



Photo: DOFAW

## Waterbirds

# 'Alae ke'oke'o or Hawaiian coot

*Fulica alai*

### SPECIES STATUS:

Federally Listed as Endangered

State Listed as Endangered

State Recognized as Endemic

NatureServe Heritage Rank G2 - Imperiled

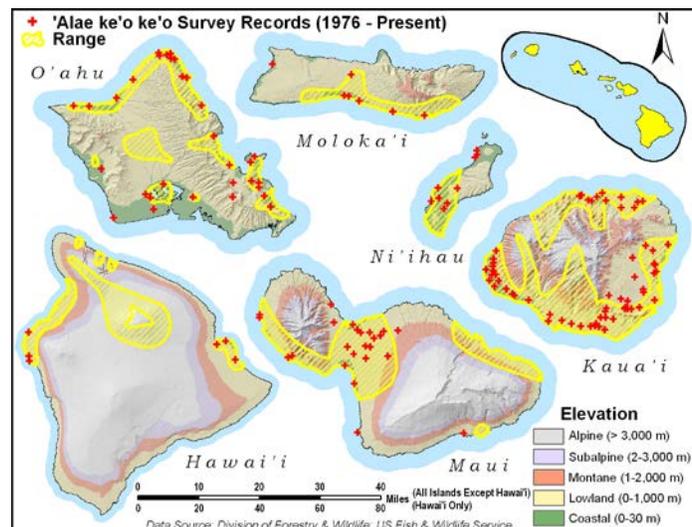
IUCN Red List Ranking - Vulnerable

Recovery Plan for Hawaiian Waterbirds - USFWS 2011

**SPECIES INFORMATION:** The 'alae ke'oke'o or Hawaiian coot is a small waterbird (Family: Rallidae) endemic to Hawai'i. Adult males and females have a black head, a slate gray body with white undertail feathers, and a prominent white frontal shield and bill; feet are lobed rather than webbed and are greenish gray. The Native Hawaiian considered 'alae ke'oke'o to be a deity but also considered it good to eat. Life history and breeding biology are poorly known. The species is somewhat gregarious and uses freshwater and brackish wetlands, including agricultural (e.g., taro fields) wetlands and aquaculture ponds. 'Alae ke'oke'o are generalists and feed on land, from the surface of the water, and underwater; also, they will graze on grass adjacent to wetlands. Food items include seeds and leaves, snails, crustaceans, insects, tadpoles, and small fish. The species will travel long distances, including between islands, when local food sources are depleted. Nesting habitat includes freshwater and brackish ponds, irrigation ditches, and taro fields. Floating nests are constructed of aquatic vegetation and found in open water or anchored to emergent vegetation. Open water nests are usually composed of mats of water hyssop (*Bacopa monniera*) and Hilo grass (*Paspalum conjugatum*). Nests in emergent vegetation are typically platforms constructed from buoyant stems of species such as bulrush. Nesting occurs year-round, but mostly between March and September. Nest initiation is tied to rainfall because appropriate water levels are critical to nest success. Clutch size range from three to ten eggs, and precocial young hatch after a 25-day incubation period.

**DISTRIBUTION:** The 'alae ke'oke'o occurs in coastal plain wetlands usually below 400 meters (1,320 feet) elevation on all the Main Hawaiian Islands except for Kaho'olawe; however, breeding is restricted to relatively few sites. About 80 percent of the population occurs on Kaua'i (Hanalei, Hulé'ia, Opaeka'a), O'ahu (coastal wetlands and reservoirs, such as Lake Wilson and Nu'uauu

*Hawai'i's State Wildlife Action Plan  
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Reservoir, Kahuku Point, and along the windward shore), and Maui (Kanhā and Keālia Ponds, Nu‘u Pond). The remaining 20 percent of the population occurs in coastal ponds and playa wetlands, such as Paialoa Pond on Moloka‘i, the Lāna‘i City wastewater treatment ponds, ‘Aimakapā and ‘Ōpae‘ula ponds on the Kona Coast, and Waiākea and Loko Waka ponds on the island of Hawai‘i.

**ABUNDANCE:** According to the results of biannual (summer and winter) waterbird counts conducted by DOFAW in the years 1997 to 2006, the population is estimated at 1,500–2,800 individuals, with a slightly increasing population trend.

