'ELEPAIO

Journal of the Hawaii Audubon Society

For the Protection of Hawaii's Native Wildlife

VOLUME 37, NUMBER 10 APRIL 1977

PROPOSED DETERMINATION OF CRITICAL HABITAT FOR THE PALILA
(50 Code of Federal Regulations Part 17)

The Director, United States Fish and Wildlife Service (hereinafter, the Director and the Service, respectively) hereby issues a Proposed Rulemaking which would determine Critical Habitat for the Palila (Psittirostra bailleui), an Endangered Hawaiian bird. This Proposal is issued pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Stat. 884; hereinafter the Act).

Background: The Palila, a small bird of the Hawaiian Honeycreeper Family, is now restricted to a relatively small area on the Island of Hawai'i, and has been officially listed as Endangered since 1967. Hope for the survival and recovery of this species centers on maintenance of its forest habitat on the slopes of Mauna Kea.

A notice of intent to determine Critical Habitat for the Palila was published by the Service in the FEDERAL REGISTER of May 16, 1975 (40 FR 21499-21500). Subsequently, the Director received several comments indicating that Critical Habitat for the Palila consisted of the Māmane-Naio Forests around Mauna Kea. On June 18, 1976, the Service's Region 1 in Portland submitted a precise delineation of a recommended Critical Habitat zone in this area. After evaluating this recommendation and supporting data, the Director determined to proceed with this Proposed Rulemaking.

The area delineated below consists primarily of Māmane (Sophora chrysophylla)-Naio (Myoporum sandwicense) forest, and extends from about 7,000 to 10,000 feet in elevation. The Palila depends on the Māmane and Naio trees for food, shelter, and nesting sites; it cannot survive without these tree species. Moreover, the delineated area apparently contains the world's entire known population of Palila and supports most of the large and intermediate-sized Māmane and Naio trees on Mauna Kea. This area is large enough to allow space for the population to expand and includes a full range of altitudinal and geographical sites needed by the Palila for normal life cycle movement. Such movement is the response of the species to shifting seasonal and annual patterns of flowering, seed set, and ensuing pod development of the Māmane vegetation.

Effects of the Rulemaking: The effects of this determination are involved primarily with Section 7 of the Act, which states: "The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act and by taking such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical."

An interpretation of the term "Critical Habitat" was published by the Fish and Wildlife Service and the National Marine Fisheries Service in the FEDERAL REGISTER of April 22, 1975, (40 FR 17764-17765). Some of the major points of that interpretation are: 1.Critical Habitat could be the entire habitat of a species, or any portion thereof, if any constituent element is necessary to the normal needs or survival of that species; 2.Actions by a Federal agency affecting Critical Habitat of a species would not conform with section 7 if such actions might be expected to result in a reduction in the numbers or distribution of that species of sufficient magnitude to place the species in further jeopardy, or restrict

the potential and reasonable recovery of that species; and 3.There may be many kinds of actions which can be carried out within the Critical Habitat of a species which would not be expected to adversely affect that species.

This last point has not been well understood by some persons. There has been widespread and erroneous belief that a Crital Habitat designation is something akin to establishment of a wilderness area or wildlife refuge, and automatically closes an area to most human uses. Actually, a Critical Habitat designation applies only to Federal agencies, and essentially is an official notification to these agencies that their responsibilities pursuant to Section 7 of the Act are applicable in a certain area.

A Critical Habitat designation must be based solely on biological factors. There may be questions of whether and how much habitat is critical, in accordance with the above interpretation, or how to best legally delineate this habitat, but any resultant designation must correspond with the best available biological data. It would not be in accordance with the law to involve other motives; for example, to enlarge a Critical Habitat delineation so as to cover additional habitat under Section 7 provisions, or to reduce a delineation so that actions in the omitted area would not be subject to evaluation.

There may indeed be legitimate questions of whether, and to what extent, certain kinds of actions would adversely affect listed species. These questions, however, are not relevant to the biological basis of Critical Habitat delineations. Such questions should, and can more conveniently, be dealt with after Critical Habitat has been designated. In this respect, the Service in cooperation with other Federal agencies has drawn up a set of guidelines which, in part, establish a consultation and assistance process for helping to evaluate the possible effects of actions on Critical Habitat. ...

Public Comments Solicited: The Director intends that the rules finally adopted be as accurate as possible in delineating the Critical Habitat of the Palila. The Director, therefore, desires to obtain the comments and suggestions of the public....

Interested persons may submit written comments, preferably in triplicate, to the Director (FWS/LE), U.S. Fish and Wildlife Service, P.O. Box 19183, Washington, D.C. 20036. All relevant comments received no later than April 18, 1977, will be considered. —12/12/76

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FEDERAL REGISTER, Vol.41, No.247, 22 December 1976: ...The following areas (exclusive of those existing man-made structures or settlements which are not necessary to the survival or recovery of the species) are Critical Habitat for the Palila (Psittirostra bailleui).

Hawai'i. An area of land, water, and airspace on the Island of Hawai'i, Hawai'i County, with the following components: 1.the State of Hawai'i Mauna Kea Forest Reserve, except (a)that portion south of the Saddle Road (State Highway 20), (b)lands owned by the United States in the Pohakuloa Training Area north of the Saddle Road (State Highway 20) established by Executive Order 1719 (Parcel 6, State of Hawai'i Tax Map Key 4-4-16, Third Division), (c)that portion (Parcel 10, Kaohe IV, State of Hawai'i Tax Map Key 4-4-16, Third Division) lying north of the Saddle Road (State Highway 20) and south of the Power Line Road; 2.that portion of the State of Hawai'i Kaohe Game Management Area (Parcel 4, State of Hawai'i Tax Map Key 4-4-15, Third Division) to the north and east of the Saddle Road (State Highway 20); 3.that portion of the Upper Waikii Paddock (Parcel 2, State of Hawai'i Tax Map Key 4-4-15, Third Division) northeast of the Saddle Road (State Highway 20); 4.that portion of the lands of Humuula between Pu'u Kahinahina and Kole lying southeast of the Mauna Kea Forest Reserve fence (portions of Parcels 2, 3, and 7, State of Hawai'i Tax Map 3-8-1, Third Division) which are included in the State conservation district; (b) Pursuant to section 7 of the Act, all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of this Critical Habitat area.

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By special permission the following species accounts of the endangered Hawaiian birds were excerpted from the Report of The American Ornithologists' Union, Committee on Conservation, 1974-75; Supplement to THE AUK, Vol.92, No.4, October 1975:

Committee chairman is David B. Marshall, and Hawai'i ornithologists Warren B. King and J. Michael Scott have contributed to the report.

* Classed as endangered by the U.S. Department of the Interior.

** Assigned to recovery teams.

Newell's Manx Shearwater (Puffinus puffinus newelli)--Most nesting of this Hawaiian subspecies was wiped out by predators on all islands except Kaua'i. A small group is known to breed at Makaopuhi Crater on the island of Hawai'i. Night calling in south Kona district

may indicate the presence of additional unlocated colonies on Hawai'i. Officially proposed as a "threatened" species by the U.S. Department of the Interior.

*Hawaiian Dark-rumped Petrel (Pterodroma phaeopygia sandwichensis)—Breeds on Maui and Hawai'i, but its population on the latter is widely dispersed in three small colonies, the largest of which has scarcely 100 birds, and is apparently still declining. The Maui population is restricted primarily to the west rim and wall of Haleakala Crater, but the population is probably about 1800-2000 birds, including nonbreeders, and is stable. Black rats (Rattus rattus), thought to be a predator on eggs and young chicks, pose a major threat only infrequently, when numbers invade the mountain heights from lower elevations. The introduced mongoose (Herpestes auropunctatus) undoubtedly preyed on this species, and its lower range limit is now dictated by the uppermost limit of mongoose distribution.

**Hawaiian Goose (Nēnē)(Branta sandvicensis)—Presently restricted to volcanic slopes above 5000 feet on the islands of Maui and Hawai'i; the total population is estimated at 700 birds: 600 on Hawai'i and 100 on Maui. This estimate includes wild and released birds. The increase in numbers from a low of less than 50 in 1945 has been due primarily to a successful propagation and release program of the Hawaiian Fish and Game Division assisted by federal funds.

