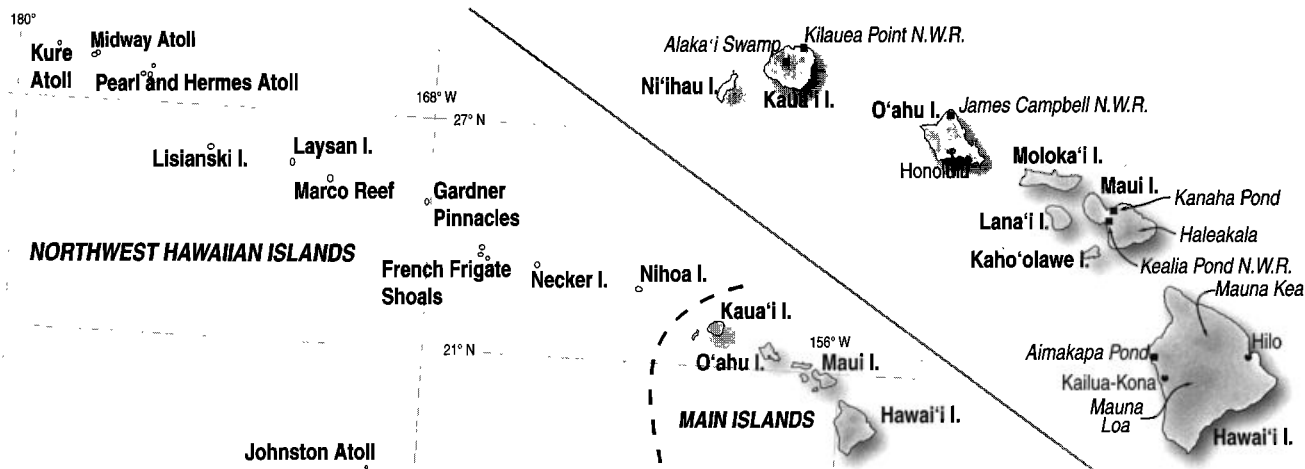


Hawaiian Islands



Rainy spring weather continued into summer, with record rainfall in some locations. The rainy weather promotes plant growth and an abundance of insect prey but also promotes avian diseases such as bird pox. This season was notable for a number of overwintering shorebird species, some never before recorded in summer. Pelagic trips provided some other unusual records.

Abbreviations: H. (Hawai'i I.); Hakalau (Hakalau N.W.R., Hawai'i I.); Hanalei (Hanalei N.W.R., Kauai I.); Honouliuli (Honouliuli Unit of Pearl Harbor N.W.R., Oahu I.); K. (Kauai I.); Kanaha (Kanaha Pond, Maui I.); Kealia (Kealia Pond N.W.R., Maui I.); Kii (Kii Unit of James Campbell N.W.R., Oahu I.); Kokee (Koke'e S.P., Kauai I.); K.P. (Kilauea Pt. N.W.R., Kauai I.); M. (Maui I.); Midway (Midway Atoll N.W.R.); O. (Oahu I.); Pouhala (Pouhala Marsh Wildlife Sanctuary, Oahu I.); Waiawa (Waiawa Unit of Pearl Harbor N.W.R., Oahu I.); Waikamoi (Waikamoi Preserve, Maui I.).

ALBATROSSES THROUGH EGRETS

Laysan Albatrosses nesting at K.P. and Princeville, K. had good success, with 50 chicks fledging at K.P. and 8 at Princeville (BZ). Laysans at Kaku Pt., K. were attacked by dogs that killed 6 ads. and all 8 chicks (BZ). Efforts are being made to fence the area. Laysans also fared poorly at Kaena Pt., O., where bird pox decimated the colony (JP). Fifteen Hawaiian Petrels (Endangered) were seen e. of Oahu 26 Jun (HS), and 6 were seen in the same area 28 Jun (PD, HJ, HS). Around 100 Bulwer's Petrels were reported on a boat trip e. of Oahu 26 Jun (HS). This is the highest count recorded in the Region. At least 50 Bulwer's were counted e. of Oahu 28 Jun (PD, HJ, HS).