**LOCATION AND CONDITION OF KEY HABITAT:** The ‘alae ke‘oke‘o uses lowland wetland habitats with suitable emergent plant growth interspersed with open water, especially freshwater wetlands and taro fields, but also freshwater reservoirs, canefield reservoirs, sewage treatment ponds, brackish wetlands, and, rarely, saltwater habitats. On Kaua‘i, some birds occur in plunge pools above 1,495 meters (4,900 feet) elevation, and on the island of Hawai‘i, stock ponds up to 2,000 meters (6,600 feet) elevation. They typically forage in water less than 30 centimeters (12 inches) deep but will dive in water up to 120 centimeters (48 inches) deep. Compared to ‘alae ‘ula (Hawaiian moorhen), ‘alae ke‘oke‘o forages in more open water. Logs, rafts of vegetation, narrow dikes, mud bars, and artificial island are important for resting. Ephemeral wetlands support large numbers during nonbreeding season and may provide a key habitat. Some important habitats are located in National Wildlife Refuges and State sanctuaries and receive management attention, but others remain unprotected, such as wetlands facing development or those used for agriculture or aquaculture. Examples include playa lakes on Ni‘ihau; Opaeka‘a marsh; Lumaha‘i wetlands on Kaua‘i; Amorient prawn farms; Lā‘ie wetlands; Uko, Punaho‘olapa, and Waihe‘e marshes; Waialua lotus fields; Waipi‘o Peninsula ponds on O‘ahu; Paialoa and ‘Ō‘ō‘ia playa fishponds on Moloka‘i; and Opaē‘ula and Waiākea-Loko Waka ponds on the island of Hawai‘i.

**THREATS:** Similar to the rest of Hawaiian native waterbirds, ‘alae ke‘oke‘o are threatened by:

- **Habitat loss.** In the last 110 years, approximately 31 percent of coastal plain wetlands have been lost. A shift from wetland agriculture to other agriculture crops also has reduced the amount of wetland habitats.
- **Introduced and native predators.** Dogs (*Canis familiaris*), rats (*Rattus spp.*), feral cats (*Felis silvestris*), the small Indian mongoose (*Herpestes auropunctatus*), cattle egrets (*Bulbulcus ibis*), barn owls (*Tyto alba*), and bullfrogs (*Rana catesbeiana*) all potentially prey on adults or young.
- **Altered hydrology.** Altering wetland habitats for flood control or to allow them to serve as municipal water sources makes them generally unsuitable for ‘alae ke‘oke‘o.
- **Nonnative invasive plants.** Several species of invasive plants, including pickleweed (*Batis maritima*), water hyacinth (*Eichornia crassipes*), and mangrove (*Rhizophora mangle*) reduce open water, mudflats, or shallows.
- **Avian diseases.** Botulism outbreaks result in mortality. West Nile virus and avian flu may pose a risk to Hawaiian waterbirds if these diseases reach Hawai‘i.
- **Environmental contaminants.** Fuel and oil spills in wetlands result in toxicity and habitat degradation.
- **Climate change.** Sea level rise due to climate change may result in a loss of coastal wetland habitats used by Hawaiian waterbirds.

**CONSERVATION ACTIONS:** The State of Hawai'i, the U.S. Fish and Wildlife Service (USFWS), and private organizations and landowners have protected 82 percent of the core wetlands for Hawaiian waterbirds and 17 percent of their supporting wetlands. Actions specific to conservation of 'alae ke'oke'o and other Hawaiian waterbirds should include the following:

- Continue to manage, restore, and protect core and supporting wetland habitats.
- Eliminate or reduce populations of introduced predators.

**MONITORING:** Continue annual waterbird surveys and habitat monitoring on all islands to detect changes in population trends.

**RESEARCH PRIORITIES:**

- Analyze annual survey data for correlations, including use of specific wetlands, time of year, and state of wetlands, in order to improve management for 'alae ke'oke'o.
- Conduct a population viability analysis to identify population numbers and time spans that can serve as predictors for the long-term recovery of the 'alae ke'oke'o.
- Use climate change models to predict sea-level rise, and assess key wetlands to protect/create in light of the analysis.

**References**

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