
Initial seabird response to an on-going rat eradication project on Lehua islet, Hawaii (USA)

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Abstract

Lehua Islet is a Bird Sanctuary situated 19 miles off the coast of Kauai. Considered the most important seabird islet in the main Hawaiian Islands, Lehua has nine confirmed breeding seabird species including the only U.S. breeding population of Black-footed Albatross *Phoebastria nigripes* outside of the north-western Hawaiian Islands and a breeding population of the endangered Band-rumped Storm-petrel *Oceanodroma castro*. However, seabirds on the islet have been heavily impacted by the introduced Polynesian Rat *Rattus exulans*, which have also prevented native plant restoration efforts. In 2017 an ambitious multi-partner project was initiated to eradicate rats off Lehua, using aerial drops of the anti-coagulant rodenticide Diphacinone. To assess the impact of this island restoration effort, we present data on rat prevalence and seabird response by the end of 2018 using multiple techniques including burrow cameras, seabird plots, burrow monitoring and acoustic recording devices. Remote cameras indicate that a small number of rats are still present indicating that total eradication may not have been achieved. Despite this, the rat population has been dramatically suppressed and seabird response to this is considered in terms of estimated population sizes, reproductive success rates and breeding distribution for multiple species. In particular, the smaller seabird species appear to have benefited the most from the eradication effort, with the number of breeding Bulwer's Petrel *Bulweria bulwerii* burrows and their respective reproductive success being significantly higher in 2018 than previously. With these results in mind, we discuss possible directions for the Lehua Islet Restoration Project in 2019 and beyond.

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