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HAWAIIAN FOREST BIRDS: THE PAST, PRESENT AND FUTURE STATUS OF AN ENDANGERED AVIFAUNA

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The Hawaiian forest birds are among the most endangered avifauna of the world. Entire bird groups have disappeared from the Hawaiian Islands, and of the more than fifty, historically-known species of Hawaiian honeycreeper, only 17 remain. Due to the extreme geographical isolation, few birds colonized the Hawaiian Islands but, released from direct competition, predation, and disease, these founders flourished and evolved amid the heterogeneous geography of the archipelago. This process of colonization and speciation is best characterized by the honeycreepers; the largest radiation of endemic forest birds in the Hawaiian Islands, or for that matter, birds on any oceanic archipelago. But this remarkable avifauna has suffered great losses since the arrival of humankind. Extinctions and population declines began with the inadvertent introduction of predatory rats, overharvesting of flightless species and destruction of lowland forest by Polynesians. Habitat destruction and degradation and predation accelerated with the arrival of Westerners and their domestic animals and pests, leading to more extinction and increasing rates of population decline. The introduction of mosquito vectors, avian disease pathogens, and vertebrate and invertebrate competitors led to the displacement of many native bird species from lowland forests. Today, on protected lands, there are apparently stable populations of only a handful of the remaining species. However, habitat degradation, predation, disease and food web disruption by invasive hymenoptera continue to impact critical populations. Additionally, climate change will likely increase habitat degradation, disease, and food web disruption further restricting remaining populations to smaller and more dispersed refuges. Although the fate of Hawaiian forest birds appears bleak, there are reasons for hope. Some

populations of Hawaii amakihi have evolved tolerance to avian malaria and are burgeoning in the once quieted lowland forests. Captive breeding and release programs have prevented the extinction of at least two species and consortiums of managed conservation lands increase the extent and suitability of remaining forest bird habitat.