The Nature Conservancy
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Ms. Shelby Livingston
Chief, Climate Change Program Planning and Management Branch
California Air Resources Board
Sacramento, CA 95814

Re: Comments from The Nature Conservancy on the Second Three Year Investment Plan

Dear Ms. Livingston:

The Nature Conservancy appreciates the opportunity to submit comments to the California Air Resources Board and the Administration regarding the use of the Greenhouse Gas Reduction Fund for investments in natural and working lands. These comments are a supplement to our recommendations submitted in a separate letter from the Natural and Working Lands Coalition, a partnership between The Nature Conservancy, California ReLeaf, Defenders of Wildlife, Audubon, the Pacific Forest Trust, California Climate and Agricultural Network and Trust for Public Land. Overall, we are pleased with the *Concept Paper for the Cap-and-Trade Auction Proceeds Second Investment Plan* (Concept Paper) and appreciate the acknowledgment that natural and working lands are a key strategy for achieving the State's reduction goals.

Natural resource protection-GHG reduction nexus and California:

The conservation and management of California's natural and working lands (forests, rangelands, wetlands, agricultural lands and urban forests) have a direct impact on climate change and present significant GHG reduction opportunities for state investment. Acting like a sponge, forests and vegetation remove vast amounts of carbon dioxide from the atmosphere and store it as carbon in leaves, branches, tree trunks, roots and soil. Paradoxically, forests, land use change and water distribution are also major sources of global GHG emissions, largely due to human activity. On a global level, deforestation, forest degradation and land use change contribute roughly 15% of overall GHG emissions.[i] In California, a recent published analysis indicates that California's lands in more recent years has been a net source of GHG emissions, totaling over 25 million metric tons of carbon dioxide equivalent annually.[ii]

When forests and other landscapes are disturbed through events like conversion to other uses, poor management and fire, much of the stored carbon is released into the atmosphere as carbon dioxide. As a consequence, the degradation and loss of our forests and other land types to other uses result in direct GHG emissions and often impairs the ongoing carbon sequestration benefits that these landscapes provide, not to mention other public and environmental benefits. Therefore, a key strategy and opportunity for the State is to manage and conserve California's lands so they act as a significant net sink instead of a net source. As recognized in the Governor's Executive Order B-30-15, California will not be able to meet its long-term GHG reduction goals without including GHG reductions from natural and working lands. Furthermore, the conservation of these lands is also critical for building a climate resilient California.

While our recommendations below focus on natural resource protection opportunities for the Investment Plan, we reiterate our support for a plan that includes a suite of environmentally-sound investment opportunities. The investment plan should be a visionary document that is not limited by near-term uncertainties and one that adheres to the guidance identified in the Governor's Executive Order and guiding legislation (i.e., AB 32, SB 535 and AB 1532). We commend CARB on their investment guidance to date ***and urge CARB to develop a second investment plan that will catalyze GHG reductions that: promote climate resilience, are supported by sound science, have consistent accounting methods, and account for other critical public and environmental benefits.***

Investment recommendations:

As mentioned earlier in this document, the following recommendations complement and are in addition to the recommendations submitted in a separate letter by the Natural and Working Lands Coalition.

1) ***GGRF investments should incorporate climate resilience as a critical co-benefit***

   California is already experiencing impacts from climate change and will continue to do so for centuries. Investments should, therefore, give priority to GHG reduction projects that also enhance climate resilience. We recommend adding a new subsection, "I" to Section 3 of the Concept Paper adding an overarching theme of Climate Resilience. Furthermore, we recommend that ARB review proposed expenditures to consider the potential affects from climate change over time to ensure durable reductions. Such consideration is consistent with the direction to state agencies in Executive Order B-30-15 (http://gov.ca.gov/docs/4.1.15_Executive_Order.pdf).

2) ***The State should invest in a local government program for cities and counties to develop and implement integrated GHG plans and strategies that integrate GHG reductions from natural and working lands with reductions in other sectors.***

The Conservancy supports and commends ARB for its focus on integrated GHG reduction strategies in the Concept Paper. Integrated strategies have the capacity to optimize reductions and multiple benefits. Such an approach should be applied to disadvantaged communities and more broadly to all communities across the state.

By investing in integrated local government (or jurisdictional) plans and actions to reduce GHG emissions, the state can enhance the effectiveness of GHG investments by catalyzing reductions in multiple sectors that also have overlapping relationships. For instance the conservation of natural and working lands results in direct GHG reductions through avoided emissions and carbon sequestration. These activities can also help reduce GHG emissions in other sectors (indirect reductions), such as transportation and energy efficiency. Likewise, the conservation of non-urban lands can help constrain urban growth patterns, thereby protecting the carbon sequestration function of the land and also constraining urban emissions related to transportation. In addition, urban forestry and parks can, among other things, reduce energy related emissions by providing shading that reduces the need for air conditioning and encourages the use of active transportation over autos.