**Laysan Duck (Anas laysanensis)—A field party visiting Laysan Island in June 1973 could not find more than 25 birds, a drastic decline from the 475 estimated in 1964 and 175 in 1972. A visit in July 1974 produced a count of 69, including 37 adults. Obviously, the 1973 count missed some birds and reproduction was good in 1974. Except for some captive stock, the entire population of Laysan Ducks is on Laysan Island.

**Hawaiian Coot (Fulica americana alai)—The main threat to this subspecies has been the continuing loss of lowland marshes and ponds where it lives exclusively. Statewide midsummer counts of coots over the past 6 years (1969-74)have ranged from 425 to 1667 birds. Recent purchases of wetlands on Kaua'i and planned purchases on Maui, Hawai'i, and Moloka'i as National Wildlife Refuges offer considerable hope for this form.

**Hawaiian Stilt (Himantopus himantopus knudseni)—The outlook for this stilt is much improved. A refuge acquisition program is now in progress on the major Hawaiian Islands. A census conducted in 1974 accounted for 1215 birds.

**Hawaiian Crow ('Alalā) (Corvus tropicus)—About 44 individuals are known in the area surveyed to date and the total world population is estimated to be no larger than 60-70 birds. Although new birds have been found in recent years, subpopulations that have been followed for the past 7 to 8 years have gradually declined in numbers.

**Large Kaua'i Thrush (Phaeornis obscurus myadestinus)—At the turn of the century this was the most abundant of the forest birds on Kaua'i, but it is now restricted to the deeper, more inaccessible portions of the Alaka'i Swamp, and the population probably does not number over a few hundred birds.

**Moloka'i Thrush (Phaeornis obscurus rutha)—The last sighting of this thrush, endemic to Moloka'i, was reported in 1967.

**Small Kaua'i Thrush (Phaeornis palmeri)—Always considered a fairly rare bird on Kaua'i; there has been no apparent major reduction in this thrush as with the large Kaua'i Thrush. It has been seen at only 3 of 54 former stations since 1968, and it is doubtful that the population exceeds 100 birds.

*Nihoa Millerbird (Acrocephalis familiaris kingi)—The remaining millerbird is found only on 156-acre Nihoa Island, Hawaiian Islands National Wildlife Refuge. Since annual surveys were started in 1967, the population has varied from a low of about 200 in 1973 to a high of about 600 in 1967. The population estimate in July 1974 was 428. Reasons for widely fluctuating numbers are not known.

**Kaua'i 'Ō'ō (Moho braccatus)—This extremely rare species is now found only in one small valley deep in the Alaka'i Swamp. Only one pair was seen in the Alaka'i from 1973 through 1975. The first nest of any of the Hawaiian 'Ō'ō was found in a tree cavity in 1971. Successful nests were also found in 1972 and 1973. It is believed that probably no more than 1 to 2 dozen birds represent this last of the meliphagids in Hawai'i.

Hawai'i Creeper (Loxops maculata mana)—This very rare subspecies is reported consistently only from Kilauea Forest Reserve and Keauhou Ranch. Extensive work on Mauna Loa has shown it to be at least as rare there as the 'Akiapola'au (Hemignathus wilsoni). Determination of the actual status of this species is complicated by the fact that many observers are unable to distinguish it from the 'Amakihi (Loxops virens virens). This creeper has been formally proposed for Interior's endangered species list.

*O'ahu Creeper ('Alauwahio)(Loxops maculata maculata)—The only recent sightings of

this creeper have been on the Poamoho trail on O'ahu, but it may exist in fair numbers in remote sections of native forest. A survey of these regions is badly needed.

*Moloka'i Creeper (Loxops maculata montana)—Habitat on Moloka'i for this bird is extremely limited and the last reported sighting was in 1967.

**Hawai'i 'Ākepa (Loxops coccinea coccinea)—This species is reported most frequently from the eastern slope of Mauna Loa and the southwestern slopes of Hualalai on Hawai'i. Numbers reported from these areas are low; densities of 46 birds per 100 acres occur from the eastern slopes of Mauna Loa where it was found in 5 of 10 places censused. A survey of 392 transect miles of māmane-naio forest on Mauna Kea produced only two individuals. The 'Ākepa seems quite local in its distribution and is uncommon at best wherever found.

**Maui 'Ākepa (Loxops coccinea ochracea)—Perhaps the rarest of Maui's forest birds, only three reliable sightings of it have been made in recent years.

**'Akiapola'au (Hemignathus wilsoni)—This endemic to the island of Hawai'i is consistently reported only from Keauhou Ranch and Kīlauea Forest Reserve on Mauna Kea, where average densities of 19.0 birds per 100 acres are found in limited areas. At one time it was fairly widespread throughout the island. A recent survey covering 392 transect miles in the māmane-naio forests of Mauna Kea produced only 12 'Akiapola'au. The biggrst single threat to this species at the present time may be logging for koa (Acacia koa) in forests where the bird is known to occur.

**Maui Nuku-pu'u (Hemignathus lucidus affinis)—Occurs in the same general area as Maui Parrotbill, but population densities are much lower. Only two birds were seen during the 1973 Hana Rain Forest Project.

**Kaua'i 'Akialoa (Hemignathus procerus)—The 'Akialoa has not been seen or heard since March 1965 despite over 500 days of intensive fieldwork covering the entire island from 1968-75 by John Sincock, U.S. Fish and Wildlife Service. It may be extinct.

**Kaua'i Nuku-pu'u (Hemignathus lucidus hanapepe)—Found only on Kaua'i; this is one of the rarest of the endangered birds on that island. It has been seen only twice in this century through 1961. After 500 days of searching throughout the forests of Kaua'i from 1968 to the present John Sincock saw one bird in 1973 and photographed one in 1974. Both sightings were at the same place deep in the Alaka'i Swamp.

**Maui Parrotbill (Pseudonestor xanthophrys)—Known to occur only in the rain forests at higher elevations on the northeastern slopes of Haleakala, Maui. Population densities may be very low and no estimates of total numbers are available.

**'Ō'ū (Psittirostra psittacea)—The only recent reports of this species on the island of Hawai'i are from the 'Ōla'a tract and adjacent forests. Very unpredictable in its occurrence; it is perhaps the rarest of the honeycreepers on the island of Hawai'i. On Kaua'i the 'Ō'ū was seen at 6 of 54 stations that were intensively surveyed. Very rare even in these habitats, it is presently restricted to an area about 1 mile wide and 5 miles long in the Alaka'i Swamp. It is presumed extinct on O'ahu, Moloka'i, Lāna'i, and Maui.

*Laysan Finch (Psittirostra cantans cantans)—After having been reduced to about 3 dozen birds in 1923, population estimates for this species on Laysan Island, Hawaiian Islands National Wildlife Refuge, fluctuated from 6800 to 12,400 between 1966 and 1974. A population of 100 birds transplanted to Pearl and Hermes Reef in 1967 is thriving and had increased to 500 by 1974.

*Nihoa Finch (Psittirostra cantans ultima)—Found only on Nihoa Island; the number of this subspecies has fluctuated from a high of 6700 in 1968 to a low of 1300 in 1973. The 1974 population was estimated to be 5000. Only about a half dozen of the birds transplanted to French Frigate Shoals survive.

**Palila (Psittirostra bailleui)—The Palila is found exclusively in the māmane-naio forests of Mauna Kea. A recent survey that covered 392 transect miles of this habitat produced 256 confirmed sightings. Palila were found most abundant near tree line in the māmane-naio forests. This is where herds of feral sheep occur and as a result of their overgrazing, māmane reproduction in this area is practically nonexistent.

**Crested Honeycreeper ('Ākohekohe)(Palmeria dolei)—Believed extinct on Moloka'i, and presently known to occur only at high elevations in the rain forest on the northeast slopes of Haleakala, Maui, where it is a locally common bird.

Po'o Uli (Melamprosops phaeosoma)—A newly discovered species and genus; it is restricted to the northeastern slopes of Haleakala, Maui (Casey and Jacobi 1974, Occ. Pap., Bernice P. Bishop Mus. 12:218). It has been found only in a 60-ha tract between 5300 and 6800 feet in the Ko'olau Forest Reserve. During the 1973 Hana Rain Forest Project, 12 individuals were identified. This species status seems precarious because of its small population and

restricted range, but additional field work needs to be done to document its range fully on Maui. Formally proposed as an endangered species by the U.S. Department of Interior.

