



Photo: Jack Jeffery

## Raptors

### 'Io

*Buteo solitarius*

#### SPECIES STATUS:

Federally Listed as Endangered,  
Proposed for Delisting  
State Listed as Endangered  
State Recognized as Endemic  
NatureServe Heritage Rank G2 – Imperiled  
IUCN Red List Ranking – Near Threatened  
Hawaiian Hawk Recovery Plan – USFWS 1984

**SPECIES INFORMATION:** The 'io, or Hawaiian hawk, is the only broad-winged hawk (Family: Accipitridae) in Hawai'i. 'Io are considered 'aumākua, or family gods, by Native Hawaiians. Similar to many birds of prey, females are larger than males, and often weigh approximately 25 percent more than males. Also similar to many *Buteos*, two color morphs, light and dark, occur in 'io populations. Prior to the arrival of Polynesians, 'io may have exclusively preyed on birds, including now extinct flightless ibis, and rails. Its diet now includes non-native insects, birds and rodents, as well as native insects and birds. 'Io form monogamous long-term pair-bonds and defend territories year-round. Nest construction is protracted, beginning up to two months before the first egg is laid, and continuing into the nestling period. Egg-laying generally occurs from March to June, and fledging from July to September. Both sexes contribute to nest-building. Clutch size is nearly always one, although historically clutches of two and three were reported. Both sexes incubate, although females perform most of the brooding of nestlings; males provide most of the food to chicks and female. Both adults feed fledglings, which are dependent on adults for up nine months.

**DISTRIBUTION:** Occurs throughout the island of Hawai'i from 300 to 2,600 meters (1,000 to 8,530 feet). Based on fossil evidence, they once occurred on Kaua'i, Moloka'i, and O'ahu.

**ABUNDANCE:** Based on an island-wide survey in 2007, the population is estimated at 3,000 birds with a stable population trend over the past 20 years.

**LOCATION AND CONDITION OF KEY HABITAT:** Lowland non-native forests, urban areas, agricultural lands, pasturelands, and high-elevation native forests. Most nesting occurs in native 'ōhi'a trees, although also occurs in non-native trees, including eucalyptus, ironwood, mango, coconut palm, and macadamia. In winter, they have been reported in subalpine māmane-naio forest, suggesting some seasonal movements.

#### THREATS:

- Habitat loss and degradation. Habitat is negatively affected by urbanization, land conversion to unsuitable foraging habitat (e.g., pasture and cane fields to eucalyptus forest), increase in fire frequency that may eliminate nesting and perching habitat, and invasion of understory plants which can conceal prey and reduce foraging success.

However, the species was proposed to be federally delisted in 2008, and again in 2014, because it was determined that the species is resilient enough to maintain itself in a variety of non-native and native habitat types.

- Disease. 'Io does not appear to be susceptible to the avian malaria and avian pox that have devastated other Hawaiian endemic forest birds. However, West Nile virus could affect the species if the disease reaches Hawai'i.

**CONSERVATION ACTIONS:** 'Io likely benefit from actions for other endangered birds, such as fencing, ungulate and small mammal control, and forest restoration. Actions specific to conservation of the 'io should include the following: protect and manage the species' foraging and nesting habitat.

**MONITORING:** Conduct regular island-wide surveys to monitor abundance, distribution, and disease.

**RESEARCH PRIORITIES:** Evaluate potential effects of land management and changes in fire frequency and intensity on the species.

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