While a number of local governments, such as counties and cities, are developing plans and strategies to reduce GHG emissions, many have yet to include natural and working lands as part of their strategy. To optimize these GHG reductions and public benefits across sectors, local governments, like counties and cities, should integrate natural and working lands in their GHG reduction plans. The State should therefore invest in these integrated plans using a "design-build" approach, whereby a portion of the funds could support the integration of natural and working lands in a GHG reduction plan (the design) with significant funds also dedicated to implementation (build) to achieve the reductions identified in the plan. This type of investment advances the "systems approach" identified in the Concept Paper and enhances synergies. It also complements sustainable communities strategies by engaging local governments in a multi-sector GHG strategy.

To ensure that GHG reductions are achieved using these funds, a local government program could require a percent of the "project" funds be deposited into escrow for implementation of activities that will result in GHG reductions. Alternatively, the State could fund these projects in installments, whereby the final installment of funds are not provided until implementation of GHG reduction activities are occurring.

3) *The State should invest in demonstration efforts that seek to reduce GHG emissions from catastrophic wildfire through a holistic GHG accounting framework at a regional scale*

Wildfires have been a natural process shaping Sierra Nevada forests for millennia, and are necessary for maintaining forest health.[iii] However, contemporary fires are re-occurring over much longer intervals than they were historically,[iv] and contemporary forest conditions do not resemble historical conditions in most locations[v] due to a number of factors, including fire exclusion, logging, grazing by domestic livestock, and other management actions.[vi] Climate change is likely to exacerbate the risk and extent of high severity patches caused by wildfire.[vii] High and mixed-severity fire will always be a part of these forests but the risk of high-severity fire needs to be proactively managed, through ecologically based thinning or controlled burns, not only to protect life and property but also to restore the characteristic resilience to wildfire inherent to these forests.[viii] Furthermore, without pro-active management to reduce this uncharacteristic fire risk, the long-term stability of the stored carbon, and GHG reduction capacity of that forest, is uncertain.[ix]

While proactive management can help reduce the risk and severity of fire, *it is difficult to equate this risk reduction with quantifiable GHG reductions.* Much of the debate about forest thinning, fire risk, and its relationship to GHG reductions focuses on GHG baseline assumptions of catastrophic fire and the single activity of thinning/treatment (i.e., but for this forest thinning and associated emissions, the carbon emissions would be even greater). This narrow accounting scope presents some challenges. In many instances, the thinning or controlled burns that are undertaken to reduce fire risk result in net GHG emissions,[x] particularly in the short term, and determining the probability of a catastrophic fire at a particular site or "project scale" complicates the assessment. Some scientific analysis suggests that it *may* be possible to achieve long-term GHG reductions with thinning at a landscape scale in certain circumstances,[xi] but such actions would need to be sustained over time to be effective (Campbell et al. 2011, Earles et al. 2014).[xii]

Given the uncertainties of quantifying GHG reductions associated with thinning and defining baseline assumptions for catastrophic fire at a project scale, the Conservancy recommends that the State invest GGRF funds in demonstration efforts at a larger landscape scale that incorporate the broad suite of actions that impact GHG emissions, including (but not limited to) wildfire and actions to reduce wildfire risk. Specifically, these demonstration efforts should:

1) Be regional in scale (e.g., a jurisdiction, county, group of counties or other region);
2) Establish GHG baseline scenarios that are objective and incorporate historic trends and the suite of human and natural impacts to carbon (i.e., not just fire);
3) Reduce fire risk for the long-term through sustained ecological thinning, managed wildfire, improved land use and other activities;
4) Seek to reduce GHG emissions in the region through a suite of actions, including, but not limited to restoration, conservation, thinning, controlled burning and other changes in land use and management; and
5) Set long-term GHG reduction goals that incorporate objectives to protect and enhance other public benefits, including climate resilience, water quality, habitat for fish and wildlife, biodiversity, recreation and timber production.

By approaching the fire risk reduction and GHG reduction issue through this broader frame, the State may be able to reduce the uncertainty and debate often associated with the catastrophic fire/thinning/GHG reduction conundrum. It may also broaden the policy discussion and set of solutions identified for how to manage and protect the Sierra for its suite of climate and other public benefits.

