FIBERSHED

December 10, 2018

Dear California Natural and Working Lands Climate Change Implementation Plan Team,

Thank you for the opportunity to comment on the most recent public workshop regarding the development of California's Natural and Working Lands Climate Change Implementation Plan. This presentation underscored the high priority that must be given to fuel load reduction to mitigate the risks and impacts of wildfire throughout the state for GHG emissions reductions. Your presentation noted consideration of a suite of fuel load reduction practices, including forest thinning, prescribed burns and understory treatment. Another management strategy we urge you to incorporate into your research, planning and protocols is prescribed herbivory, or prescriptive grazing for fuel load reduction.[1][2]

Management of grazing animals to accomplish targeted landscape goals including fuel load reduction is a practice with growing interest among private and public land managers in California. Watershed managers and public agencies in the San Francisco Bay Area are already incorporating protocols for fuel load reduction using animal herbivory, including cattle grazing in grasslands; and goats and sheep to manage grasslands, coastal scrub, chaparral, evergreen forests and oak woodlands. Prescribed grazing in perennial cropping systems, rangelands and silvopasture can offer fire prevention and mitigation benefits within these ecosystems as well. These practices have the potential to provide a range of co-benefits including control of invasive species, production of food and fiber, improved plant and animal habitat/ecosystem function, improved soil water holding capacity and increased soil organic matter/carbon sequestration.

Fibershed is a nonprofit organization representing a producer membership with over 80 fiber producers in Northern and Central California who manage more than 75,000 acres of private land. Our membership includes producers who are developing successful contract grazing operations at a large (up to 10,000 acres), medium (several hundred acres), and small (under 50

[1] Nader, G., Henkin, Z., Smith, E., Ingram, R., and Narvaez, N. 2007. Planned Herbivory in the Management of Wildfire Fuels. *Rangelands* 29(5):18-24.
[2] Burrows, B., Bush, B.C., Conway, K. 2015. *Prescribed Herbivory for Vegetation Management Projects*. CA Board of Forestry and Fire Protection.

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acres) scale, to effectively address land management and fuel load reduction needs across varied land use types.

As an alternative or used in combination with other methods of fuel load reduction, prescribed herbivory has the potential to lower the inherent GHG footprint of essential fire load management activities. Introducing effectively managed grazing animals into an ecosystem can transform standing biomass into a fully digested source of fertility and stimulate productivity, leading to significant gains in soil organic carbon, including gains to stable, long-term pools of soil carbon.[3] Soil carbon gains from adaptively managed grazing systems can exceed the GHG emissions associated with production systems and animal enteric fermentation, creating a net carbon sink.[4][5] Emerging agroecological research in integrated livestock systems with prescriptive grazing plans, including current research at UC Davis in the lab of Dr. Amelie Gaudin, will add much needed data to our understanding of the capacity for soil carbon sequestration in prescriptively grazed landscapes in comparison to landscapes with mechanical or chemical management of biomass.

In order to realize the potential of prescriptive grazing as an effective fuel load and land management strategy statewide, there is a need to support research into existing and new models for implementation; provide education for public and private land managers about best practices and networking opportunities with existing contract graziers; develop and offer technical assistance for prescribed herbivory; and cultivate support for infrastructure and capacity among existing and new/emerging contract graziers in the state. We encourage you to build upon and expand the current models that are emerging among both public agencies and private landowners, and to explore existing resources such as the 2015 document produced by the Range Management Advisory Committee (RMAC) to provide assistance in implementing prescribed herbivory projects by CAL FIRE's Vegetation Management Program (VMP.)[6] We hope that you will open dialogue among land managers and grazing practitioners to identify current barriers and needs for expanding the land area that can be effectively managed using these practices, and also engage with research that is pointing to the potential to achieve multiple

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[3] Gaudin, A. Integration of Crops and Animals for Soil Carbon, Presentation to Fibershed Wool and Fine Fiber Symposium, Point Reyes Station, CA: November 10, 2018. https://www.fibershed.com/programs/education/symposia-presentations/2018-wool-fine-fiber-symposium/

[4] Stanley, P., Rowntree, J.E., Beedea,D.K., DeLonge, M.S., Hamm, M.W. 2018. Impacts of soil carbon sequestration on life cycle greenhouse gas emissions in Midwestern USA beef finishing systems. Agricultural Systems (162): 249-258

[5] Teague, W.R., Apfelbaum, S., Lal, R., Kreuter, U.P., Rowntree, J., Davies, C.A., Conser, R., Rasmussen, M., Hatfield, J., Wang, T., Wang, and Byck, P., The role of ruminants in reducing agriculture's carbon footprint in North America. *Journal of Soil and Water Conservation* 71 (2): 156-164

[6] Burrows, B., Bush, B.C., Conway, K. 2015. *Prescribed Herbivory for Vegetation Management Projects*. CA Board of Forestry and Fire Protection.

benefits while addressing critical needs for fuel load reduction and carbon sequestration. We look forward to further dialogue with you on this topic.

Sincerely,

Rebecca Burgess
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