/Koloa, 'Io, and Hawaiian Gallinule are endangered species not covered in this report. The Hawai'i Creeper and Po'o Uli have been added to the U. S. List of Endangered Species since this report was published./ -- Mae E. Mull's contribution

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The ENDANGERED SPECIES TECHNICAL BULLETIN issued in November 1976 a Special Report on the Birds of Hawai'i under the paragraph heading of 1.Ecological Upheaval, 2.Disaster on Laysan, 3.Emphasis on Kaua'i, 4.Research and Recovery; and a chart of the known endemic, indigenous, and migratory species of Hawaiian birds, compiled by David B. Marshall, a senior staff specialist in the Endangered Species Program, and for the first time documents the current status of native birds. The summary shows the high proportion of birds that have become extinct and the large number that are presently Endangered or Threatened. The chart is intended to illustrate the critical status of Hawai'i's unique avifauna.

Family/Common Name; Scientific Name; Status; Distribution (by island)

ENDEMICS: Eleven families containing 44 species (with subspecies, a total of 67 taxa)

ANATIDAE

Nēnē (Hawaiian goose); Branta sandvicensis; Endangered; Hawai'i, introduced Maui

Koloa (Hawaiian duck); Anas wyvilliana; Endangered; Originally all main islands except Lāna'i and Kaho'olawe; now Kaua'i only

Laysan duck; Anas laysanensis; Endangered; Laysan

ACCIPITRIDAE

'Io (Hawaiian hawk); Buteo solitarius; Endangered; Hawai'i

RALLIDAE

Laysan rail; Porzanula palmeri; Extinct; Laysan; introduced Midway, where established until release of rats

Hawaiian rail; Pennula sandwicensis; Extinct; Hawai'i and Moloka'i

Hawaiian gallinule; Gallinula chloropus sandvicensis; Endangered; Formerly all main islands except Ni'ihau and Lāna'i; now Kaua'i, O'ahu, and Moloka'i

Hawaiian coot; Fulica americana alai; Endangered; All main islands except Lāna'i

RECURVIROSTRIDAE

Hawaiian Stilt; Himantopus himantopus knudseni; Endangered; Ni'ihau, Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i

STRIGIDAE

Pueo (short-eared owl); Asio flammeus sandwichensis; -- ; All main islands

CORVIDAE

'Alalā (Hawaiian crow); Corvus tropicus; Endangered; Hawai'i

TURDIDAE

'Āmaui (Hawaiian thrush); Phaeornis obscurus

/'Āmaui/ O'ahu race; P.o. Oahuensis; Extinct; O'ahu

/Oloma'o/ Lāna'i race; P.o. lanaiensis; Extinct; Lāna'i

/Oloma'o/ Moloka'i race; P.o. rutha; Endangered; Moloka'i

/Kāma'o/ Kaua'i race (large Kaua'i thrush); P.o. myadestina; Endangered; Kaua'i

/'Ōma'o/ Hawai'i race; P.o. obscurus; — ; Hawai'i

Puaiohi (small Kaua'i thrush); P. palmeri; Endangered; Kaua'i

SYLVIIDAE

Laysan millerbird; Acrocephalus familiaris /familiaris/; Extinct; Laysan

Nihoa millerbird; Acrocephalus/familiaris/ kingi; Endangered; Nihoa

MUSCICAPIDAE

'Elepaio; Chasiempis sandwichensis

Kaua'i race; C.s. sclateri; — ; Kaua'i

O'ahu race; C.s. gayi; — ; O'ahu

Hawai'i race; C.s. sandwichensis; — ; Hawai'i

MELIPHAGIDAE

Kaua'i 'ō'ō; Moho braccatus; Endangered; Kaua'i

O'ahu 'ō'ō; Moho apicalis; Extinct; O'ahu

Moloka'i 'ō'ō; Moho bishopi; Extinct; Moloka'i

Hawai'i 'ō'ō; Moho nobilis; Extinct; Hawai'i

Kioea; Chaetoptila angustipluma; Extinct; Hawai'i

DREPANIDIDAE

'Amakihi; Loxops virens
Kaua'i race; L.v. stejnegeri; — ; Kaua'i
O'ahu race; L.v. chloris; — ; O'ahu
Maui, Moloka'i, Lāna'i race; L.v. wilsoni; — ; Maui, Moloka'i, Lāna'i
Hawai'i race; L.v. virens; — ; Hawai'i
'Anianiau; Loxops parva; — ; Kaua'i
Greater 'amakihi; Loxops sagittirostris; Extinct; Hawai'i
Creeper; Loxops maculata
Kaua'i race; L.m. bairdi; — ; Kaua'i
O'ahu race; L.m. maculata; Endangered; O'ahu
Moloka'i race; L.m. flammea; Endangered; Moloka'i
Lāna'i race; L.m. montana; Extinct; Lāna'i
Maui race; L.m. newtoni; — ; Maui
Hawai'i race; L.m. mana; Endangered; Hawai'i
'Ākepa; Loxops coccinea
Kaua'i race; L.c. caeruleirostris; — ; Kaua'i
O'ahu race; L.c. rufa; Extinct; O'ahu
Maui race; L.c. ochracea; Endangered; Maui
Hawai'i race; L.c. coccinea; Endangered; Hawai'i
'Akialoa; Hemignathus obscurus
O'ahu race; H.o. ellisianus; Extinct; O'ahu
Lāna'i race; H.o. lanaiensis; Extinct; Lāna'i
Hawai'i race; H.o. obscurus; Presumed extinct; Hawai'i
Kaua'i 'akialoa; Hemignathus procerus; Endangered; Kaua'i
Nuku-pu'u; Hemignathus lucidus
Kaua'i race; H.l. hanapepe; Endangered; Kaua'i
O'ahu race; H.l. lucidus; Extinct; O'ahu
Maui race; H.l. affinis; Endangered; Maui
'Akiapola'au; Hemignathus wilsoni; Endangered; Hawai'i
Maui parrotbill; Pseudonestor xanthophrys; Endangered; Maui
'Ō'ū; Psittirostra psittacea; Endangered; Kaua'i, Hawai'i (formerly O'ahu, Moloka'i, Lāna'i, and Maui)
Laysan and Nihoa finches; Psittirostra cantans
Laysan finch; P.c. cantans; Endangered; Laysan, introduced Midway and Pearl and Hermes Reef (gone on Midway now because of rats)
Nihoa finch; P.c. ultima; Endangered; Nihoa, introduced French Frigate Shoals
Palila; Psittirostra bailleui; Endangered; Hawai'i
Greater koa finch; Psittirostra palmeri; Extinct; Hawai'i
Lesser koa finch; Psittirostra flaviceps; Extinct; Hawai'i
Grosbeak finch; Psittirostra kona; Extinct; Hawai'i
Po'o uli; Melamprosops phaeosoma; Endangered; Maui
'Apapane; Himatione sanguinea
'Apapane; H.s. sanguinea; — ; All six main islands
Laysan honeyeater; H.s. freethii; Extinct; Laysan
Crested honeycreeper; Palmeria dolei; Endangered; Maui, Moloka'i
'Ula-'ai-hāwane; Ciridops anna; Extinct; Hawai'i
'I'iwi; Vestiaria coccinea; — ; Kaua'i, O'ahu, Moloka'i, Maui, Hawai'i, extirpated Lāna'i
Mamo; Drepanis pacifica; Extinct; Hawai'i
Black mamo; Drepanis funerea; Extinct; Moloka'i

INDIGENOUS SPECIES: Eight families containing 23 species[1]

DIOMEDEIDAE

Black-footed albatross[2]; Diomedea nigripes
Laysan albatross[2]; Diomedea immutabilis

PROCELLARIIDAE

Wedge-tailed shearwater; Puffinus pacificus chlororhynchus
Christmas shearwater; Puffinis nativitatis
Newell's shearwater[2]; Puffinis puffinus newelli; Threatened
Hawaiian petrel[2]; Pterodroma phaeopygia sandwichensis; Endangered
Bonin petrel; Pterodroma hypoleuca hypoleuca

(continued on page 122)

PRELIMINARY LIST OF THE BIRDS OF HAWAII

By Robert L. Pyle

This list is intended to include all species of birds which have occurred naturally in Hawaii, and those species introduced by man which are currently established as viable populations reproducing in the wild. Purposes of this list are: 1)to provide an appropriate vernacular name and the currently accepted scientific name for each species, and the Hawaiian language name for native species; 2)to establish a standard order of listing encompassing all of Hawaii's species, following generally the phylogenetic order used by the American Ornithologists' Union for North American birds; and 3)to designate those visitor species whose published record of occurrence in the state is substantiated by a specimen or by a sight record with adequate supporting details of observation.