Fewer than 100 Wedge-tailed Shearwaters were viewed e. of Oahu 26 (HS) & 28 Jun (PD, HJ, HS). There were thousands of Wedge-tails in the same area a year earlier (HS). Seven Christmas Shearwaters were observed w. of Kauai 1 Jun (DK), and around 20 were counted e. of Oahu 26 Jun (ph. HS), the latter being the highest count at sea from the vicinity of the main islands. Twelve of the Christmas Shearwaters seen 26 Jun were around a fish aggregation buoy in the late evening, and a single bird lingered around the same buoy for hours 28 Jun (PD, HJ, HS), the only one seen on that date. Five Newell's Shearwaters (Threatened) were reported w. of Kauai 1 Jun (DK), 2 were seen e. of Oahu 26 Jun (HS), and one was observed e. of Oahu 28 Jun (PD, HJ, HS). Two pairs of Newell's nesting in artificial cavities at K.P. were raising single chicks Jun+ (BZ). Only one Band-rumped Storm-Petrel was reported, a bird spotted w. of Kauai 1 Jun (DK). Single all-dark storm-petrels seen w. of Kauai 1 Jun (DK) and e. of Oahu 28 Jun (PD, HJ, HS) may have been Tristram's but were not positively identified. Tristram's breed on the Northwest Hawaiian Islands but are very rarely reported around the main islands.

The number of Cattle Egrets at Midway reached 42, far higher than any previous count there (TB). Cattle Egret numbers on Midway seem to decrease in winter and increase in summer, suggesting a seasonal migration (MJ), but at least some of the increase this year may have been due to local breeding. Three Cattle Egret nests were found among Red-footed Boobies in a tree on Eastern I. (JK), the first record of Cattle Egrets breeding on the Northwest Hawaiian Islands. A single Cattle Egret was seen on Lisianski I. in late Jul (RJ), and 2 were observed on French Frigate Shoals 27 Jul-8 Aug (CE, EJ, AP). Cattle

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Egrets are common on the main islands but have been rare on the Northwestern Islands and French Frigate Shoals.

IBISES THROUGH GULLS

At least 4 White-faced Ibis, out of a flock of 11 counted during the spring, remained at Hanalei Jun+ (BZ). Some of the birds may have wandered to other islands. At least one ibis was spotted at Kealia several times between late May and late Jul (MN) and on 30 Jul (BH). Hawaiian Hawks (Endangered) were seen regularly in cen. Hawai'i I. Jun+ (H.F.T., JE), with up to 3 seen at once at Hakalau (JE). Common Peafowl, long established in the Region, have become more abundant recently in e. Maui I. and have been heard calling near the center of Makawao (F&KS). Peafowl have become abundant enough in some areas of Oahu to prompt calls for control of these beautiful but loud and aggressive birds.

A pair of Hawaiian Moorhens (Endangered) that had already raised two broods of chicks in

Feb and Apr managed to raise another brood in Jul at the state-managed wetland in Hamakua Marsh, O. (JP). Hawaiian Stilts (Endangered) appeared to have pretty good nesting success this year (PD, MN, BZ). After a very early start to the nesting season, most chicks had already fledged by 31 Jul, but a few broods of chicks and one nest remained at Honouliuli (PD). A count of 133 Pacific Golden-Plovers (in both transitional and complete alternate plumages) in Waipahu O. 3 Jun (PD) made the highest Jun count for the Region. The date would be very late for departing birds and very early for returnees. Some Pacific Golden-Plovers remain in the Region every summer but usually in small numbers. A single Lesser Yellowlegs studied at Honouliuli 4 & 18 Jun and 20 Jul (PD) represented the only record for the species in either month. A single dowitcher was observed at Honouliuli 4 & 18 Jun and 20 Jul and at Waiawa 24 Jul (PD). The bird was silent and in basic plumage. There are no previous Jun records for dowitchers in the Region and only three Jul records.

A single Franklin's Gull in alternate plumage seen at Honouliuli 16 (MS) & 18 Jun (PD) was the only gull reported over the summer. Franklin's Gulls are uncommon but regular in the Region in late spring. Single Caspian Terns, uncommon in the Region, were spotted at Kii 23 Jul (PD) and at Kealia 30 Jul (BH). Small terns, probably either Least or Littles, were reported in several locations, with 4 observed on Midway (JK). Both Least and Little Terns have nested on Midway, but it is not known if any nesting occurred this summer. A group of 3 small terns on French Frigate

Shoals late Jul, 2 ads. and one juv., were photographed (AD), but it is hard to tell from photographs of the perched birds if they were Least or Littles. A Gray-backed Tern was seen e. of O'ahu 26 Jun (HS), and 4 were observed in the same area 28 Jun (PD, HJ, HS). Gray-backed Terns breed on Moku Manu, a small island near O'ahu, but are seldom reported.

An adult Slaty-backed Gull lingered on Midway 1–17 Jan (vt RD, DS, KL, v. ob.). A Black-legged Kittiwake that arrived on Midway 10 Jan (DS, KL) was found dead the next day.

