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California Air Resources Board
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Re: Comments on January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan

On behalf of UCLA's Sustainable LA Grand Challenge, we appreciate the opportunity to review and provide comments on the January 2019 Draft California 2030 Natural and Working Lands Climate Change Implementation Plan. The Sustainable LA Grand Challenge is a Chancellor supported initiative that is completing the research and developing the technologies, policies, and comprehensive strategies to transition the County of Los Angeles to 100 percent renewable energy, 100 percent local water, and enhanced ecosystem health by 2050. We have over 200 experts in climate change, renewable energy, hydrology, conservation biology, transportation, air quality, environmental justice and more that represent over 40 departments at UCLA helping to facilitate LA County's sustainable transformation.

As a premier research institute located within California's Floristic Province, one of only 33 global biodiversity hotspots, we are invested in preserving and enhancing the ecological resources in our state. We are enthusiastic about the projects this plan proposes and the potential impact they may have on California's native ecosystems. Specifically, we were encouraged to see the emphasis on conservation of land to help maintain carbon sinks within California's land base and provide habitat for wildlife. We also appreciate the emphasis on improved forest health and reduced wildfire severity after experiencing one of California's and the LA region's most destructive fire seasons in history over the last year and a half. Finally, we are very supportive of increasing resource allocation to restoration and reforestation programs that help enhance the ecological and climate benefits lost by previous land conversion projects. Some of our region's most critical ecological habitats have been decimated to such extreme levels that restoration is the only way that we can ever expect to benefit from the ecological services that these habitats provide. In particular, the emphasis on riparian, oak woodland, wetland, seagrass, chaparral and shrubland ecosystems are of special importance to our region. We are confident that if the latest scientific knowledge is used to develop restoration ecology approaches that will optimize climate resilience and

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biodiversity, while reducing catastrophic habitat losses from fire, mudslides, erosion and flooding, all 3 goals can be optimized.

However, the current Draft California 2030 Natural and Working Lands Climate Change Implementation Plan has several shortcomings with respect to urban forestry and urban greening that should be addressed for the plan to be sustainably implemented. Although urban forests and urban greening have the potential to provide a multitude of benefits as described in the plan, these benefits are only achieved through management efforts based on best practices derived from extensive research. Unfortunately, all too often such plans are put into place with good intention, but because a lack of strategic planning, sufficient training, and adequate allocation of resources, they fall short of meeting their intended goals. The City of Los Angeles experienced this first hand with the Million Trees Initiative. This initiative attempted to address the city's lack of urban tree canopy, but was unable to succeed because its focus was on maximizing tree plantings without accounting for the associated maintenance costs or trying to optimize the plantings to maximize benefits such as shade, climate resilience, runoff infiltration, water demand, and habitat value. Not only do these programs not achieve the intended goals, research has proven that they can sometimes even have unintended environmental consequences[1].

To avoid these environmental harms, the urban tree inventory should be climate appropriate, largely native, low maintenance and have low volatile organic compound (VOC) emissions[1]. A healthy urban forest that is effectively managed can have multiple co-benefits - providing shade for pedestrians and bicyclists, providing habitat to increase biodiversity, enhancing neighborhood beautification, filtering air and improving health and human well-being. However, an urban forest is not nearly as effective as protecting and managing natural lands to "maximize" carbon sequestration[1]. There is little sequestration benefit for a high maintenance landscape in the urban environment and thus investing in reforestation and habitat restoration efforts in natural lands that can grow over long timescales to reach their full sequestration potential with little to no maintenance after establishment is a far more effective way to increase carbon sequestration in biomass.

Finally, while ecological restoration is a critical component of this plan, the implementation, monitoring and verification components are missing key details on how these ecological goals will be met. Ecological systems across California are not regularly monitored, and therefore measuring how ecological systems have become "more adapted to climatic changes" is difficult and imprecise. Although there is an acknowledgement that part of this plan needs to provide funding for research to fill those data gaps, the

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[1]Popkin, G. "How much can forests fight climate change?." (2019): 280-282. https://www.nature.com/articles/d41586-019-00122-z

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moving forward section states clearly that "research teams selected for funding will explore topics as varied as developing tools for resilient forest management, sustainable use of biomass, improving carbon sequestration on farmlands and advancing more efficient cooling technologies in low-income and disadvantaged communities." Unfortunately, this does not provide an opportunity for ecological research to apply for funding through this initiative and thus ensures that many of the data gaps that exist today will remain into the future.

Beyond climate mitigation, building in resiliency is crucial to the success of this plan. This plan must use modern tools for assessment such as remote sensing of landscapes, conservation genomics for species management and climate modeling. These tools are developing rapidly and will ensure the efficacy of measuring how ecological systems have become more adapted to climate changes.

The goals of this plan are innovative, progressive and visionary. We support the integrated approach to managing and monitoring these critical ecosystems and we believe that this plan has great potential to mitigate some of the impacts of climate change and preserve some of the most valuable resources in our State. However, we believe that to make this plan most effective, it must take into account current research recommendations based on quantified analyses of ecosystem services.

Thank you for the opportunity to participate in this process. We hope we can continue to give constructive feedback to make this plan as effective as possible. We would greatly appreciate the opportunity to organize a meeting between this project's organizers and our researchers to discuss best management practices and the most cutting-edge monitoring tools supported by science. Please do not hesitate to reach out if you have any additional questions.

Thank you again for your consideration of these comments.

Sincerely,

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