The *American Ornithologists' Union Checklist of North American Birds*, 1957 edition (including the 32nd and 33rd Supplements of April 1973 and October 1976), is followed generally for phylogenetic order, and for vernacular and scientific names. Names and order of introduced species follow Berger, *'Elepaio*, June 1976, pp 143-146, which is based on Van Tyne and Berger, *Fundamentals of Ornithology*, 1976 edition, but includes moving the *PLOCEIDAE* to immediately preceding the *FRINGILLIDAE* for convenience in Hawaii. For other species not included in the *AOU Checklist*, references consulted for names and status include: W. King,1967, *Smithsonian Identification Manual Seabirds of the Tropical Pacific Ocean;* Hawaii Audubon Society, *Hawaii's Birds*, 1975 edition; A. Berger, 1972, *Hawaiian Birdlife;* and the list of Hawaiian language bird names by Titcomb and Gagne in the *'Elepaio*, April 1976, pp 117-126.

NOTE: In this initial issuance of the List, designated Preliminary, the above references are followed explicitly for vernacular and scientific names. This is done in the interests of timely circulation of the List via the *'Elepaio* without need for space-consuming explanations about departures from these references. For some species, different names than are given in these references seem preferable. These cases will be explained with reasons and comment as necessary, and published soon in the *'Elepaio* as formal amendments to the List. These formal amendments also will report modifications to the List reflecting new information, new records and sightings, changes in status and correction of errors. Suggestions for modifications, additions or deletions to the List are solicited. They should be forwarded to the author for consideration for future amendments.

Geographic scope of this List includes all islands in the state of Hawaii out to Kure Atoll, plus Midway Atoll (not legally a part of the state of Hawaii), and coastal waters out to 160 kilometers (approximately 100 miles) from any of the islands. All endemic species and subspecies are listed, including those presumed to have become extinct in historic times. Ancient species known only from archeological specimens are not included. Scientific names are given to

the species level for visitors and foreign introduced species, and to the subspecies level for native breeding birds. Vernacular names are given to species level, except that subspecific vernacular names are given for certain endemic forms where the subspecific names traditionally have been used to distinguish between different island races, or to identify an endemic (usually Endangered) Hawaiian race of a North American species. Following the first listed vernacular name, other vernacular names which have been used frequently in Hawaii are given in parentheses for some species. Subfamily headings are shown within the unique family *DREPANIDIDAE*, which is endemic to Hawaii.

The Hawaii Audubon Society strongly encourages use of the traditional Hawaiian language names for native birds. However, Hawaiian language names for foreign introduced species are not included in this List because generally they are contrived, and were not used in Hawaiian speech.

Vagrant species are accepted for the List if supported by a specimen, or by a published sight record giving adequate details of identification in a context indicating the observer was aware of its rarity in Hawaii. Reasonable likelihood that a stray individual may have been brought in by man, rather than having reached Hawaii naturally under its own power, is sufficient to withhold the species from the List, unless, of course, the species later becomes established as a breeding population. Species recorded only as dead remains are not included.

Introduced species are of two classes: those introduced and well established before World War II; and a large number of gamebird and songbird species brought in during the past 25 years. Some of the latter introductions are well-documented, but many are not. For a number of species in the Diamond Head area of Oahu Island and the northwestern region of Hawaii Island, it isn't always clear whether continued presence of an exotic species represents reproduction in the wild, or successive introductions over a period of years. The more recently introduced species included on the List with "Fn" status are those which now seem to have become established. Criteria considered in deciding whether a species is established include: trend toward increasing numbers; continuing expansion of range; occurrence on the Honolulu Christmas Bird Count for at least 7 of the past 10 years (with trend toward larger counts); field reports from government wildlife personnel on gamebird status, particularly on islands other than Oahu; published accounts in depth in the *'Elepaio* on current observations and status of individual species; and in general the frequency and circumstances of reported sightings. The "Fn" group reflects the author's best judgment at this time, but is clearly subjective with a number of species marginal as to whether they should or should not be included.

The author is especially grateful to Warren King, Mae Mull, Ron Walker, Dave Woodside and particularly Fred Zeillemaker for providing considerable information, extensive reviews of earlier drafts, and general consultation, Others who have reviewed drafts or otherwise commented at various stages include Andrew Berger, Ed Bryan, Tim Burr, Roger Clapp, Sheila Conant, Unoyo Kojima, Gene Kridler, Doug Pratt, Mike Scott, Rob Shallenberger and Margaret Titcomb. My thanks to them all for their interest and help.

SYMBOLS FOR STATUS

R = Resident species; native; normally does not leave the islands

Re = Resident - endemic at species level; not extinct.
Rx = Resident - endemic at species level; presumed extinct.
(most of these have not been recorded in this century; only two have been recorded since 1915; none have been recorded since 1944)
Ri = Resident - indigenous species; Hawaiian form is not endemic.
Ris= Resident - indigenous species; Hawaiian subspecies is endemic.

F = Foreign introduced species; resident; normally does not leave the islands.

Fl = Foreign - long-established and breeding for more than 25 years.
Fn = Foreign - new introduction; apparently established and breeding, but for less than 25 years.

B = Breeding species in Hawaii; native; most individuals depart Hawaii when not breeding.

Bi = Breeder - indigenous species; Hawaiian form also breeds elsewhere.
Bis= Breeder - indigenous species; Hawaiian subspecies breeds only in Hawaii.

V = Visitor species; breeds elsewhere; occurs in Hawaii when not breeding.

Vr = Visitor - regular migrant to Hawaii.
Vo = Visitor - occasional to frequent migrant to Hawaii.
Vs = Visitor - accidental straggler to Hawaii; at least one well-substantiated record since 1960.
Vx = Visitor - accidental straggler to Hawaii; no well-substantiated published record since 1960.

P = Pelagic species; breeds elsewhere; occurs offshore normally beyond immediate coastal waters, or as accidental straggler to land.

Pr = Pelagic - current information indicates it occurs regularly within 160 kilometers(100 miles) of Hawaiian Islands.
Po = Pelagic - current information indicates it occurs occasionally within 160 kilometers(100 miles) of Hawaiian Islands.
Ps = Pelagic - known only from one or a very few sightings or specimens.

E- in the right hand column preceding the genus name designates a species or subspecies currently on the Federal List of Endangered Species.

PRELIMINARY LIST OF THE BIRDS OF HAWAII

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	LOONS		*GAVIIDAE*
Vs	Arctic Loon		*Gavia arctica*
	GREBES		*PODICIPEDIDAE*
Vs	Horned Grebe		*Podiceps auritus*
Vs	Pied-billed Grebe		*Podilymbus podiceps*
	ALBATROSSES		*DIOMEDEIDAE*
Vs	Short-tailed Albatross		*Diomedea albatrus*
Bi	Black-footed Albatross		*Diomedea nigripes*
Bi	Laysan Albatross	Mōlī	*Diomedea immutabilis*
	SHEARWATERS, PETRELS		*PROCELLARIIDAE*
Po	Northern Fulmar		*Fulmarus glacialis*
Bi	Wedge-tailed Shearwater	'Ua'u-kani	*Puffinus pacificus chlororhynchus*
Ps	New Zealand Shearwater		*Puffinus bulleri*
Pr	Sooty Shearwater		*Puffinus griseus*
Pr	Short-tailed Shearwater		*Puffinus tenuirostris*
Bi	Christmas Shearwater		*Puffinus nativitatis*
Bis	Newell Shearwater (a subspecies of Manx Shearwater)	'A'o	*Puffinus puffinus newelli*
Ps	Little Shearwater		*Puffinus assimilis*
Bis	Hawaiian Petrel (a subspecies of Dark-rumped Petrel)	'Ua'u	E-*Pterodroma phaeopygia sandwichensis*
Pr	Juan Fernandez Petrel		*Pterodroma externa*
Pr	Mottled Petrel		*Pterodroma inexpectata*
Ps	Herald Petrel		*Pterodroma arminjoniana*
Ps	Kermadec Petrel		*Pterodroma neglecta*
Ps	Murphy Petrel		*Pterodroma ultima*
Bi	Bonin Petrel		*Pterodroma hypoleuca hypoleuca*
Bi	Bulwer Petrel	'Ou	*Bulweria bulwerii*
Ps	Jouanin Petrel		*Bulweria fallax*
	STORM-PETRELS		*HYDROBATIDAE*
Bi	Sooty Storm Petrel		*Oceanodroma tristrami*
Pr	Leach Storm-Petrel		*Oceanodroma leucorhoa*
?-(Bi)	Hawaiian Storm-Petrel (a subspecies of Harcourt Storm-Petrel	'Akē'akē	*Oceanodroma castro cryptoleucura*
	TROPICBIRDS		*PHAETHONTIDAE*
Ps	Red-billed Tropicbird		*Phaethon aethereus*
Bi	White-tailed Tropicbird	Koa'e-kea	*Phaethon lepturus dorotheae*
Bi	Red-tailed Tropicbird	Koa'e-'ula	*Phaethon rubricauda rothschildi*

