

ABSTRACT

A survey for forest birds was conducted in Kalaupapa National Historical Park in 2005 to determine presence-absence and abundance. Forest bird surveys were conducted using the variable circular plot method. Survey stations were established 140 m apart along six transects of variable length. Stations were surveyed for birds from March – May 2005. Also included in the analysis are data from a Hawaii Forest Bird Survey in 2004 for two transects located in the park. Of the nine native species that once inhabited the island, only three remain: We detected the Apapane (*Himatione sanguinea*), Iiwi (*Vestiaria coccinea*) and Maui Amakihi (*Hemignathus virens wilsoni*). As on other islands, Molokai now supports a number of non-native birds including: the Barn Owl (*Tyto alba*), Black Francolin (*Francolinus francolinus*), Common Myna (*Acridotheres tristis*), House Finch (*Carpodacus mexicanus*), Japanese Bush-warbler (*Cettia diphone*), Japanese White-eye (*Zosterops japonicus*), Northern Cardinal (*Cardinalis cardinalis*), Nutmeg Mannikin (*Lonchura punctulata*), Red-billed Leiothrix (*Leiothrix lutea*), Skylark (*Alauda arvensis*), Spotted Dove (*Streptopelia chinensis*), and White-rumped Shama (*Copsychus malabaricus*). The results from the survey will be used to develop comprehensive monitoring and management plans for avian species in Kalaupapa National Historical Park.

INTRODUCTION

Most of Molokai's native birds have been extirpated or are extinct. Habitat destruction, introduced predators, and avian disease have been identified as leading causes for population declines and extinctions across the Hawaiian Islands and these factors certainly contributed to the demise of Molokai's native birds (Ralph and van Riper 1985). Historically, nine native species inhabited Molokai, yet within the last 20 years, only three species have been detected (Reynolds and Snetsinger 2001). In order to develop comprehensive monitoring and management plans for avian species, it is necessary to first determine which species are extant in Kalaupapa National Historical Park (KALA).

Bishop's Oo (*Moho bishopi*) is endemic to Molokai, and was last recorded there in 1904, though there were unconfirmed reports into the 1980s (Gorresen et al. in press; USFWS 2006). Once common and widespread in the main Hawaiian Island, the Ou (*Psittirostra psittacea*) was extirpated from Molokai by the early 1900s, as was the Akohekohe (*Palmeria dolei*; Gorresen et al. in press). On Molokai, the Akohekohe was once found at 1,200 m on the high forested plateau between Wailau and Pelekunu valleys (USFWS 2006). The Black Mamo (*Drepanis funerea*) has not been sighted since 1907, and is considered extinct (Scott and Kepler 1985). Kakawaihe (*Paroreomyza flammea*), or Molokai Creeper, common in the early 1900s at high and low elevations, was last seen in 1963 in the Puu Alii Natural Area Reserve (NAR) area (Pekelo 1963). The Olomao (*Myadestes lanaiensis*), or Molokai Thrush, was abundant into the early 1900s (Perkins 1903), but populations began declining by 1930 (Munro 1944). Three Hawaii Forest Bird Survey (HFBS) sightings were recorded in The Nature Conservancy's (TNC) Kamakou Preserve, adjacent to Puu Alii NAR in 1980 (Scott et al. 1986). These were the last well documented sightings of the Olomao. The native forests of Puu Alii NAR, upper Waihanau, and Hanalilolilo possess the best possible remaining habitat for these species.

Here we present the results of surveys that were conducted in these areas, along with all forested lands under jurisdiction of Kalaupapa National Historical Park (KALA). Maui Amakihi (*Hemignathus virens wilsoni*) and Apapane (*Himatione sanguinea*) are extant in higher-elevation native forest. Based on the HFBS conducted on Molokai in 1979, the Amakihi population is estimated at approximately 2,000 individuals, whereas Apapane is estimated at about 39,000 individuals (Scott et al. 1986). Recent detections at low elevation (<250 m) may indicate that some individuals are surviving infection and acquiring immunity to avian malaria (Atkinson and LaPointe in review). Iiwi (*Vestiaria coccinea*) are rarely seen on Molokai, but have been sighted in the native forest of Puu Alii NAR as reported by Aruch (2006). The most recent surveys conducted on Molokai, in 1988 and 1995, detected only two and one birds, respectively (Reynolds and Snetsinger 2001; Gorresen et al. in press). The objective of this inventory was to determine species presence-absence and abundance in KALA. Although portions of KALA have been surveyed for forest birds, a comprehensive survey has not been conducted in the park before. The data from this survey will be used to make recommendations and provide baseline information for future inventories and for the development of comprehensive monitoring and management plans for avian species.

Habitat Description

Located on the island of Molokai, KALA is 4,553 ha in size and encompasses Kalawao County (Fig. 1). This county includes the Kalaupapa peninsula and settlement of the same name, adjacent cliffs and valleys, and submerged lands and water out to one-quarter mile from shore. The park's terrestrial landscape consists of wet and mesic forest, dryland forest and coastal lowlands. The wet and mesic forests range from intact native forests dominated by ohia (*Metrosideros polymorpha*) and tree ferns at high elevation, to non-native dominated java plum (*Syzygium cumini*) and guava (*Psidium cattleianum*) forest in the lowlands. These non-native forest types typically have dense understories, with Christmasberry (*Schinus terebinthifolius*) in the valleys and lantana (*Lantana camara*) thickets on the peninsula. The ground cover within high elevation native forests consists of native ferns, herbs and grasses with scattered non-native vegetation. Dryland forest is less densely vegetated than wet and mesic forests, and usually is dominated by non-native plants.



Figure 1. Aerial photo of Kalaupapa Peninsula looking eastward, Kalaupapa National Historical Park, 2005.