

Photo: DOFAW



## Migratory Birds

# Kōlea or Pacific Golden-Plover

*Pluvialis fulva*

### SPECIES STATUS:

State recognized as Indigenous  
U.S. Shorebird Conservation Plan - High concern

**SPECIES INFORMATION:** The Kōlea or Pacific golden-plover is a moderately small yellow- and-buff mottled shorebird (Family: Charadriidae) which winters in the Main Hawaiian Islands (MHI) and breeds in Siberia and westernmost Alaska. Most adults arrive in Hawai‘i in August, while juveniles arrive in October; spring departures begin in late April. Kōlea feed primarily on terrestrial insects such as cockroaches, moths, caterpillars, and earwigs, all of which they locate by sight. During the breeding season, they are also known to eat berries, leaves, and seeds.

Kōlea show high site fidelity to wintering grounds and will chase intruders from their territories while foraging. Hawai‘i is thought to support a large proportion of the world’s wintering Kōlea population.

**DISTRIBUTION:** Kōlea winter across the tropical Pacific, in upland and coastal areas from Hawai‘i to Japan. In Hawai‘i, kōlea are more common in NWHI year-round, but between August and May are also commonly seen on all of the MHI.

**ABUNDANCE:** Reliable estimates of the global kōlea population have not been made. One estimate of the east Asian population was 90,000, while the population of the MHI has been estimated at 74,000 individuals. In the late 1960s, the O‘ahu population was estimated at about 15,000. From 2013 to 2023, the average number of kōlea in Hawai‘i State waterbird surveys has been about 1,588 individuals across MHI. Estimated wintering densities range from 0.22 to 44.7 birds per hectare in wild habitats such as forest trails and coastal mudflats. Densities in developed habitats in Hawai‘i have been estimated as 1.4 birds per hectare on golf courses and 5.2 birds per hectare on lawns.

**LOCATION AND CONDITION OF KEY HABITAT:** The winter range of Kōlea is extremely varied, including crop fields, pastures, coastal salt marshes, mudflats, beaches, mangroves, grassy areas at airports, cemeteries, athletic fields, parks, residential lawns, golf courses, roadsides, and clearings in heavily wooded areas. In Hawai‘i, birds also use open stands of ironwood (*Casuarina spp.*) and small urban lawns and gardens in areas such as downtown Honolulu. Military bases and airports often provide important wintering grounds. Where suitable habitats (pastures, etc.) occur on mountain slopes, kōlea range to at least 2,500 meters (8,125 feet) elevation. Extensive land-clearing in Hawai‘i, dating back to the Polynesian colonization, has probably improved wintering conditions by creating open habitat with plentiful insects.

**THREATS:** Hunting was a significant threat until 1941 when it was prohibited, and populations are thought to have rebounded since then. Effects of pesticide exposure on wintering grounds and along migratory routes are unknown, but on golf courses in Hawai‘i, Kōlea come into contact with herbicides

and pesticides that may be harmful. Aircraft strikes at airports in Hawai‘i occur often in the fall, apparently as naive juvenile birds attempt to establish foraging territories on airport grounds.

**CONSERVATION ACTIONS:** To protect the ability of wintering kōlea to survive while in Hawai‘i and to return in good condition to breeding grounds in Alaska, current statewide and island-specific conservation actions should include:

- Protection of current habitat.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Kōlea studies remain fragmentary, probably because the species is neither endemic nor endangered. Research priorities should include the following:

- Increased study of all aspects of ecology and behavior of kōlea in Hawai‘i, and comparative research on unstudied populations elsewhere.
- Evaluation of conditions on winter range habitats as related to expanding human activities (e.g., agriculture, reclamation, urbanization, pollution).
- Increased effort to make accurate population estimates, along with systematic monitoring wherever possible to facilitate the recognition of trends and potential problems.