	BOOBIES		*SULIDAE*
Bi	Blue-faced Booby	'Ā	*Sula dactylatra personata*
Bi	Brown Booby	'Ā	*Sula leucogaster plotus*
Bi	Red-footed Booby	'Ā	*Sula sula rubripes*
	CORMORANTS		*PHALACROCORACIDAE*
Vx	Pelagic Cormorant		*Phalacrocorax pelagicus*
	FRIGATEBIRDS		*FREGATIDAE*
Bi	Great Frigatebird	'Iwa	*Fregata minor palmerstoni*
Ps	Lesser Frigatebird		*Fregata ariel*
	HERONS, EGRETS		*ARDEIDAE*
Vs	Great Blue Heron		*Ardea herodias*
Vs	Little Blue Heron		*Florida caerulea*
Fr	Cattle Egret		*Bubulcus ibis*
Vx	Great Egret		*Casmerodius albus*
Ri	Black-crowned Night Heron	'Auku'u	*Nycticorax nycticorax hoactli*
	GEESE, DUCKS		*ANATIDAE*
Vo	Canada Goose (Cackling subspecies)		*Branta canadensis (minima)*
Re	Hawaiian Goose	Nēnē	E-*Branta sandvicensis*
Vo	Brant		*Branta bernicla*
Vs	Emperor Goose		*Philacte canagica*
Vs	White-fronted Goose		*Anser albifrons*
Vs	Snow Goose		*Chen caerulescens*
Vr	Mallard		*Anas platyrhynchos*
Re	Laysan Duck		E-*Anas laysanensis*
Re	Hawaiian Duck	Koloa, Koloa-maoli	E-*Anas wyvilliana*
Vs	Gadwall		*Anas strepera*
Vr	Pintail	Koloa-māpu	*Anas acuta*
Vs	Garganey Teal		*Anas querquedula*
Vr	Green-winged Teal		*Anas crecca*
Vs	Blue-winged Teal		*Anas discors*
Vs	Cinnamon Teal		*Anas cyanoptera*
Vs	European Wigeon		*Anas penelope*
Vr	American Wigeon		*Anas americana*
Vr	Northern Shoveler	Koloa-mohā	*Anas clypeata*

	GEESE, DUCKS (continued)		*ANATIDAE (continued)*
Vs	Redhead		*Aythya americana*
Vs	Ring-necked Duck		*Aythya collaris*
Vs	Canvasback		*Aythya valisineria*
Vs	Greater Scaup		*Aythya marila*
Vr	Lesser Scaup		*Aythya affinis*
Vs	Tufted Duck		*Aythya fuligula*
Vo	Bufflehead		*Bucephala albeola*
Vx	Oldsquaw		*Clangula hyemalis*
Vs	Harlequin Duck		*Histrionicus histrionicus*
Vs	Surf Scoter		*Melanitta perspicillata*
Vs	Ruddy Duck		*Oxyura jamaicensis*
Vs	Hooded Merganser		*Lophodytes cucullatus*
Vx	Red-breasted Merganser		*Mergus serrator*
	HAWKS, EAGLES		*ACCIPITRIDAE*
Re	Hawaiian Hawk	'Io	E-*Buteo solitarius*
Vs	Golden Eagle		*Aquila chrysaetos*
Vs	Marsh Hawk		*Circus cyaneus*
	OSPREYS		*PANDIONIDAE*
Vo	Osprey		*Pandion haliaetus*
	FALCONS		*FALCONIDAE*
Vs	Peregrine Falcon		*Falco peregrinus*
	QUAILS, PHEASANTS, FRANCOLINS		*PHASIANIDAE*
Fl	California Quail		*Lophortyx californicus*
Fl	Gambel Quail		*Lophortyx gambelii*
Fn	Chinese Bamboo Pheasant		*Bambusicola thoracica*
Fl	Chukar		*Alectoris chukar*
Fn	Barbary Partridge		*Alectoris barbara*
Fn	Gray Francolin		*Francolinus pondicerianus*
Fn	Black Francolin		*Francolinus francolinus*
Fn	Erckel Francolin		*Francolinus erckelii*
Fl	Japanese Quail		*Coturnix coturnix*
Fn	Kalij Pheasant		*Lophura leucomelana*
Fl	Ring-necked Pheasant		*Phasianus colchicus*
Fl	Green Pheasant		*Phasianus versicolor*
Fl	Red Jungle Fowl	Moa	*Gallus gallus*
Fl	Indian Peafowl		*Pavo cristatus*

	GUINEAFOWL		*NUMIDIDAE*
Fl	Helmeted Guineafowl		*Numida meleagris*
	TURKEYS		*MELEAGRIDIDAE*
Fl	Turkey		*Meleagris gallopavo*
	RAILS, GALLINULES, COOTS		*RALLIDAE*
Rx	Laysan Rail		*Porzanula palmeri*
Rx	Hawaiian Rail	Moho	*Pennula sandwichensis*
Ris	Hawaiian Gallinule (a subspecies of Common Gallinule)	'Alae-'ula	E-*Gallinula chloropus sandvicensis*
Ris	Hawaiian Coot (a subspecies of American Coot)	'Alae-ke'oke'o	E-*Fulica americana alai*
	PLOVERS		*CHARADRIIDAE*
Vo	Semipalmated Plover		*Charadrius semipalmatus*
Vs	Snowy Plover		*Charadrius alexandrinus*
Vs	Mongolian Plover		*Charadrius mongolus*
Vs	Killdeer		*Charadrius vociferus*
Vs	Dotterel		*Eudromias morinellus*
Vr	American Golden Plover	Kōlea	*Pluvialis dominica*
Vr	Black-bellied Plover		*Pluvialis squatarola*
	SANDPIPERS, WADERS		*SCOLOPACIDAE*
Vo	Common Snipe		*Capella gallinago*
Vs	Pintail Snipe		*Capella stenura*
Vs	Whimbrel		*Numenius phaeopus*
Vr	Bristle-thighed Curlew	Kioea	*Numenius tahitiensis*
Vs	Wood Sandpiper		*Tringa glareola*
Vs	Greater Yellowlegs		*Tringa melanoleuca*
Vo	Lesser Yellowlegs		*Tringa flavipes*
Vr	Wandering Tattler	'Ūlili	*Heteroscelus incanus*
Vs	Polynesian Tattler		*Heteroscelus brevipes*
Vr	Ruddy Turnstone	'Akekeke	*Arenaria interpres*
Vs	Willet		*Catoptrophorus semipalmatus*
Vs	Red Knot		*Calidris canutus*
Vr	Sharp-tailed Sandpiper		*Calidris acuminata*
Vr	Pectoral Sandpiper		*Calidris melanotos*
Vs	Baird Sandpiper		*Calidris bairdii*
Vs	Least Sandpiper		*Calidris minutilla*
Vs	Long-toed Stint		*Calidris subminuta*
Vo	Dunlin		*Calidris alpina*
Vo	Western Sandpiper		*Calidris mauri*
Vr	Sanderling	Huna-kai	*Calidris alba*

