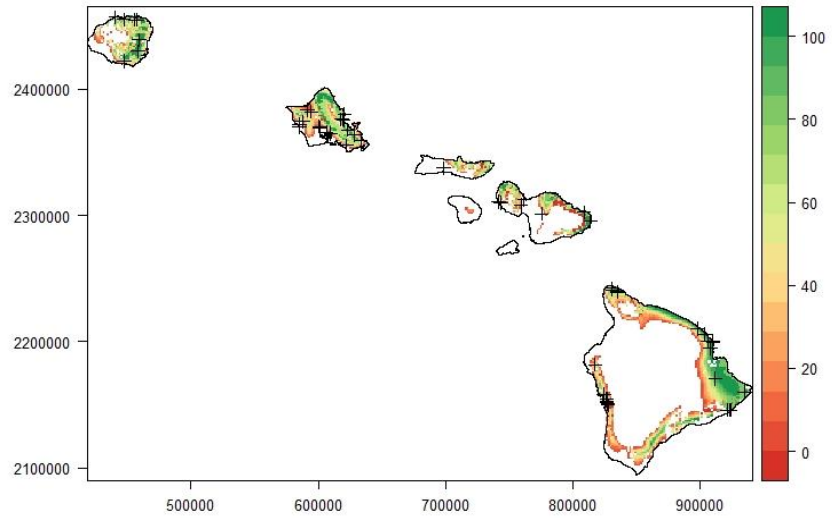


Title: Growing Global Potential of the Indigenous Crop, Breadfruit, under Climate Change Scenarios

Speaker and Bio: Kalisi Mausio, PhD Student, Indigenous Cropping Systems Lab, Tropical Plant and Soil Sciences Department, UH Manoa

Kalisi is currently a Ph.D. student in the Indigenous Cropping Systems Lab in the Tropical Plant and Soil Sciences Department at UH Manoa. Her work is focused on modelling indigenous food crops and their responses to present and future climate and environmental conditions. She also owns and manages an educational agroforest farm on Hawai'i Island focused on sharing knowledge and experiences on Polynesian food and art crops. She was previously at NOAA's Office for Coastal Management where she worked in spatial data management and analysis that supported coastal management issues ranging from watershed restoration, to coastal hazards and climate resilience and adaptation. Kalisi received her M.S. in Tropical Conservation Biology and Environmental Science from the University of Hawaii, Hilo where her research focused on the spatial elements driving herbivorous fish and benthic interactions. Her B.A. in Geology and Environmental Studies was received from Bowdoin College in Maine. She was born and raised in the Kingdom of Tonga.

Abstract: Humanity faces significant challenges to agriculture and human nutrition, and changes in climate are predicted to make such challenges greater in the future. Neglected and underutilized crops may play a role in mitigating and addressing such challenges. Breadfruit is a long-lived tree crop that is a nutritious, carbohydrate-rich staple and is a priority crop in this regard. A fuzzy-set modeling approach was applied and refined for breadfruit to determine its future habitat suitability. Hawai'i was used as a model system, with over 1,200 naturalized trees utilized to calibrate a habitat suitability model and 56 producer sites used to validate the model. The parameters were then applied globally on 17 global climate models at the RCP 4.5 and RCP 8.5 global climate projections for 2070. Overall, breadfruit suitability increases in area and in quality, with larger increases occurring in the RCP 8.5 projections. Current producing regions largely remain unchanged in both projections, indicating relative stability of production potential. Breadfruit, and other tropical indigenous food crops present strong opportunities for cultivation and food security risk management strategies moving forward.



Caption: Suitability of breadfruit in Hawai'i, with scores ranging from 0 (white, cannot cultivate) to green (100, ideal cultivation) based on 5 climate and soil parameters. Validation sites are marked by the black crosshairs.