**References:**

Johnson OW, Connors PG. 1996. Pacific golden-plover (*Pluvialis fulva*). In *The Birds of North America*, No. 201-202 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union

Photo: Jim Denny



## Migratory Birds

### ‘Akekeke or Ruddy Turnstone

*Arenaria interpres*

#### SPECIES STATUS:

State recognized as Indigenous  
U.S. Shorebird Conservation Plan—High Concern

**SPECIES INFORMATION:** The ‘akekeke, or ruddy turnstone, is a small, calico-colored shorebird (Family: Scolopacidae) that is one of the most northerly breeding shorebirds. Each year ‘akekeke migrate from tropical coastlines to the Arctic Circle, where they breed in coastal areas and island interiors. ‘Akekeke have short bills and bright reddish-orange legs. They spend their days probing among rocks and pebbles along the shoreline in search of insects, especially flies, spiders, beetles, and grubs. Outside of the breeding season, however, their diet becomes much more diversified, extending to crustaceans, mollusks, worms, small fish, and even carrion, rubbish, and bird eggs.

**DISTRIBUTION:** During breeding season, ‘akekeke range from the eastern coast of Greenland to the north-eastern coast of Siberia, with most of the North American population concentrated on the northern coast of Alaska and the Arctic islands north of Canada. In winter, ‘akekeke range across a wide swath of tropical coastal regions from southeastern Asia to southwestern Africa and southern Europe. In Hawai‘i, ‘akekeke are more prevalent on shorelines of the NWHI than in the MHI.

**ABUNDANCE:** Global population has been estimated at approximately 445,000 individuals, of which about 60 percent (267,000) breed in North America. Trend analysis from 1972 to 1983 suggested that the U.S. Atlantic Coast population was in decline, but high variability of counts both within and between years increased uncertainty about the statistical validity of this trend. Average winter population in the MHI from 2013 to 2023, based on State waterbird surveys, was 678, while during breeding season counts averaged 478. Abundance in the NWHI has not been estimated but is probably larger than the MHI population.

**LOCATION AND CONDITION OF KEY HABITAT:** In winter, ‘akekeke are almost exclusively coastal, foraging mostly along stony or rocky shorelines with abundant seaweed. However, especially in Hawai‘i and other Pacific Islands, ‘akekeke are also common on sandy shorelines and in mudflats and river deltas. Preferred habitats include ocean beaches along sheltered coastlines or bordering estuaries and other wetlands.

**THREATS:** Across most of their winter range, primary threats to ‘akekeke are human industrial and recreational activity leading to habitat loss and degradation by means of chemical contamination and disturbance. Avian diseases are also a threat.

**CONSERVATION ACTIONS:** To protect the ability of wintering ‘akekeke to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of coastal habitat.
- Protection and restoration of additional coastal habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.
- Continue protection and management of wildlife sanctuaries and refuges.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Little study of visiting ‘akekeke has been undertaken, probably in part because their annual presence and numbers are uncertain. Research priorities should include the following:

- Identification of stopover sites, their biological attributes, and long-term usage patterns.
- Better understanding of ecological requirements for successful over-wintering, along with growth and development of wintering birds, for all age groups.
- Better understanding of time and energy budgets in relation to molt and preparation for spring migration.
- Measurement of growth and post fledging-survival rates for first arrivals at wintering location.
- More information on known and suspected threats, including degradation of coastal ecosystems, direct interactions with humans, habitat disturbance and destruction, and toxic and chemical contamination.

**References:**

Nettleship DN. 2000. Ruddy turnstone (*Arenaria interpres*). In *The Birds of North America*, No. 537 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Photo: Jim Denny



