QUANTITATIVE & SYSTEMS BIOLOGY COLLOQUIUM:

GRASS-Net: Connecting restoration practitioners to support restoration outcomes in maximizing biodiversity and climate resiliency

Justin Luong

UC Berkeley

Date:

11/6/2025

Time:

10:30 AM - 11:45 AM

Location:
SSB 130

About the Speaker:

Justin Luong is an Assistant Professor of Working Lands and Restoration Ecology at UC Berkeley in the Environmental Science, Policy and Management Department. He studies rangeland ecosystem responses to climate change, species invasions and conservation management with interdisciplinary methods that combine field, greenhouse and social science approaches. His work focuses on biodiversity, endangered species conservation, grazing management, functional traits, restorative agrivoltaics, bridging the science-practice gap and plant communities and restoration projects responses to climate stressors and varying land management practices. His research program has a strong focus on undergraduate training and research, and in supporting marginalized identities. Luong is a principal investigator of the Grassland Restoration Action, Science and Stewardship Network (GRASS-Net) that works to connect grassland restoration practitioners across California to assist in coordinating restoration practices, plant selection, resource sharing, climate-readiness, use of important cultural plant species and to scale further scale up the application and success of grassland restoration in California.

Abstract:

The need for ecological restoration grows as remnant habitats are lost over time due to climate change and land use change. Efforts to restore grasslands have been effective by increasing native and limiting non-native species cover. However, to reduce project risks and increase restoration success, practitioners typically use the same six species across the state even though California is a biodiversity hot spot with high rates of endemism. Selective plantings could potentially contribute to regional biotic homogenization. Climate change will further complicate restoration efforts that result in selective planting for climate-tolerant species. To support California Grassland restoration efforts, we are developing the California Grassland Research, Action, Science and Stewardship Network (GRASS-Net), designed to connect restoration practitioners across the state. GRASS-Net will provide support for practitioners as a forum to discuss successful and context-specific management practices that help maximize local success; similarly, the network will help coordinate species selection across multiple agencies to allow risk-sharing and testing restoration of uncharacterized species diversity. An additional goal of GRASS-Net is to create drought-ready restoration plant selection models that can help optimize restoration under changing climates while diversifying species selection. To form the network and these tools, we are taking an interdisciplinary approach that includes social science surveys and semi-structured interviews with restoration practitioners, a field characterization study linking plant communities and plant traits to varying environmental site conditions, and a greenhouse study that evaluates the relationship between common and easy-to-measure plant traits and a lethal drought index (the soil moisture level where 50% of a plant population experiences mortality). We are piloting our network and tools with practitioners from Tribal Nations, federal, state and local government agencies, non-profits, consultants and university-restoration organizations and will open the network widely for participation in late 2025.

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