

Forest Birds

'Alala

Corvus hawaiiensis

SPECIES STATUS:

Federally listed as Endangered

State listed as Endangered

State recognized as endemic

Hawaii Natural Heritage Ranking G1-Critically imperiled

SPECIES INFORMATION: 'Alala, or Hawaiian crow, is the only extant member of the crow family in Hawai'i. Like other crows, 'alala are raucous, gregarious and vocal. Primary diet items include native and introduced fruits, invertebrates, and eggs and nestlings of other forest birds. Nectar, flowers and carrion are sometimes eaten as well. Pairs are monogamous and have long-term pair bonds, though extra-pair copulations have been observed. Nests are predominantly in 'ohi'a (*Metrosideros polymorpha*). Both sexes participate in nest construction and females perform incubation. Clutch size ranges from two to five, though pairs usually fledge just one or two juveniles. Fledglings are poor flyers and often remain near the ground for long periods, which may increase their susceptibility to both disease (toxoplasmosis) and predation. Juveniles are dependent for at least 8 months and remain with their parents until the following breeding season. Historical reports of flocking suggest associations of multiple generations, which is both typical of crows and also probably crucial to their development.

DISTRIBUTION: No individuals are known to exist in the wild. The historic range of the 'alala included dry and mesic mid-elevation 'ohi'a and 'ohi'a-koa forests on the western and southern portions of Hawai'i island from Pu'uana'hulu to Kilauea Crater.

Map of alala distribution

ABUNDANCE: There are no known 'alala in the wild. In 2003, there were 40 'alala in captivity at the Keauhou and Maui Bird Conservation Centers.

LOCATION AND CONDITION OF KEY HABITAT: Historically, 'alala occupied dry woodlands, 'ohi'a (*Metrosideros polymorpha*) and 'ohi'a-koa (*Acacia koa*) forests between 300 and 2500 meters (1000 – 8200'). 'Alala were associated with a fruit-bearing understory, and were known to move seasonally in response to weather and the availability of 'ie'ie (*Freycinetia arborea*). Whether or not other habitat features are necessary for 'alala survival is unknown as the last wild populations were confined to a small subset of the species' former range. All potential habitat for reinroduction of this species is compromised by habitat degradation,

presence of alien mammalian predators, and presence of invasive alien bird species which act as reservoirs for disease. Steps to manage these threats are being taken (see below), but current potential habitat must be considered hostile.

THREATS: 'Alala are subject to the same threats as other Hawaiian forest birds, but because of their very small population size in conjunction with the fact that all known birds are in captivity, they are especially vulnerable. Of particular concern are the following

- Predation limits 'alala recovery. Non-native mammals are known to kill 'alala. 'Io, or Hawaiian hawk (*Buteo solitarius*), have killed both juvenile and adult captive-reared birds. 'alala were legally protected in 1931, but anecdotal evidence suggests that predation by humans may also have played a role in the species' decline.
- Disease likely limits 'alala. Population declines were noted between 1890 and 1910, a period when other native bird populations declined. Additionally, 'alala are highly susceptible to toxoplasmosis. This parasite (*Tosoplasma gondii*) is carried by feral cats and is known to have caused the death of young released birds.
- Habitat alteration by human activity has converted 'alala habitat from closed-canopy forests with dense understory to forests highly impacted by clearing, grazing ungulates, and changes in species composition. These changes may have limited food or nesting resources, and may also have made 'alala more vulnerable to 'io.
- Genetic, stochastic and demographic factors that limit small populations may also have played a role in the decline of the species.
- Reintroduction of captive birds into the wild will have limited success because all currently available habitat is hostile (i.e., in need of significant and costly restoration before additional birds can be released), and because the captive-reared birds lack foraging and other skills that were culturally transmitted in wild flocks.

CONSERVATION ACTIONS: 'Alala have been legally protected in Hawai'i since 1931, and protected federally since 1967. Actions taken or actions necessary to recover the species follow:

- A captive flock has been maintained since 1970. Construction of captive propagation facilities at Olinda (Maui) and Keauhou (Hawai'i island) have allowed some success in breeding 'alala, though the species generally does not breed well in captivity. These facilities are currently managed by the Zoological Society of San Diego.
- The 'Alala Recovery Team, with membership representing landowners and conservation organizations as well as biologists and agency personnel, was formed in 1992. A second group, the 'Alala Partnership, was formed to facilitate program implementation on private lands.
- Twenty-seven juvenile 'alala were raised in captivity and released at McCandless Ranch between 1993 and 1998. Of these, 21 died in the wild and six were recaptured and returned to the captive flock.
- Intensive field studies of both the wild population and released juveniles were conducted between 1992 and 2002.
- Predator control was ongoing at McCandless during the release program. Tests for secondary toxic effects of diphacinone have been completed on a surrogate species.
- The Kona Forest Unit of Hakalau Forest NWR was acquired in 1999 in order to make intensive habitat improvements in the core of the species' range. Legal and operational constraints have thwarted this effort.
- Maintenance and expansion of the captive flock without further loss of genetic diversity is the highest priority in the current recovery strategy.

- Restoration of habitat so its condition is sufficient for survival and reproduction of released 'alala is also vital.

MONITORING:

- The captive flock is intensively monitored. Should habitat restoration allow reintroductions, the new populations will also be intensively monitored.

RESEARCH PRIORITIES:

- Review all data collected to date in both captive and field studies.
- Increase population growth rate, proportion of breeding birds and reproductive success of individuals in the captive flock.
- Test effectiveness of forest understory restoration on 'Io density and 'io/'alala interactions.
- Test and implement techniques to maintain forest areas free of mammalian predators and also free of mosquito vectors of avian disease.
- Determine habitat criteria that must be met prior to release of birds at a particular site.
- Develop behavioral tools so 'alala respond appropriately to mammalian predators, 'io, and sources of toxoplasmosis.
- Determine locations on islands other than Hawaii where experimental populations can be safely harbored in the wild and help achieve recovery goals.

References:

U. S. Fish and Wildlife Service. 2003. Draft Revised Recovery Plan for the 'alala (*Corvus hawaiiensis*). Portland, Oregon. xi + 78 pp.

Berger, Andrew J. 1981. Hawaiian Birdlife. University of Hawaii Press, Honolulu.