## Migratory Birds

# Koloa Māpu or Northern Pintail

*Anas acuta*

**SPECIES STATUS:**  
State recognized as Indigenous

**SPECIES INFORMATION:** The Koloa māpu, or northern pintail, is a dabbling duck (Family: Anatidae), common throughout the northern hemisphere, that winters in the main Hawaiian Islands, typically arriving in August, and departing for Siberia, Alaska, or Canada in late March or April. Koloa māpu feed primarily on the seeds and leafy parts of aquatic grasses, as well as aquatic invertebrates such as snails and beetles, with live prey being especially important in the early spring. As with most dabbling ducks, koloa māpu are sexually dichromatic in plumage, but less dramatically so than mallards. Breeding males are dark brown on the head and upper neck, white across the lower throat, and gray about most of the body, while female plumage is mottled light and dark brown. Nonbreeding male plumage is similar to that of females. Being gregarious, koloa māpu form pair bonds but remain promiscuous during breeding. They are known to hybridize with six other North American duck species (mallard, black duck, green-winged teal, American wigeon, Chiloe wigeon, and redhead) and with at least three other species in Eurasia.

**DISTRIBUTION:** Common throughout the southern and western United States and Mexico during the winter, shifting to the northernmost central U.S., west central Canada, and Alaska during the breeding season. Koloa māpu are also common through Eurasia. In Hawai‘i, koloa māpu have been sighted routinely on all of the MHI, but have not been recorded in the NWHI.

**ABUNDANCE:** Among the most populous of North American ducks, koloa māpu surveys (USFWS) for the region from 1955 through 1995 yield an average breeding population estimate of over three million birds, with populations declining from over six million in the early 1970s to less than three million into the early 1990s. A fairly common visitor to the Main Hawaiian Islands (MHI), koloa māpu are usually present each year in the low hundreds. State Waterbird surveys from 2013 to 2023 provide an average of 216 birds per year wintering in the MHI.

**LOCATION AND CONDITION OF KEY HABITAT:** During winter, koloa māpu utilize a variety of shallow inland freshwater and intertidal habitats, typically shallow wetlands with little emergent cover (although at night they prefer emergent stands of food plants). They will also use flooded agricultural habitats (especially rice, corn, wheat, soybeans, and pastures), reservoirs, tidal wetlands, bays, and estuarine habitats. In Mexico, koloa māpu favor areas where excess irrigation water flows into salt flats or tidal basins; also mangrove mud flats,

irrigation reservoirs, and ephemeral ponds. Some of these types of areas are already protected; others have been lost to development.

**THREATS:** Primary threats include the following:

- Loss of wetland habitat to development, pollution, or habitat-modifying invasive plants.
- Avian disease.

**CONSERVATION ACTIONS:** To protect the ability of wintering koloa māpu to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Only one published study of visiting koloa māpu has been undertaken, probably in part because of their annual presence and numbers are uncertain.

Research priorities should include the following:

- Better understanding of habitat needs and preferences, including foraging and population limiting factors.
- Population reactions to habitat modifications, changes in food availability, and competition with other migrants.
- Life-history and population dynamics in wintering areas.
- Better understanding of geographic relationship between nesting areas and wintering areas.
- Make-up of local populations relative to survival and condition during winter.

**References:**

Austin JE, Miller MR. 1995. Northern pintail (*Anas acuta*). In *The Birds of North America*, No. 163 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Udvardy MD, Engilis, Jr., A. 2001. Migration of northern pintail

## Migratory Birds

# Koloa Mōhā or Northern Shoveler

*Anas clypeata*

**SPECIES STATUS:**  
State recognized as Indigenous

**SPECIES INFORMATION:** The koloa mōhā, or northern shoveler, is a common North American dabbling duck (Family: Anatidae) that winters in the Main Hawaiian Islands (MHI), typically arriving in September and October and departing for Alaska by March or April. By virtue of their unusually large flat bills, koloa mōhā are adapted to a diet primarily of aquatic invertebrates such as water fleas (*Daphnia spp.*) and crustaceans (copepods and ostracods), which they obtain by filtration. In addition to nektonic prey, however, koloa mōhā are also known to eat seeds and gastropods. Like many ducks, koloa mōhā are sexually dichromatic in plumage, with breeding males sporting a dark green head, white throat, and brown belly, in contrast to the females' more uniform mottled brown plumage. Koloa mōhā are less gregarious than other dabbling ducks, are among the most territorial during breeding, and maintain pair bonds longer than other similar species. They are known to hybridize with at least three other North American duck species (blue-winged and cinnamon teals, and muscovy ducks) and with several other species in Eurasia.