4) The State should invest in avoided conversion of rangelands as a key GHG reduction strategy for this land type

In California, rangelands include grasslands, oak woodlands, chaparral, and some forested areas, wetlands, and deserts that may be used for grazing.[xiii] Estimates of the extent of the state's rangelands range from 31 to 57 million acres[xiv] depending on the data sources used, the vegetation types considered to be rangeland, and whether land that is not actively grazed is considered to be rangeland. In open grasslands, roughly 90 percent of the carbon in the ecosystem is contained in the soil.[xv] In other types of rangelands, shrubs and trees account for substantial additional carbon storage.

The amount of carbon held in California's rangeland soils varies widely: A 2010 review of rangeland soil carbon data from several locations around the state found an average of 134 tCO2e per acre in the top 50 centimeters (~20 inches) of soil in grassland ecosystems, with a range of 42 to 446 tCO2e. Grasslands that support shrubs and trees tended to have higher levels of soil carbon than open grasslands, and also hold additional carbon in woody biomass.[xvi] In addition to providing forage for livestock, working rangelands also provide a number of other benefits, including water capture and filtration, recreation, and habitat for over half the state's sensitive and listed species, notably including pollinators.[xvii]

When rangelands are converted to urban or agricultural uses, the disturbance results in emissions of carbon dioxide. Studies of conversions to cropland have found that 30 to 60 percent of the carbon stored in the soil is lost to the atmosphere.[xviii] Analysis conducted by the Conservancy, indicates that annual conversion of rangelands to croplands is approximately 9,200 acres annually resulting in annual emissions of roughly 492,000 tons of carbon dioxide.[xix] For an interactive map of converted rangelands, visit: http://tnc.maps.arcgis.com/apps/Viewer/index.html?appid=4f5b658dea924b5c8bd9340142a4f033

A useful tool to reduce conversion of rangelands and associated GHG emissions is conservation easements, as this voluntary legal agreement removes development rights and can conserve the land (and associated benefits) in perpetuity. A number of institutions across the State could administer funds from the GGRF for conservation easements, including the Wildlife Conservation Board and the Department of Conservation through the Sustainable Agricultural Lands Program, among others.

5) ***The State should invest in a Delta-wide GHG baseline and farm scale demonstration projects to reduce GHG reductions through changes in management and restoration.***

Wetland restoration efforts and changes in management in the Sacramento-San Joaquin Delta can provide significant opportunities to reduce methane and carbon dioxide emissions while also sequestering additional carbon dioxide from the atmosphere. Recent estimates suggest that management practices in the Delta and resulting subsidence contributes anywhere from 1% to 3% of the State's GHG emissions.[xx] Changes in management and restoration in key areas of the Delta will not only reduce these emissions, but also result in substantial carbon sequestration gains. Such efforts can also help maintain the local economy, reduce land subsidence and risk of floods, buffer the Delta from sea level rise, protect water quality and provide wildlife habitat – effectively addressing both mitigation and climate resilience concurrently.[xxi]

Priority investments to achieve climate benefits in the Delta should include the funding of several farm-scale demonstration projects and a Delta-wide GHG baseline that will provide a foundation to leverage participation from other farmers in GHG reduction activities and a basic GHG accounting framework to monitor reductions over time. Investment of auction proceeds for these purposes would also leverage additional funds from other sources that will broaden the scope of the impact.

6) ***The Conservancy supports the proposed needs assessment in the Concept Paper to identify the range of opportunities for reducing emissions and sequestering carbon from natural and working lands***

To enhance strategic investments in GHG reductions across natural and working lands and optimize climate resilience and other public benefits, the State should undertake a needs assessment. This assessment should include the development of a statewide GHG baseline scenario for natural and working lands, as well as spatial assessment across state to identify opportunities for avoiding emissions and increasing carbon sequestration. This would enable the State to identify the greatest need or opportunities for GHG reductions in a systematic and cohesive manner. The spatial assessment would also provide the basis for layering other data that could inform strategic investments that not only reduce emissions, but also enhance climate resilience, water and air quality, habitat and recreation, among other benefits.

Conclusion:

We commend CARB and other state agencies for its ongoing leadership to address climate change and recognition of the vital role natural and working lands must play in any climate change solution. There is significant opportunity for innovation in this sector that will not only reduce emissions and promote climate resilience in a manner that enhances the quality of life for the California community (for more information, please see http://bit.ly/17BEMAD). We appreciate your consideration and look forward to working with you to support this effort. If you have any questions, please contact Michelle Passero, MPassero@tnc.org.

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