DOVES THROUGH PASSERINES

At least 6 Mourning Doves were seen at Honouliuli 3 Jul (PD, RM), providing more evidence that the species is becoming established on O'ahu. Short-eared Owls were found much more easily on Hawai'i I. this summer than during the spring, when they were reported to be unusually scarce. Four to 8 were seen daily in w. Hawai'i I. mid-Jun through mid-Jul (RD), and 5 individuals were spotted in cen. Hawai'i I 2 Jul (H.F.T.).

A pair of O'ahu 'Elepaio (Endangered) was discovered along Aiea Trail, O. 19 Jun (PD, PH). Heavy spring rains caused many nest failures for introduced passerines such as Japanese Bush-Warbler, Red-billed Leiothrix, and Japanese White-eye on e. Maui, but after the weather turned drier in Jun, these species ended up having a successful summer breeding season (JF). Japanese Bush-Warblers have been established on O'ahu for more than 70 years and have become established on the other islands within the past 25 years or so. They were reported to be abundant on Moloka'i I. in late Jul (JF) and in Waikamoi Jun+ (JF, LT)

and were also common in the Waianae Mts., O. in late Jun (JF) but not as common as on Molokai or Maui. In contrast, bush-warblers were scarce in the Ko'olau Mts., O. Jun+ (PD).

As usual, Palila (Endangered) were found regularly at Pu'u La'au, H. Jun+ (H.F.T.). One Maui Parrotbill (Endangered) was studied in Waikamoi 9 Jul (LT, JF). 'Akiapola'au (Endangered) were seen regularly by researchers at Hakalau Jun+ (JE) and by tour groups at Pu'u 'O'o Ranch, H. Jun+ (H.F.T.). Hawai'i Creeper (Endangered) and 'Akepa (Endangered) were reported to be common and easy to see in Hakalau Jun+ (JE). 'Iwi apparently had a great breeding season on Maui I., where many first-year birds were observed in Waikamoi (JF). We received no reports this season of any of the rare native forest birds on Kaua'i

Red-cheeked Cordonbleu and Black-rumped Waxbills, the rarest exotic finches established in the Region, continued to be regularly seen in nw. Hawai'i I. in Jun (RD). A flock of 200 African Silverbills was counted in nw. Hawai'i I. 24 Jul (RP). This was the first big flock reported in the area in several years.

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State of the Region

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In Hawai'i, a remarkable array of plants, animals, and natural communities evolved in nearly complete isolation over millions of years. But in the relatively short time humans have occupied the islands—approximately 1500 years—much of the original forest, grassland, and wetland has been destroyed. Clearing for human habitation, large-scale agriculture in the prehistoric and historic periods, logging, modern land development, and the ongoing invasion of non-native species have resulted in more species extinctions and endangerment than anywhere else in the United States.

Roughly half the native Hawaiian landbird species are extinct, including 64 species known only from the fossil record (having gone extinct after Polynesian arrival but prior to Western contact) (James and Olson 1991, Olson and James 1991). Among the extant Hawaiian birds are 33 federally-listed threatened or endangered species, at least 10 of which have not been observed in more than a decade (Pratt, pers. comm.; Table 1). Invasive species and global warming are two of the most significant ecosystem-level threats to Hawai'i's native birds that remain.

The federal Office of Technology Assessment declared Hawai'i's alien species problem the worst in the nation (OTA 1993). Introduced feral goats, pigs, sheep, Mouflon, Axis Deer, and Black-tailed Deer are managed by the State of Hawai'i for public hunting. These animals occupy natural areas from near sea level (e.g., goats on Na Pali Coast, Kaua'i) to over 2700 m elevation (e.g., Mouflon on Mauna Kea and Mauna Loa). Feral and domestic cattle are also present in State Forest Reserves and private watersheds. These browsing and grazing animals are excluded from native ecosystems only where fences have been constructed and maintained. They are capable of transforming entire native ecosystems to weed-dominated wastelands by consuming native plants, trampling roots and seedlings, accelerating erosion, and promoting weed invasion. They threaten streams, wetlands, and coral reefs as well. Introduced predators, such as feral cats, mongooses, and three species of rat,

can cause ecosystem-level disturbances by eliminating key species. A single feral cat can destroy an entire breeding colony of Hawaiian Petrels.