**DISTRIBUTION:** Common throughout the southern and western United States and Mexico during the winter, shifting to the northernmost central U.S., west central Canada, and Alaska during the breeding season. Koloa mōhā are also common through Eurasia. In Hawai‘i, koloa mōhā have been sighted routinely on all of the MHI, but have not be recorded in the NWHI.

**ABUNDANCE:** U.S. Fish and Wildlife Service surveys from 1955 through 1995 yield an average breeding population estimate of approximately 1.87 million birds in North America, with a rising trend through the mid-1990s. Estimates for 1994 and 1995 were high at approximately three million. The most abundant dabbling duck wintering in the MHI (mallards are year- round residents), koloa mōhā numbers in State waterbird surveys from 2013 to 2023 averaged 158 birds. There is some evidence of a downward trend over the long-term data .

**LOCATION AND CONDITION OF KEY HABITAT:** During winter, koloa mōhā utilize a variety of wetland habitats, including freshwater and saline marshes, and agricultural ponds. They prefer shallow open lakes containing dense growth of aquatic vegetation, and tend not to forage on dry land. In Mexico, they are known to inhabit coastal lagoons, estuaries, and some mangrove swamps. Some of these areas are already protected, but much habitat has been lost to development.

**THREATS:** Primary threats include the following:

- Loss of wetland habitat to development, pollution, or habitat-modifying invasive plants.

- Avian disease.

**CONSERVATION ACTIONS:** To protect the ability of wintering American koloa mōhā to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Little study of visiting koloa mōhā has been undertaken, probably in part because of their annual presence and numbers are uncertain. Research priorities should include the following:

- Better understanding of habitat needs and preferences, including foraging and population limiting factors.
- Increased understanding of movements of individuals that overfly the Hawaiian
- Islands.

**References:**

Dubowy PL. 1996. Northern shoveler (*Anas clypeata*). In *The Birds of North America*, No. 217 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Photo: Eric VanderWerf



## Migratory Birds

### Lesser Scaup

*Aythya affinis*

**SPECIES STATUS:**

State recognized as Indigenous

**SPECIES INFORMATION:** The lesser scaup is a medium-sized black and white diving duck (Family: Anatidae), one of the most abundant and widespread ducks in North America. Lesser scaups winter in the Main Hawaiian Islands (MHI), typically arriving in October and departing for Alaska or Canada as early as February. Lesser scaups feed primarily on aquatic invertebrates such as insects, crustaceans, and mollusks; seeds and vegetative parts of aquatic plants are also important. As with many ducks, lesser scaups are sexually dichromatic in plumage, with breeding males showing a dramatic contrast between their white body and black head, neck, throat, and rump. Female plumage is a more monochromatic dark brown.

Nonbreeding male plumage shows less contrast, with the body becoming more brown at the margins. Being gregarious, lesser scaups form pair bonds but remain promiscuous during breeding. They are known to hybridize with four other North American duck species (greater scaup, ring-necked duck, redhead, and canvasback) in the wild, and with four others (tufted duck, European pochard, American wigeon, and wood duck) in captivity.

**DISTRIBUTION:** Common throughout the southern and western United States and Mexico during the winter, shifting to the northernmost central U.S., west central Canada, and Alaska during the breeding season. Lesser scaups are also common through Eurasia. In Hawai‘i, lesser scaups have been sighted routinely on all of the MHI, but have not been recorded in the NWHI.

**ABUNDANCE:** Lesser scaup surveys (by USFWS) from 1955 through 1995 yield an average breeding population estimate of 5,512,445 ± 147,090 (SE) in North America (the most abundant diving duck in the region), with winter population estimates declining by about half since the 1960s. A fairly common visitor to the Main Hawaiian Islands, Hawai‘i State waterbird surveys of lesser scaups from 2013 to 2023 have averaged 85 birds.