	SANDPIPERS, WADERS (continued)		*SCOLOPACIDAE (continued)*
Vs	Short-billed Dowitcher		*Limnodromus griseus*
Vo	Long-billed Dowitcher		*Limnodromus scolopaceus*
Vs	Marbled Godwit		*Limosa fedoa*
Vs	Bar-tailed Godwit		*Limosa lapponica*
Vs	Ruff		*Philomachus pugnax*
	STILTS		*RECURVIROSTRIDAE*
Ris	Hawaiian Stilt (a subspecies of Black-necked Stilt)	Āe'o	E-*Himantopus mexicanus knudseni*
	PHALAROPES		*PHALAROPODIDAE*
Vs	Red Phalarope		*Phalaropus fulicarius*
Vs	Wilson Phalarope		*Steganopus tricolor*
Vs	Northern Phalarope		*Lobipes lobatus*
	JAEGERS		*STERCORARIIDAE*
Vr	Pomarine Jaeger		*Stercorarius pomarinus*
	GULLS, TERNS, NODDIES		*LARIDAE*
Vo	Glaucous Gull		*Larus hyperboreus*
Vo	Glaucous-winged Gull		*Larus glaucescens*
Vs	Slaty-backed Gull		*Larus schistisagus*
Vs	Western Gull		*Larus occidentalis*
Vo	Herring Gull		*Larus argentatus*
Vs	California Gull		*Larus californicus*
Vs	Ring-billed Gull		*Larus delawarensis*
Vs	Black-headed Gull		*Larus ridibundus*
Vs	Laughing Gull		*Larus atricilla*
Vo	Franklin Gull		*Larus pipixcan*
Vs	Bonaparte Gull		*Larus philadelphia*
Vs	Black-legged Kittiwake		*Rissa tridactyla*
Vs	Common Tern		*Sterna hirundo*
Ps	Arctic Tern		*Sterna paradisaea*
Bi	Sooty Tern	'Ewa'ewa	*Sterna fuscata oahuensis*
Bi	Gray-backed Tern	Pākalakala	*Sterna lunata*
Vo	Least Tern		*Sterna albifrons*
Vs	Black Tern		*Chlidonias niger*
Bi	Blue-gray Noddy		*Procelsterna cerulea saxatilis*
Bi	Brown Noddy (Common Noddy)	Noio -kōhā	*Anous stolidus pileatus*
Ri	Hawaiian Noddy (White-capped Noddy) (a subspecies of Black Noddy)	Noio	*Anous tenuirostris melanogenys*
Bi	White Tern (Fairy Tern)	Manu-o-Ku	*Gygis alba rothschildi*
	ALCIDS		*ALCIDAE*
Vs	Horned Puffin		*Fratercula corniculata*

	DOVES		*COLUMBIDAE*
Fl	Rock Dove		*Columba livia*
Fn	Mourning Dove		*Zenaidura macroura*
Fl	Spotted Dove(Chinese Dove,Lace-necked Dove)		*Streptopelia chinensis*
Fl	Barred Dove		*Geopelia striata*
	BARN OWLS		*TYTONIDAE*
Fn	Barn Owl		*Tyto alba*
	TYPICAL OWLS		*STRIGIDAE*
Ris	Hawaiian Owl (a subspecies of Short-eared Owl)	Pueo	*Asio flammeus sandwichensis*
	SWIFTS, SWIFTLETS		*APODIDAE*
Fn	Edible-nest Swiftlet		*Collocalia inexpectata*
	KINGFISHERS		*ALCEDINIDAE*
Vx	Belted Kingfisher		*Megaceryle alcyon*
	LARKS		*ALAUDIDAE*
Vs,Fl	Skylark		*Alauda arvensis*
	SWALLOWS		*HIRUNDINIDAE*
Vs	Barn Swallow		*Hirundo rustica*
	CROWS		*CORVIDAE*
Re	Hawaiian Crow	'Alalā	E-*Corvus tropicus*
	BABBLERS		*TIMALIIDAE*
F	Greater Necklaced Laughing-Thrush		*Garrulax pectoralis*
Fl	Melodious Laughing-Thrush(Chinese Thrush, Hwa-mei)		*Garrulax canorus*
Fl	Red-billed Leiothrix(Japanese Hill Robin)		*Leiothrix lutea*
	BULBULS		*PYCNONOTIDAE*
Fn	Red-whiskered Bulbul		*Pycnonotus jocosus*
En	Red-vented Bulbul		*Pycnonotus cafer*
	MOCKINGBIRDS		*MIMIDAE*
Fl	Mockingbird		*Mimus polyglottos*
	THRUSHES		*TURDIDAE*
Fl	Shama		*Copsychus malabaricus*
Re	Hawaiian Thrush	'Āmaui	*Phaeornis obscurus*
Re	Kauai Thrush	Kāma'o	E- *Phaeornis obscurus myadestina*
Rx	Oahu Thrush	'Āmaui	*Phaeornis obscurus oahuensis*
Re	Molokai Thrush	Oloma'o	E- *Phaeornis obscurus rutha*
Rx	Lanai Thrush	Oloma'o	*Phaeornis obscurus lanaiensis*
Re	Hawaii Thrush	'Ōma'o	*Phaeornis obscurus obscurus*
Re	Small Kauai Thrush	Puaiohi	E-*Phaeornis palmeri*

	OLD WORLD WARBLERS			*SYLVIIDAE*
Fl	Japanese Bush Warbler(Uguisu)			*Cettia diphone*
Re	Millerbird			*Acrocephalus familiaris*
Rx	Laysan Millerbird			*Acrocephalus familiaris familiaris*
Re	Nihoa Millerbird		E-	*Acrocephalus familiaris kingi*
	OLD WORLD FLYCATCHERS			*MUSCICAPIDAE*
Re	'Elepaio	'Elepaio		*Chasiempis sandwichensis*
Re	Kauai 'Elepaio	'Elepaio		*Chasiempis sandwichensis sclateri*
Re	Oahu 'Elepaio	'Elepaio		*Chasiempis sandwichensis gayi*
Re	Hawaii 'Elepaio	'Elepaio		*Chasiempis sandwichensis sandwichensis*
	WHITE-EYES			*ZOSTEROPIDAE*
Fl	Japanese White-eye (Mejiro)			*Zosterops japonica*
	PIPITS			*MOTACILLIDAE*
Vs	Water Pipit			*Anthus spinoletta*
Vs	Red-throated Pipit			*Anthus cervinus*
	MYNAS			*STURNIDAE*
Fl	Common Myna			*Acridotheres tristis*
	HONEYEATERS			*MELIPHAGIDAE*
Re	Kauai 'Ō'ō	'Ō'ō'a'a	E-	*Moho braccatus*
Rx	Oahu 'Ō'ō	'Ō'ō		*Moho apicalis*
Rx	Molokai 'Ō'ō	'Ō'ō		*Moho bishopi*
Rx	Hawaii 'Ō'ō	'Ō'ō		*Moho nobilis*
Rx	Kioea	Kioea		*Chaetoptila angustipluma*
	MEADOWLARKS			*ICTERIDAE*
Fl	Western Meadowlark			*Sturnella neglecta*
	HAWAIIAN HONEYCREEPERS			*DREPANIDIDAE*
	GREEN AND YELLOW HONEYCREEPERS			*PSITTIROSTRINAE (subfamily)*
Re	'Amakihi	'Amakihi		*Loxops virens*
Re	Kauai 'Amakihi	'Amakihi		*Loxops virens stejnegeri*
Re	Oahu 'Amakihi	'Amakihi		*Loxops virens chloris*
Re	Maui 'Amakihi	'Amakihi		*Loxops virens wilsoni*
Re	Hawaii 'Amakihi	'Amakihi		*Loxops virens virens*
Re	'Anianiau(Lesser 'Amakihi)	'Anianiau		*Loxops parva*
Rx	Greater 'Amakihi			*Loxops sagittirostris*
Re	Hawaiian Creeper	'Alauwahio		*Loxops maculata*
Re	Kauai Creeper	'Akikiki		*Loxops maculata bairdi*
Re	Oahu Creeper	'Alauwahio	E-	*Loxops maculata maculata*
Re	Molokai Creeper	Kakawahie	E-	*Loxops maculata flammea*
Rx	Lanai Creeper	'Alauwahio		*Loxops maculata montana*
Re	Maui Creeper	'Alauwahio		*Loxops maculata newtoni*
Re	Hawaii Creeper		E-	*Loxops maculata mana*
Re	'Ākepa	'Ākepa		*Loxops coccinea*
Re	Kauai 'Ākepa	'Akeke'e		*Loxops coccinea caeruleirostris*
Rx	Oahu 'Ākepa	'Akepeu'ie		*Loxops coccinea rufa*
Re	Maui 'Ākepa	'Akepeu'ie	E-	*Loxops coccinea ochracea*
Re	Hawaii 'Ākepa	'Akakane	E-	*Loxops coccinea coccinea*
Re	Po'o Uli	Po'o Uli	E-	*Melamprosops phaeosoma*