The interaction between invasive animals and plants can also have a significant effect on native systems. Feral pigs consume and distribute the seeds of invasive plants, including strawberry guava and passionflowers and disturb soil areas, creating conditions for seed germination and seedling growth (Vitousek 1992). Pigs also knock down and eat native tree ferns (mainly *Cibotium* spp.). Hollowed out tree fern logs collect rainwater and serve as breeding areas for introduced mosquitoes that carry avian malaria and avian pox. Pigs also create wallows, which serve as breeding areas for introduced mosquitoes that carry avian malaria and avian pox. In drier regions, goats consume native vegetation and cause severe erosion, opening areas to invasive weeds.

One of the most serious threats to native Hawaiian birds and habitat is the introduction of the Brown Treesnake (*Boiga irregularis*), a species responsible for the extinction of nine of 13 forest bird species on Guam. Brown Treesnakes occur in high densities on Guam, and there is a significant risk that they will be transported to Hawai'i in military or civilian cargo. The U.S. Department of Agriculture anticipates up to a 50% reduction in snake containment at Department of Defense ports of exit on Guam beginning October 1, 2004 (Martin 2004). Funding for treesnake interdiction efforts has not increased significantly since the program was established 11 years ago. Military operations on Guam probably will increase over the next few years, ensuring more opportunities for accidental snake introductions to Hawai'i.

Global warming and climate change also pose ecosystem-level threats, affecting native birds and their habitat from sea level to Hawaiian cloud forests. The low-lying basalt islands and coral atolls of the Northwestern Hawaiian Islands provide habitat for 90% of Hawai'i's seabird populations (Rauzon 2001). Approximately 14 million seabirds live there, including 5.4 million breeding pairs of 18 species. The disappearance of Whale Skate Island is one of the more dramatic examples of global warming impacts to Hawai'i's native birds at sea level. The island was 4–6 ha in size and covered with vegetation, nesting seabirds, Hawaiian Monk Seals, and Green Sea Turtles. It no longer exists as a result of erosion and rising sea levels. Global warming, coral bleaching, and drought resulting from El Niño events affect ocean productivity and food availability for seabirds as well.

Studies indicate that global warming may also allow mosquitoes to breed year-round at higher

elevations than they do now, eliminating suitable habitat for native upland birds. Mosquitoes are the vector for *Plasmodium relictum*, a pathogen that transmits avian malaria to native forest birds. The threshold temperature for transmission of avian malaria to Hawaiian birds is estimated to be 13°C, whereas peak *Plasmodium* prevalence in wild mosquitoes occurs in mid-elevation forests where the mean ambient summer temperature is 17°C (Benning et al. 2002). Mosquitoes also transmit avian pox directly to native forest birds. Modeling of climate change on the islands of Kaua'i, Maui, and Hawai'i indicates that as temperatures rise by just a few degrees, suitable forest bird habitat will be lost as the mosquito zone shifts upslope. Birds occupying high-elevation forests currently free of diseases will become infected as temperatures rise. Scientists also predict that the "species temperature-tolerance zones" for native and introduced species will likely be shifted upward in elevation (Loope and Giambelluca 1998). Plants and animals may have to relocate upslope, and native cloud forests may be reduced in size. Global warming and climate change may also cause changes in frequency and intensity of hurricanes, windstorms, drought, and fire, which may favor invasive plant species over native ones.

Inadequate funding hinders species conservation and the extent to which the impacts of invasive species and global warming can be mitigated. *The Hawai'i Department of Land and Natural Resources receives less than 1% of the state budget to manage and protect all of Hawai'i's cultural and natural resources.* There is no dedicated source of funding for the Natural Area Reserves System (NARS), which includes some of the best remaining native ecosystems on State land. On average, only \$11 per acre per year is spent managing the Reserves on the ground. At the federal level, at least four times the current \$75 million federal appropriation for all 50 states is needed under the State Wildlife Grants program.

On a positive note, Hawai'i still has some of the highest densities of forest birds in the tropics (Pratt, pers. comm.). Upper-elevation forests are relatively free of weeds. High-elevation pastures are being converted to native forest in conservation areas and as commercial forests, increasing habitat for native forest birds above the mosquito zone. Efforts to reintroduce endangered Hawaiian birds are meeting with various levels of success, and essential habitat is protected in the NARS, National Parks, and National Wildlife Refuges. Predator control on the Main Hawaiian Islands is helping to ensure that bird populations survive, and all of the Northwestern Hawaiian Islands are now rat-free. Habitat on private land is managed in preserves under State-private partnerships, and since 2001, thousands of additional acres have been managed under the Watershed Partnership Program.