**LOCATION AND CONDITION OF KEY HABITAT:** Winter diet of lesser scaups varies geographically, but specific dietary habits of Hawaiian migrants have not been documented in the published literature. On the continental U.S., lesser scaups are found along lake coastlines, reservoirs, and fresh to brackish coastal bays and estuaries. During severe weather, they may move to more saline waters, and they are more common in such saline habitats than other diving ducks. In Texas, they are found on hypersaline estuaries, usually close to inland freshwater ponds where individuals go to drink. Unlike other, more herbivorous diving ducks, distribution

of lesser scaups during migration and winter is not closely related to distribution of aquatic plant foods.

**THREATS:** Primary threats include the following:

- Loss of wetland habitat to development, pollution, or habitat-modifying invasive plants.
- Avian disease.

**CONSERVATION ACTIONS:** To protect the ability of wintering lesser scaups to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Little study of visiting lesser scaups has been undertaken, probably in part because of their annual presence and numbers are uncertain. Research priorities should include the following:

- Better understanding of habitat needs and preferences, including foraging and population limiting factors.
- Increased understanding of movements of individuals that overfly the Hawaiian Islands.
- Better understanding of adaptation to modified wintering habitats and how they affect migration routes.

**References:**

Austin JE, Custer CM, Afton AD. 1998. Lesser scaup (*Aythya affinis*). In *The Birds of North America*, No. 338 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

## Migratory Birds

# Hunakai or Sanderling

*Calidris alba*

### SPECIES STATUS:

State recognized as Indigenous

**SPECIES INFORMATION:** The hunakai, or sanderling, is a sandpiper (Family: Scolopacidae) which is well-known for its habit of foraging at the edge of the surf zone and running up and down the beach to avoid waves while probing the sand for invertebrates. Hunakai are small, plump sandpipers, usually about 19 centimeters (7.5 inches) in length, with bills that are short, straight, and black. Their legs and feet are also black, but the rest of their body is white about the head, pale-gray on the back and ventrally white. Hunakai winter in the Hawaiian Islands, arriving by October and departing for breeding areas in the Arctic Circle by June, with juvenile birds tending to migrate later than adults. Hunakai diet changes markedly with the season, consisting almost exclusively of insects during the breeding season, and consisting of hippid crabs, isopods (*Excirolana spp.*), insects, talitrid amphipods, polychaete worms, and small bivalve mollusks in winter. Hunakai of both sexes are strongly territorial in and above the intertidal zone, but otherwise forage in non-territorial flocks.

**DISTRIBUTION:** Hunakai may be the most widespread maritime shorebird wintering in North America, with a winter range extending from British Columbia to southern Chile and from Maine to Argentina. Pacific winter range extends from Hawai‘i and the Mariana and Marshall Islands through more southerly archipelagos (Phoenix, Union, and Galapagos Islands).

**ABUNDANCE:** Global population size is unknown, but the North American population is estimated to be 300,000 individuals. Estimated population for Hawai‘i, based on State waterbird surveys from 2013 through 2023 yield an average summer count for the MHI of 71, and a winter MHI count of 232. NWHI populations may be larger, but data are lacking. In other areas, such as Mexico, shoreline densities of hunakai have been estimated at six birds per kilometer (about nine birds per mile) on sandy beaches, and about one-third of that on rocky coastlines. Trend data are sparse and not conclusive, but suggest a slight decline in numbers through the Americas since the late 1950s.

**LOCATION AND CONDITION OF KEY HABITAT:** Preferred foraging habitat during winter is sandy beach, mainly intertidal zone at high tide. Tidal sandflats and mudflats are also used, along with shores of lakes and rivers. Hunakai occasionally make use of rocky shores, sloughs, and river mouths, and have been rarely detected at sewage-treatment plants and municipal dumps. Hunakai tend to exhibit strong fidelity to wintering sites.

