

Forest Birds in Hawai‘i: Background Information

Cultural connections:

The historical appreciation and respect for native forest birds within Hawai‘i has been emphasized over time. Nobility and chiefs in the past adorned their cloaks with bird feathers to signify status. “Hawaiian featherwork has exemplified the rich tradition of birds within the highest expressions of our culture,” states Dr. Samuel M. ‘Ohukani‘ōhi‘a Gon III, Senior Scientist and Cultural Advisor for The Nature Conservancy of Hawai‘i. “From scarlet ‘i‘iwi to deep green ‘ō‘ū, these birds have embodied the sacredness of the gods and high chiefs within some of our most significant cultural forms.” The birds have also been the focus of Hawaiian mythology, filling legends with their wisdom and strength.

Today, forest birds serve as a valuable part of Hawai‘i’s tourism culture. Many tourists look forward to taking part in bird-watching tours or even simply catching a glimpse of the brightly colored feathers in the forest. Hawai‘i’s forest birds are unique to the islands and emblematic of the spectacular and fragile ecosystem found here.



‘Amakihi (James Brennan, Flickr)

Threats to forest birds:

Hawai‘i’s forest birds have dwindled in numbers for over a hundred years due to habitat loss, invasive species, disease, and predators. The birds that have survived have been mostly constrained to higher elevations filled with native forest. Now, these at-risk, threatened birds are projected to suffer significant impacts from climate change.

Global climate change is driving up temperatures in Hawai‘i, allowing mosquitos into prime high elevation areas. These mosquitos carry diseases like avian malaria that are deadly to forest birds. For some birds in the Hawaiian Islands, no safe haven is projected to remain by the end of the 21st century.

What the study reveals:

Scientists from the Pacific Islands Climate Change Cooperative (PICCC), U.S. Geological Survey, and the U.S. Fish and Wildlife Service collaborated to understand just how future projected climate will impact native bird species. To do that, they first developed models that revealed how the birds are currently restricted to only a portion of available forested habitat due to climate-related factors. Using this relationship between climate and distributions, when future climate scenarios were considered, the climate-based ranges of 20 remaining native forest bird species were found to be extremely constrained. More specifically, the researchers concluded that nine of the 10 species with the most confident model results may lose 75% or more of their range. These include the rarest of the remaining forest bird species.

Three endemic species from Kaua‘i, ‘Akeke‘e, ‘Akikiki, and Puaiohi, are projected to experience complete loss in climate-based range. Three additional species from other islands - Hawai‘i ‘Ākepa, ‘Ākohekohe, and Maui Parrotbill - are expected to lose more than 90 percent of their climate-based range. Projected range loss was smaller for the most common species, but their models require further refinements.