	HAWAIIAN HONEYCREEPERS (continued)		*DREPANIDIDAE (continued)*
Re	Kauai 'Akialoa	'Akialoa	E-*Hemignathus procerus*
Rx	'Akialoa	'Akialoa	*Hemignathus obscurus*
Rx	Oahu 'Akialoa	'Akialoa	*Hemignathus obscurus ellisianus*
Rx	Lanai 'Akialoa	'Akialoa	*Hemignathus obscurus lanaiensis*
Rx	Hawaii 'Akialoa	'Akialoa	*Hemignathus obscurus obscurus*
Re	Nuku-pu'u	Nuku-pu'u	*Hemignathus lucidus*
Re	Kauai Nuku-pu'u	Nuku-pu'u	E- *Hemignathus lucidus hanapepe*
Rx	Oahu Nuku-pu'u	Nuku-pu'u	*Hemignathus lucidus lucidus*
Re	Maui Nuku-pu'u	Nuku-pu'u	E- *Hemignathus lucidus affinus*
Re	'Akiapola'au	'Akiapola'au	E-*Hemignathus wilsoni*
Re	Maui Parrotbill		E-*Pseudonestor xanthophrys*
Re	'Ō'ū	'Ō'ū	E-*Psittirostra psittacea*
Re	Hawaiian Finch		*Psittirostra cantans*
Re	Laysan Finch		E- *Psittirostra cantans cantans*
Re	Nihoa Finch		E- *Psittirostra cantans ultima*
Re	Palila	Palila	E-*Psittirostra bailleui*
Rx	Greater Koa Finch		*Psittirostra palmeri*
Rx	Lesser Koa Finch		*Psittirostra flaviceps*
Rx	Grosbeak Finch		*Psittirostra kona*
	RED AND BLACK HONEYCREEPERS		*DREPANIDINAE (subfamily)*
Re	'Apapane	'Apapane	*Himatione sanguinea*
Rx	Laysan Honeycreeper		*Himatione sanguinea freethii*
Re	'Apapane	'Apapane	*Himatione sanguinea sanguinea*
Re	Crested Honeycreeper	'Ākohekohe	E-*Palmeria dolei*
Rx	'Ula-'ai-hāwane	'Ula-'ai-hāwane	*Ciridops anna*
Re	'I'iwi	'I'iwi	*Vestiaria coccinea*
Rx	Black Mamo	'Ō'ō-nuku-umu, hoa	*Drepanis funerea*
Rx	Mamo		*Drepanis pacifica*
	WAXBILLS, MUNIAS, WEAVER FINCHES		*PLOCEIDAE*
Fn	Red-cheeked Cordon-bleu		*Uraeginthus bengalus*
Fn	Lavender Fire-finch		*Estrilda caerulescens*
Fn	Orange-cheeked Waxbill		*Estrilda melpoda*
Fn	Red-eared Waxbill		*Estrilda troglodytes*
Fl	Red Munia (Strawberry Finch)		*Amandava amandava*
Fn	Warbling Silverbill		*Lonchura malabarica*
Fl	Spotted Munia (Ricebird)		*Lonchura punctulata*
Fl	Black-headed Munia (Black-headed Mannikin)		*Lonchura malacca*
Fn	Java Sparrow		*Padda oryzivora*
Fn	Pin-tailed Whydah		*Vidua macroura*
Fl	House Sparrow		*Passer domesticus*

	CARDINALS, FINCHES	*FRINGILLIDAE*
Fn	Saffron Finch	*Sicalis flaveola*
Fl	Red-crested Cardinal (Brazilian Cardinal)	*Paroaria coronata*
F	Yellow-billed Cardinal	*Paroaria capitata*
Fl	Northern Cardinal (Cardinal, Kentucky Cardinal, North American Cardinal)	*Cardinalis cardinalis*
Fl	Canary	*Serinus canaria*
Fn	Yellow-fronted Canary	*Serinus mozambicus*
Fl	House Finch	*Carpodacus mexicanus*
Vs	Snow Bunting	*Plectrophenax nivalis*

SPECIES PAIRS

Well-substantiated sightings, identifiable only to one of a species pair difficult to distinguish in the field, have been recorded in Hawaii since 1960 for the following species pairs:

Southern/Northern Giant Fulmar	*Macronectes giganteus* or *M. halli* (*PROCELLARIIDAE*)
Snowy/Little Egret	*Leucophoyx thula* or *Egretta garzetta* (*ARDEIDAE*)
Glossy/White-faced Ibis	*Plegadis chihi* or *P. falcinellus* (*THRESKIORNITHIDAE*)
Spotted/Common Sandpiper	*Actitis macularia* or *A. hypoleucos* (*SCOLOPACIDAE*)
Hudsonian/Black-tailed Godwit	*Limosa haemastica* or *L. limosa* (*SCOLOPACIDAE*)
South Polar/Great Skua	*Catharacta maccormicki* or *C. skua* (*STERCORARIIDAE*)

Copies of this 12-page *Preliminary List of the Birds of Hawaii* are available for $1.00 postpaid from Hawaii Audubon Society, P. O. Box 22832, Honolulu, Hawaii 96822.

PROCELLARIIDAE (Continued from page 109)
Bulwer's petrel; Bulweria bulwerii
HYDROBATIDAE
Harcourt's storm petrel[3]; Oceanodroma castro cryptoleucura
Sooty storm petrel; Oceanodroma tristrami
PHAETHONTIDAE
White-tailed tropicbird[2]; Phaethon lepturus dorotheae
Red-tailed tropicbird; Phaethon rubricauda rothschildi
SULIDAE
Blue-faced booby; Sula dactylatra personata
Brown booby; Sula leucogaster plotus
Red-footed booby; Sula sula rubripes
FREGATIDAE
Great frigatebird; Fregata minor palmerstoni
LARIDAE
Sooty tern; Sterna fuscata oahuensis
Gray-backed tern; Sterna lunata
Blue-gray noddy; Procelsterna cerulea saxatilis
Common noddy (brown noddy); Anous stolidus pileatus
White-capped noddy /black noddy/; Anous tenuirostris /melanogenys/
White tern; Gygis alba /rothschildi/
ARDEIDAE
Black-crowned night heron; Nycticorax nycticorax hoactli

1 Most of these indigenous birds nest either on Leeward Islands or islands offshore from main islands; they feed at sea.
2 Nests exclusively in Hawaiian Islands
3 This subspecies was once listed as Endangered, but was removed on basis of it's not being a valid subspecies by John Aldrich. It could be listed as an endangered population.

REGULAR MIGRANTS: A total of 11 species

Pale-footed shearwater, Pintail, American wigeon, Shoveler, Lesser scaup, Sanderling, Golden plover, Black-bellied plover, Ruddy turnstone, Bristle-thighed curlew, and Wandering tattler.

TOTALS BY MAJOR CATEGORY

Major Category	Extinct	Endangered	Neither	Total
Endemic Species (occur only in Hawaiian Islands).....	15	20	9	44
(Endemic Species and Subspecies).....	(23)	(29)	(15)	(67)
Indigenous Species (occur in Hawaiian Is &...open ocean...	—	1	22	23
Regular Migrants.....	—	—	11	11
Introduced and Established Species (approximate number)...	—	—	50	50
Total	15	21	92	151

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HONOLULU STAR-BULLETIN, 5 November 1976, page A-20, Reviving Crow Population by Russ and Peg Apple: The Hawaiian word 'alalā means to bawl, bleat, squeal, cry, caw, yelp or scream. Ancient Hawaiians on the Big Island named their crow, or raven*, the 'alalā because of its caw. /This name may have either of two derivations, both very appropriate. 'Alalā is to cry like a young animal; the call of the crow at times resembles the cry of a child. Also, ala, to rise up, and lā, the sun; hence, to arise with the sun; the crows made a great noise in the early morning. (BIRDS OF HAWAII by George C. Munro, p.69)/

The native Hawaiian crow is a Big Island bird, endemic only to this island. It is not found on any other island, nor any place else in the world.

Hawai'i Volcanoes National Park used to be loaded with Hawaiian crows. This is their traditional breeding range, or used to be. Now the few survivors only breed on the slopes of Ka'u and Kona of Mauna Loa volcano and on Hualalai volcano. A few crows still visit the Kīlauea crater area each winter, but go elsewhere to breed.