However, state and federal funding is still inadequate, and policy changes are needed to take advantage of the conservation opportunities at hand. Increases in base funding in the state budget and in dedicated funding for species conservation, a dedicated funding source for the NARS, and more flexibility in state and federal funding are needed to protect Hawai'i's native birds and habitat. Invasive species and global warming are two of the more prominent threats to Hawai'i's native birds among a host of others, including land development, coastal water pollution, depletion of marine food resources, and public indifference. Without a stronger commitment to providing the necessary funding for species conservation, the future for Hawai'i's native birds is not promising.

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Federally Listed Threatened and Endangered Hawaiian Birds • November 5, 2004

Status	Common & Hawaiian Name	Scientific Name	Total Population Estimate
E	'Akepa, Hawai'i	<i>Loxops coccyneus coccyneus</i>	14,000 birds
E	'Akepa, Maui	<i>Loxops coccyneus ochraceus</i>	Last detected 1970
E	'Akialoa, Kaua'i	<i>Hemignathus procerus</i>	Last detected late 1960s
E	'Akiapola'au	<i>Hemignathus munroi</i>	1,163 birds
E	Albatross, Short-tailed	<i>Phoebastria albatrus</i>	1,990 birds
E	Coot, Hawaiian ('Alae Ke'oke'o)	<i>Fulica alai</i>	2,100 (5-year average)
E	Creeper, Hawai'i	<i>Oreomystis mana</i>	12,500 birds
E	Creeper, Moloka'i (Kakawahie)	<i>Paroreomyza flammea</i>	Last detected 1963
E	Creeper, O'ahu ('Alauahio)	<i>Paroreomyza maculata</i>	Last detected 1985
E	Crow, Hawaiian ('Alala)	<i>Corvus hawaiiensis</i>	40 birds
E	Duck, Hawaiian (Koloa)	<i>Anas wyvilliana</i>	2,200 birds
E	Duck, Laysan	<i>Anas laysanensis</i>	459 birds
E	'Elepaio, O'ahu	<i>Chasiempis sandwichensis ibidis</i>	1,970 birds
E	Finch, Laysan	<i>Telespiza cantans</i>	8,500-12,000
E	Finch, Nihoa	<i>Telespiza ultima</i>	1,500-3,200 birds
E	Goose, Hawaiian (Nene)	<i>Branta sandvicensis</i>	1,275 birds
E	Hawk, Hawaiian ('Io)	<i>Buteo solitarius</i>	1,400-2,500 birds
E	Honeycreeper, crested ('Akohekohe)	<i>Palmeria dolei</i>	3,800 birds
E	Millerbird, Nihoa	<i>Acrocephalus familiaris kingi</i>	155 birds
E	Moorhen, Hawaiian Common ('Alae 'Ula)	<i>Gallinula chloropus sandvicensis</i>	314 birds (5-year average)
E	Nukupū, Kaua'i	<i>Hemignathus lucidus hanapepe</i>	Last detected 1960s
E	Nukupū, Maui	<i>Hemignathus lucidus affinis</i>	Last detected 1979
E	'O'o 'a'a (Kaua'i 'O'o)	<i>Moho braccatus</i>	Last detected April 1987
E	'O'u	<i>Psittirostra psittacea</i>	Last detected 1979
E	Palila	<i>Loxioides bailleui</i>	3,390 (16-year average)
E	Parrotbill, Maui	<i>Pseudonestor xanthophrys</i>	500 birds
E	Petrel, Hawaiian ('Ua'u)	<i>Pterodroma phaeopygia sandwichensis</i>	several thousand to 34,000
E	Po'ouli	<i>Melamprosops phaeosoma</i>	2 birds
T	Shearwater, Newell's Townsend's ('A'o)	<i>Puffinus auricularis</i>	84,000
E	Stilt, Hawaiian (Ae'o)	<i>Himantopus mexicanus knudseni</i>	1,350 (5-year average)
E	Thrush, Large Kaua'i (Kama'o)	<i>Myadestes myadestinus</i>	Last detected 1989
E	Thrush, Moloka'i (Oloma'o)	<i>Myadestes lanaiensis rutha</i>	Last detected 1988
E	Thrush, Small Kaua'i (Puaiohi)	<i>Myadestes palmeri</i>	300 birds

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The endangered Po'ouli (*Melamprosops phaeosoma*) clings to existence in the Hanawi Natural Area Reserve on the slopes of the Haleakala Mountain, Maui. Only two individuals of this species are believed to exist, but these have not been seen in several years, and the species may already be extinct. Photograph by Paul Baker/U. S. Fish & Wildlife Service.