be integrated into COMET and other quantification platforms.

**Carbon-Rich, Healthy Soils Provide Multiple Climate Benefits and Ecosystem Co-benefits**

Our research shows that the carbon sequestration potential on rangelands and agricultural lands are significant. An increase of 1% SOC (about 2% increase in SOM [Pribyl 2010]), by mass, in the top 6.7” of an acre of ground represents about 10 tons of SOC (20 tons of SOM) and an increase in water holding capacity of approximately 54,300 gallons (2 acre inches). If the state’s 16-30 million acres of Mediterranean grasslands achieved even a modest 1% increase in SOC in the plow layer (top 6.7 in.) alone, the associated water holding capacity increase would be roughly 2.67-5 million acre feet and the CO2e sequestered would be 587-1.1 million tonnes. If this increase could be achieved to the depth of 20 inches (the depth reported by Koteen et al, 2011, to have lost 40 metric tons SOC/ha [17.8 tons SOC per acre]), overall water holding capacity would increase to 8-15 million acre feet and CO2e sequestered would be 1.7-3.3 million metric tons. In the context of the prolonged California drought, carbon farming and climate smart agriculture is an important strategy that deploys the State’s soils to serve as a significant reservoir of water, especially when precipitation is unpredictable and comes in large amounts over short periods of time.

**Refine and Expand Efforts to Create “Efficient Financing Mechanisms to Maximize Investment”**

CCI applauds the inclusion of a discussion of alternative funding and financing mechanisms, in addition to grants, as a key strategy to support innovation and scaling of the investment priorities discussed in the Plan. To be clear, grants and incentives play a critical role in supporting innovation and bringing necessary state “matching funds” for projects, as in the case for working lands projects where state funding can serve as local matching funds to federal funding (such as NRCS EQIP). CCI is currently exploring how alternative financing mechanisms, such as revolving loan funds, tax credits, and targeted investment, can help stimulate the growth of climate projects in the working and natural lands sector. Many sectors, including working and natural lands, have limited alternative financing sources; many projects are either solely grant funded or rely upon conventional finance that does not recognize the climate, carbon, and ecosystems benefits that projects can produce. There is an opportunity for the State of California to engage federal, private capital, mission investment, and philanthropic stakeholders in developing the next generation of financial vehicles to scale cutting edge climate strategies, especially in the working and natural lands sector. Many of these non-public stakeholders are interested in investing in working and natural lands projects for the ecosystem and on-farm co-benefits; their participation in working and natural lands projects will allow them to build an deeper understanding of the climate sector and develop new approaches to “underwriting” projects with carbon, GHG and climate resiliency outcomes.

Thank you very much for the opportunity to comment on Plan. **We plan to provide additional technical comments in December in advance revised Draft Plan**. We have included (below) a summary of our recommendations from our August 2015 comment letter. If you have any questions regarding our comments, please do not hesitate to contact us.

Sincerely Yours,

Torri Estrada Jeff Creque, PhD

Managing Director/Director of Carbon Policy Director of Agroecosystem Management

**Investment Recommendations for Working and Natural Lands**

*(Excerpted from our August 2015 comments, for your reference)*

**Create Financial Incentives to Support Climate Strategies on Working Lands.** CCI encourages the creation of financial incentives to implement a variety of carbon farming and land management practices across a range of geographies and working land and crop types, including arable, pasture and rangeland systems across California. Incentives would provide support for implementation of practices that increase carbon capture and/or reduce GHGs on these landscapes, as well for quantification of the benefits of applied practices. This can be achieved through the Governor’s Healthy Soils Initiative, CDFA’s Environmental Farming Act, the Department of Conservation’s Sustainable Agricultural Lands Conservation Program, and other related programs at the state level.

**Support Technical Assistance and Resource Existing Infrastructure.**  To successfully implement the 3-Year Investment Plan, ARB and its partners agencies will need to include Technical Assistance for land managers and producers to identify and implement practices appropriate to their unique systems. Leveraging existing resources and institutions, including USDA-NRCS, UCCE and Resource Conservation Districts (RCDs), will be critical to the success of this effort. In particular, RCDs are trusted local government agencies that have a long history and successful track record in implementing conservation programs on Working Lands. And, several RCDs are already innovating and leading the State in developing and implementing projects on Working Lands that sequester carbon, reduce GHGs, and address significant resource issues, such as water quality and drought resilience. These special districts cover almost every part of California and work with public and private partners from all resource sectors, including agriculture, rangelands, forestry, fisheries and all forms of wildlands.

**Encourage Farm and Landscape-Level Approaches to Planning.** We support a comprehensive and holistic approach to management of Working and Natural Lands. CCI’s carbon farming approach embodies the elements of holistic and comprehensive conservation planning as an essential approach to maximize long-term carbon sequestration and GHG reduction benefits that are consistent with farm- and landscape scale goals. CCI strongly urges ARB to increase funding for carbon farm and watershed-scale planning, where land managers, landowners, producers, and their on-the-ground partners can come together to plan scaled implementation of Working Lands climate and carbon sequestration strategies.

**Evaluate the Carbon Sequestration and GHG Reduction Potential Across California’s Working and Natural Lands.** We would strongly recommend that ARB investment in systematic assessment of the carbon sequestration and GHG reduction potential of various regions, soils, and systems across the State. The assessment should be identify the geographies and systems within the State’s Working Lands with the greatest opportunities for carbon capture and GHG reduction, as well as other important climate adaptation benefits, such as soil water holding capacity, reduced erosion and flooding, and improved water quality.

**Refine and Strengthen Quantification Methods for Working Lands**. Early implementation of carbon farming and land management practices will allow continued study and measurement of the climate, environmental, and economic benefits of climate-beneficial practices. Extensive research that can be used by the State in establishing the scientific basis for the Healthy Soils Initiative already exists, and has been widely employed by IPCC, USDA and others. ARB, CDFA, DoC, CalRecycle, and other agencies can increase efficiency and usefulness of new research by creating a shortlist of key research questions that the State needs answered to support and advance carbon sequestration as both a GHG and drought remediation strategy. This will ensure that current or future research is not duplicative and that research efforts are focused on critical knowledge gaps.  We support the use, expansion and refinement of Comet-Planner as a platform for quantification across a range of Working Lands and agricultural systems.

**Dedicate a Greater Proportion of Auction Proceeds to Working and Natural and Lands.** Governor Brown included Working and Natural Lands as one of the five ‘pillars’ for meeting the state’s GHG reduction goals, stating that we should “[manage] farm and rangelands, forests and wetlands so they can store carbon”. Consistent with his Executive Order B-30-15, the Investment Plan identifies the actions that can be taken to manage and enhance our working landscapes, including through improved land and soil management practices. As discussed above, due to the significant potential of these sectors to reduce emissions and sequester carbon, the proportion of auction proceeds dedicated to these sectors should be much greater.

**Invest in Local and Regional Programs that Can Scale Climate Strategies on Working Lands.** CCI strongly encourages ARB and its partner agencies to invest in programs at the local and county level to create, implement, and refine comprehensive plans and innovative strategies for carbon sequestration and GHG reductions on Working and Natural Lands. Innovative approaches at the local level will be required to reach the State’s long-term climate change and adaptation goals. We are already witnessing a renaissance of action that, if nurtured and scaled, could contribute significantly to the success of the Working and Natural Lands sectors. The first critical step is to support the integration of Working and Natural Lands goals and climate approaches into local and regional climate and GHG reduction plans, which notably is occurring in some key jurisdictions, including our home counties of Marin and Sonoma.