**THREATS:** The most severe threats to this species are considered to be environmental (e.g., effects of global warming and oil spills). Global warming is expected to have the greatest impact on breeding populations, although reduced food supplies for wintering birds could also result in

adverse impacts. The greatest threats to wintering birds in Hawai‘i include loss and degradation of habitat and avian disease.

**CONSERVATION ACTIONS:** To protect the ability of wintering hunakai to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional habitat.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Hunakai have been only minimally studied. Research priorities should include the following:

- Better understanding of habitat requirements and behavioral plasticity, to improve assessments of probable responses to coastal (beach) development, habitat degradation, pollution, and other human disturbances.
- Increased understanding of movements of individuals that overfly the Hawaiian Islands, support needed studies of the extent to which distinct breeding populations exist and whether migration routes and wintering areas are population-specific.

**References:**

Macwhirter B, Austin-Smith P, Kroodsma D. 2002. Sanderling (*Calidris alba*). In *The Birds of North America*, No. 653 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Photo: Eric VanderWerf



## Migratory Birds

### ‘Ūlili or Wandering Tattler

*Heteroscelus incanus*

**SPECIES STATUS:**

State recognized as Indigenous  
U.S. Shorebird Conservation Plan—Moderate concern  
Bird of Conservation Concern - USFWS 2021

**SPECIES INFORMATION:** The ‘ūlili, or wandering tattler, remains one of North America’s least known birds. ‘Ūlili winter in the Hawaiian Islands, arriving in stages (adults from July to August, juveniles September to November) and showing strong winter range fidelity. Diet varies with season, and in winter mainly consists of invertebrates such as marine worms, aquatic insects, mollusks, crustaceans, and small fish. On nonbreeding grounds, forages in intertidal habitats (such as coral reefs), less frequently in soft mud or sand, picking food from moist substrates or surface of shallow water. ‘Ūlili also forage along mountain streams, in wetlands, fish ponds, and human-modified areas.

**DISTRIBUTION:** ‘Ūlili breed mostly in mountainous areas of Alaska, and also in eastern Siberia, but densities are sparse so that precise identification of breeding areas is lacking. Winter range includes most of Oceania from Hawai‘i through more southerly archipelagos. Most abundant in southern and central Pacific. Less common or infrequent in more distant areas of the Pacific. In Hawai‘i, ‘ūlili are more prevalent on shorelines of the NWHI than in the MHI.

**ABUNDANCE:** Global population has been estimated at between 10,000 and 25,000 birds, of which 90 percent breed in North America. ‘Ūlili are not particularly common in Hawai‘i: State waterbird surveys from 2013 through 2023 yield an average summer count for the MHI of 66 and a winter MHI count of 113. NWHI populations are probably larger: estimates at Laysan Island in 1984 and 1985 were 450 and 170, respectively. Monitoring in Hawai‘i has not been regular or thorough enough to detect trends, but where monitoring data are more detailed, trend analysis is inconclusive.

**LOCATION AND CONDITION OF KEY HABITAT:** Wintering habitats throughout the Pacific and mainland Asia are more varied than breeding habitat. ‘Ūlili are common in coastal areas on coral reefs and the basalt platforms of most atolls and islands. They will also make use of soft substrates, especially river mouth areas and littoral margins of lagoons. In the NWHI, they can be found on pickleweed (*Sesuvium portulacastrum*) flats, and elsewhere in Hawai‘i they will forage in grassy areas around airports and golf courses.

**THREATS:** Primary threats include the following:

- Loss of wetland habitat to development, pollution, or habitat-modifying invasive plants.
- Avian disease.

**CONSERVATION ACTIONS:** To protect the ability of wintering ‘ūlili to survive while in Hawai‘i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** ‘Ūlili have been only minimally studied. Research priorities should include the following:

- Basic research on demography in wintering habitat.
- More information about population sizes and trends, and population regulation.
- Better understanding of habitat needs and preferences, including foraging needs, population limiting factors, and adaptation to modified wintering habitats and how they affect migration routes.
- Increased understanding of movements of individuals that overfly the Hawaiian Islands.

