
Race against time: research and conservation efforts to save Kauai's endangered song birds

Lisa Crampton*¹

¹Division of Forestry and Wildlife (DOFAW) – Hanapepe, HI, United States

Abstract

The Hawaiian Islands are facing an extinction crisis. On Kauai Island, five songbird species disappeared in the last 50 years. Three critically endangered species number Culex mosquitoes, an important disease vector. Thus, we used LiDAR (Light Detection And Ranging) imagery and automated recording devices (ARD) to produce habitat suitability maps to spatially target conservation actions on a landscape scale on Kauai. Using detections and nest locations of endangered Akikiki and Akekee from 2012-2017, we identified LiDAR-derived attributes associated with presence and nest sites. Both species nested in areas where mean canopy height was ~ 10 m. Presence was most strongly associated with canopy height, elevation, and slope. To groundtruth habitat maps, in 2017-8, we deployed ARDs on 12 transects for 2-4 week periods and conducted Variable Circular Point Counts and area surveys to determine distribution and densities of forest birds and find nests. Using these approaches, we located unknown concentrations of all three endangered forest bird species of Kauai that we can target for protection. Simultaneously, we founded conservation breeding populations of Akikiki and Akekee by collecting eggs and transferring them to breeding facilities. Akikiki currently number 46 individuals in captivity and have started breeding; Akekee number 10 birds. We have deployed 425 self-resetting rat traps at two sites to protect crucial nesting habitat from predation, resulting in a 4-fold decrease in rat abundance. Partner agencies have fenced hundreds of hectares of habitat to avert ungulate damage. Furthermore, we are investigating *Culex* distribution and demography at two sites. As we find *Culex* larvae, we control them locally with Bti; more importantly, distributional and demographic data will inform landscape control using sterile *Culex* in the near future. Collectively these actions hold the promise of saving Kauai's birds from extinction. We discuss lessons learned that may be valuable to those faced with similar situations.

Keywords: endangered, habitat suitability modeling, Hawaii, honeycreeper, predator control

*Speaker