



Landbirds Monitoring

Network Parks Where Resource Is Monitored

- Haleakalā National Park (HALE)
- Hawai'i Volcanoes National Park (HAVO)
- National Park of American Samoa (NPSA)

Importance: Ecological Driver and Indicators

Birds are the principal, and sometimes only, native terrestrial vertebrates on islands. Largely free from factors that limit bird populations on continents, the Pacific Islands were originally bird havens. Two characteristics of island bird communities are: (a) population densities are often higher than on continents, and (b) island birds have lost some defenses to agents that would otherwise exploit them. Furthermore, from their position at or near the top of the terrestrial food chain, birds more strongly influence ecological processes on islands than on continents as consumers, pollinators, and seed vectors. Lastly, with enough time, bird populations marooned on islands inevitably evolve. Consequently, island birds are composed overwhelmingly of endemic species. Since humans started settling Pacific Islands and introduced alien species, the biota of islands continues to become more continental in composition, invariably to the detriment of native birds. However, hope remains for Pacific Island birds where they can escape alien threats, be assisted by management of ecosystems, or can ultimately adapt to novel pressures.

Long-Term Monitoring

There is an extensive legacy of surveying terrestrial birds, collectively known as "landbirds," in Hawaii and the South and West Pacific. These surveys have used distance-sampling methods, allowing for estimating actual densities and abundances, and for tracking trends and species composition patterns. Surveys of native and non-native landbirds will occur during peak vocalization periods using point-transect sampling methods. In addition, habitat measurements will be taken at bird sampling stations. The collection of habitat data and co-location (simultaneous gathering of data for multiple monitoring protocols) will tie bird status and trends into vegetation and landscape monitoring. This will provide valuable information for policy decisions by park management.

Monitoring Objectives

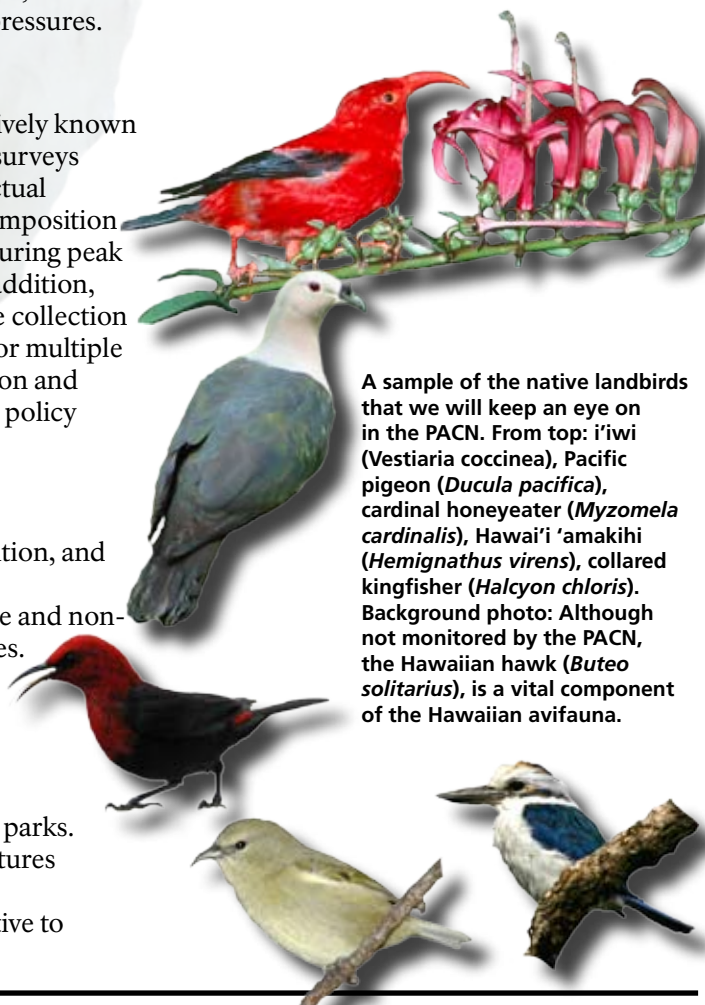
- Determine long-term trends in species composition, distribution, and density of native and non-native forest landbird species.
- Monitor changes in species composition and density of native and non-native forest landbird species relative to management activities.

Management Applications

- Document trends in landbird species composition and distribution within the parks.
- Quantify long-term trends in landbird abundance within the parks.
- Identify trends in landbird populations relative to habitat features and change.
- Assess changes in landbird composition and abundance relative to management activities.



Example potential location of landbird sampling stations within NPSA (Ta'u island). Transects are traversed on foot, and distances to all birds observed at sampling stations are recorded. Legacy (fixed historical) stations (") are sampled on each survey occasion, whereas randomly chosen stations (%) will change.



A sample of the native landbirds that we will keep an eye on in the PACN. From top: i'iwi (*Vestiaria coccinea*), Pacific pigeon (*Ducula pacifica*), cardinal honeyeater (*Myzomela cardinalis*), Hawai'i 'amakihi (*Hemignathus virens*), collared kingfisher (*Halcyon chloris*). Background photo: Although not monitored by the PACN, the Hawaiian hawk (*Buteo solitarius*), is a vital component of the Hawaiian avifauna.