**References:**

Gill RE, McCaffery BJ, Tomkovich PS. 2002. Wandering tattler (*Heteroscelus incanus*). In *The Birds of North America*, No. 642 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Photo: Eric VanderWerf



## Migratory Birds

### American Wigeon

*Anas americana*

**SPECIES STATUS:**

State recognized as Indigenous

**SPECIES INFORMATION:** The American wigeon, or "Baldpate," is a widespread North American dabbling duck (Family: Anatidae), which winters in small numbers in the Hawaiian Islands. Wigeons are common across most of North America, with a breeding population estimated in excess of three million. While wigeons are dun-colored across most of the body, breeding males sport a bright white stripe across the crown of the head, bright green patches on either side of the head, and contrasting white and dark plumage on the rump. During the breeding season, males' contrasting colors are used in courtship displays to attract females and discourage competing males. However, in winter, male plumage is much more similar to that of females, retaining the brown body coloration but changing to dark gray on the head and neck. Wigeons are the most vegetarian of dabbling ducks, eating the stems and leafy parts of aquatic plants, leafy parts of grasses, and leaves and seeds of some marsh and crop plants. Breeding females, however, feed largely on insects (including dragonflies and damselflies), mollusks, and crustaceans.

**DISTRIBUTION:** In North America, wigeons' winter range extends across the central and southern United States, south through Mexico, and along the U.S. east coast as far north as Cape Cod. In Hawai'i, they have been sighted throughout the Main Hawaiian Islands (MHI) but have not been recorded in the Northwestern Hawaiian Islands.

**ABUNDANCE:** U.S. Fish and Wildlife Service surveys from 1955 through 1997 yield an average breeding population estimate of approximately 2.62 million birds for North America. The 1997 estimate was  $3,117,600 \pm 161,600$  (SE), about 19 percent higher than the long-term average. In Hawai'i, State Waterbird counts of American wigeons from 2013 to 2023 have averaged 23 birds throughout the MHI.

**LOCATION AND CONDITION OF KEY HABITAT:** Wigeons winter in a wide range of habitats including freshwater marshes, rivers, lakes, impoundments, estuaries, bays, and agricultural lands that provide an abundance of emergent and submergent vegetation. In Hawai'i, wigeons winter at Kanahā Pond State Wildlife Sanctuary and Kealia Pond National Wildlife Refuge on Maui, and near Waipi'o on O'ahu. Use of agricultural lands suggests flooded taro fields could attract wigeons. Some suitable habitat of these types is already protected, primarily wetlands within the bounds of wildlife refuges and sanctuaries.

**THREATS:** Primary threats include the following:

- Loss of wetland habitat to development.
- Degradation of habitat due to pollution, hydrology alteration, or invasions by alien species.
- West Nile virus or other avian diseases.

**CONSERVATION ACTIONS:** To protect the ability of wintering American wigeons to survive while in Hawai'i and to return in good condition to breeding grounds in North America, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Little study of visiting wigeons has been undertaken, probably in part because of their annual presence and numbers are uncertain. Research priorities should include the following:

- Better understanding of habitat needs and preferences, including foraging and population limiting factors.
- Increased understanding of movements of individuals that overfly the Hawaiian Islands.

**References:**

Mowbray T. 1999. American wigeon (*Anas americana*). In *The Birds of North America*, No. 401 (Poole A, Gill F, editors.). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.

Photo: Eric VanderWerf



## Migratory Birds

# Kioea or Bristle-thighed Curlew

*Numenius tahitiensis*

### SPECIES STATUS:

State recognized as Indigenous  
IUCN Red List Ranking-Vulnerable  
Bird of Conservation Concern - USFWS 2021

