INVASION’S PROS AND CONS: THE IMPORTANCE OF NON-NATIVE INSECTS AS POLLINATORS IN A TRANSFORMED HAWAIIAN DRYLAND ECOSYSTEM

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DATE: Wednesday, October 9th, 2019

TIME: 3:00-4:00 pm

LOCATION: ENR2, S107

ABSTRACT: Non-native species invasions can disrupt pollination services and result in negative impacts on native plant reproduction and genetic diversity. Such impacts are particularly acute for oceanic islands, which are well known for high endemism and unique biological diversity, but also particularly susceptible to invasions. Non-native invasive predators consume animal pollinators and can reduce pollinator populations, possibly eliminating entire pollinator guilds. We examined the impacts of NIPs on pollination and native plant reproduction in a tropical dryland ecosystem in Hawaiʻi. We combined field observation, experimental manipulation, and laboratory analysis to examine interactions between eight focal native plants (endangered and common), insect pollinators (native and non-native), and non-native predators. We showed that flower visitation to focal plant species is performed mainly by non-native insect species, and that there may be differences in pollination dynamics between endangered and common plant species. Non-native predators in our system—specifically ants, rodents, and yellowjacket wasps—have been shown to consume insect groups that include important pollinators. We suppressed non-native predators in treatment plots, and found spatial and temporal variability in suppression efficacy for each focal predator species. We found that non-native predators affect pollinator-plant interactions both negatively and positively, but most effects are negative, with particularly strong impacts from ants and rats. Results from this study can aid land managers in determining whether to control non-native predators in order to manage for pollination services and native plant reproduction.