**SPECIES INFORMATION:** Kioea, or Bristle-thighed curlews, are large-bodied shorebirds (Family: Scolopacidae) that twice annually make a nonstop migration of at least 4,000 kilometers (2,480 miles) between Hawai‘i and Alaska. They typically arrive in Hawai‘i in late July and August and depart in early May for breeding grounds in western Alaska. Kioea (Bristle-thighed curlews) are the only migratory shorebirds that winter exclusively on oceanic islands, that become flightless during molt, and that use tools in foraging. Documented tool use behavior consists of picking up rocks with their bills and hurling them at albatross eggs to crack them open. Males and females are identical in plumage, but females are slightly larger and have slightly straighter and less tapered bills. Kioea are highly opportunistic feeders during winter, consuming a variety of prey such as intertidal and terrestrial invertebrates, seabird eggs and hatchlings, carrion, lizards, rodents, and fruit. Males are highly territorial during breeding season, defending large territories of up to 275 hectares (680 acres) with dramatic aerial displays, chases, and complex vocalizations.

**DISTRIBUTION:** The species breeds in two relatively small areas of Alaska near the Kotzebue Peninsula. Winter range comprises most oceanic islands across the Pacific, from the Marshall Islands in the west to Pitcairn Island at the southeasterly extreme. In Hawai‘i, highest numbers are in the Northwestern Hawaiian Islands (NWHI), with small numbers wintering the Main Hawaiian Islands (MHI), particularly the islands of O‘ahu and Hawai‘i.

**ABUNDANCE:** Estimates based on surveys conducted between 1988 and 1992 of the species' breeding range in Alaska estimated the population at 3,200 breeding pairs. Based on a study conducted between 1988 and 1990, about 800 birds were thought to winter in NWHI: 300–350 on Laysan, 300–400 on Lisianski Island, and 100 at Midway. Hawai‘i State waterbird surveys since 1996 yield an average of 23 birds in the MHI in summer, and 28 in the winter.

**LOCATION AND CONDITION OF KEY HABITAT:** No detailed study has been published describing winter habitat use. However, wintering kioea have been observed to use a variety of habitats, including tidal mudflats, marshy areas, edges of mangrove swamps and lagoons, reefs, salt pans, channels among islets, beaches, airport runways, and open areas well away from shoreline. In the MHI, they occur in open grassy areas, vegetated dunes, and wetlands, while in

the NWHI, they are found on beaches and shoreline coral ledges some of the time but more often in grass- and forb-dominated interior portions. Censuses on Laysan Island in fall 1988 obtained 68 percent of sightings inland in beach morning glory (*Ipomoea pes-caprae*), native bunchgrass (*Eragrostis variabilis*), or a mix of both; only one percent of sightings were on beaches.

**THREATS:** Factors limiting Kioea populations are not well-documented. Habitat alteration in winter range, especially human development of shoreline areas, is considered to be severe. Other threats may include degradation of habitat due to pollution or invasions by alien species. Populations may also be adversely affected by avian disease. Ingestion of ubiquitous plastic debris in northern parts of winter ranges is likely, but not confirmed. Curlews on Midway forage in lead-contaminated soils, but tissue concentrations of lead have not been studied in curlews.

**CONSERVATION ACTIONS:** To protect the ability of wintering kioea to survive while in Hawai‘i and to return in good condition to breeding grounds in Alaska, statewide and island-specific conservation actions should include:

- Protection of current habitat.
- Protection and restoration of additional wetland habitat, especially where it can be reclaimed from abandoned urban or agricultural uses.

**MONITORING:** Continue surveys of population and distribution in known and likely habitats.

**RESEARCH PRIORITIES:** Comprehensive studies of kioea were not undertaken before the late 1980s. Priorities for further research should include the following:

- Identification of high concentrations of wintering birds.
- Identification of migratory stopover sites (if any) south of the Hawaiian Islands.
- Monitoring of population trends.
- Protection and management of key islands and atolls throughout winter ranges.

**References:**

Marks JS, Tibbitts L, Gill RE, Jr., McCaffery B. 2002. Bristle-thighed curlew (*Numenius tahitiensis*). In *The Birds of North America*, No. 705 (Poole A, Gill F, editors). Philadelphia, (PA): The Academy of Natural Sciences; and Washington DC: The American Ornithologists' Union.