There were so many 'alalā around here yearlong between 1899 and 1902 that an advanced bird-watcher named H.W. Henshaw, operating within 15 miles of Kīlauea crater, easily collected for scientific specimens 24 of the native crows.

Today there are about only 53 living individuals--50 fly free in the Big Island forests and three live in captivity.

Hawaiian crows have been on the endangered species list since the first list was compiled by the U.S. Fish and Wildlife Service in 1966. Is there a chance to bring back 'alalā? Pointing to their program that successfully saved from extinction the nēnē...State and

federal biologists think they can reverse the decline of the native Big Island crow. They point out that the nēnē program took decades and much cooperation from the public.

National Park management ecologist Don Reeser thinks the remnant population of the crow is too far removed from its former breeding range here to naturally repopulate it. The 'alalā have to be helped.

Volcano National Park's former crow range is now ready for repopulation. Crow habitat here was destroyed and altered by cattle and goats who grazed it down and by pigs who rooted it up. The cattle and goats are now gone, thanks to an active management program, and the pigs are under control. Native vegetation is growing back and ready to host up to ten or more pairs of breeding Big Island crows. A restocking of the park's breeding range would contribute to the survival of the species. A flock here would be a safeguard against calamities in other breeding ranges.... State biologists have...three captive crows at Pohakuloa, and will release the young they produce on Hualalai in the district of North Kona. National Park biologists plan a similar captive breeding and release program here. Young crows will be released near Kipuka Pua'ulu (Bird Park) part of the former crow hangout.

Crows for both breeding-release programs will come from excess nestlings in the wild. It seems crows usually have four in the nest, but often only two survive to fly away. The two from some nests that would normally perish will instead go into captivity. Such salvaged birds, when raised to maturity, will provide the parents. Another source of captive breeding crows will be individuals which are diseased, injured, vulnerable to predation or otherwise disabled. They would not survive without protection or treatment. Breeding pairs in the wild will not be disturbed. The park's program will be discontinued after it appears the free population near Kīlauea crater is self-perpetuating. ...

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* Comments from Sheila Conant, 19 January 1977: 1.Avian systematists (according to Paul Banko in a conversation) are now of the opinion that the 'Alalā is technically more closely related to ravens than crows. For this reason those working closely with the species are beginning to call it the raven rather than the crow. 2.Hawai'i Volcanoes National Park contains part of the traditional breeding range of the species. The implication is that it was the majority of the traditional breeding range. 3.'Alalā do not visit the park every year. They have been seen there only rarely in recent years, and by only a few observers. 4.Pigs are not "under control" in the park. ...An active program to bring them under control is being initiated. Hunting pressure is as heavy as National Park Service personnel hours permit.

If you have any information on this subject, please share it with others by writing to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816. MAHALO!

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Field Notes from Stephen L. Lindsay: Sighting of a Horned Grebe on Kaua'i

This note describes the first sighting of a Horned Grebe (Podiceps auritus) in the Hawaiian Islands. On 26 December 1976, during the early afternoon, a lone Horned Grebe was sighted near the mouth of the Wailua River on Kaua'i. The grebe was sighted approximately ten feet from shore, diving in typical grebe fashion. At one point the bird surfaced within 20 feet of the boat from which the sighting was made. The grebe, in winter plumage, was recognized by the author as a Horned Grebe by what Peterson (A FIELD GUIDE TO WESTERN BIRDS, p.8, 1961) describes as a "line down /the/ back of /the/ neck" and its "clear white cheeks." Horned Grebes are native to the Oregon and Washington coasts and have been repeatedly observed and distinguished from the similar Eared Grebe (Podiceps caspicus) by the author.

The bird was observed a second time, just before dark, on the same day. This observation was made from a dirt road running along the river and below the "Bell Stone" overlook. At that time the grebe could be seen from about 75 yards and was sharing the immediate vicinity with several Hawaiian Coot (Fulica americana alai) and Gallinules (Gallinula chloropus sandvicensis) and a Koloa (Anas wyvilliana) with four or five ducklings. The grebe dove for long periods of time and once was observed to gradually sink out of sight. At the first sighting the weather was sunny and calm but by evening rainclouds had blown in.

B.L. Pyle (personal communication) kindly provided information on a subsequent sighting of a Horned Grebe in the same area of 8 January 1977 by a Canadian group. She further made reference to sightings of a Pied-billed Grebe during the winters of 1974-1975 and 1975-1976 ('ELEPAIO, Vol.35, No.10, April 1975, pp.119-120; Vol.36, No.9, March 1976, p.115). These sightings are significant as no previous grebe sightings have been reported from the Hawaiian Islands (Hawaii Audubon Society, HAWAII'S BIRDS, 1971; Berger, HAWAIIAN BIRDLIFE, 1972).

By special permission the following review by Andrew J. Berger is reprinted from THE WILSON BULLETIN, Vol.86, No.4, Dec.1974, pp.489-491: FUNCTIONAL ANATOMY AND ADAPTIVE EVOLUTION OF THE FEEDING APPARATUS IN THE HAWAIIAN HONEYCREEPER GENUS LOXOPS (DREPANIDIDAE). By Lawrence P. Richards and Walter J. Bock. Ornithological Monographs No. 15, American Ornithologists' Union, 1973:x+173 pp., 14 figs., 26 pls. Paper cover. $6.00 ($4.75 to A.O.U. members). (Obtainable from Burt L. Monroe, Jr., Treasurer, A.O.U., Box 23447, Anchorage, Ky. 40223).--This interesting volume has an unusual history in that it is an elaboration and refinement of the unpublished Ph.D. thesis of Lawrence P. Richards, completed in 1967. In 1968 the two authors "decided to work together on the final preparation of this study for publication, so as to bring together the special knowledge of Richards on the natural history and morphology of the Hawaiian Honeycreepers and the special knowledge of Bock on the functional morphology of the passerine jaw and tongue apparatuses." Consequently, the authors "look upon this paper as a truly cooperative undertaking in spite of the separate origins of the information and ideas used in reaching the interpretations and conclusions presented herein."

The following subjects are discussed: types of food and feeding methods, rhamphothecae of the beak, cranial osteology, jaw musculature, and the tongue apparatus. Osteology and myology are discussed in great detail, and they are illustrated by many fine drawings. The discussion of the skull of Loxops is undoubtedly the most complete description ever given of a passerine skull. Unfortunately, the authors use a telegraphic set of abbreviations for names, which increases greatly the task of the reader in understanding the labelled drawings. Although an appendix lists the abbreviations and full names for bones and muscles, it is much easier for the reader if complete names are included on the drawings.

Most authors have adopted the proposal of Hans Gadow that the Hawaiian Honeycreepers are related to the New World nine-primaried oscines, and specifically to the "Coerebidae." Richards and Bock, however, propose tentatively to follow the suggestion first made by P.P. Sushkin in 1929 that the honeycreepers evolved from cardueline finches. Moreover, they suggest that the extinct Ciridops anna "may well be the closest present-day representative of the primitive stock of the Drepanididae." This differs from the interpretation reached by Dean Amadon that Ciridops was an advanced member of the subfamily Drepanidinae. Richards and Bock also propose that Loxops virens "is probably closer to the ancestral stock of the genus Loxops than the other known members of the genus."

There are two chief values of the monograph by Richards and Bock. The first consists of the detailed descriptions of the osteology and myology of the skull (including the tongue) and the equally detailed figures that illustrate these features. The second is the emphasis placed on the great need for thorough studies of both the anatomy and the biology of all species of Hawaiian honeycreepers in the field before it is too late (see Wilson Bull. 84:212-222, 1972).

This reviewer was surprised at the large number of guarded and qualified statements about functional interpretations of relatively minor anatomical differences found among the four species studied and of the possible evolutionary pattern in the honeycreepers, as well as at the amount and kind of data used. For example, "an initial working hypothesis was made that muscle size is, in general, a rough index of muscle strength among homologous muscles." The authors point out (p.14), however, that "the initial assumption used in this comparison is not valid for all comparisons of skeletal muscles as pointed out by Gans and Bock (1965). Rather one should measure the total cross-sectional area of the muscle fibers as an index to force production, the length of the fibers as an index to displacement abilities, and the angle of pinnateness as an index to the force and displacement component along the vector direction of the muscle pull. Unfortunately, these factors are more easily discussed than measured, and we realize fully the shortcomings of our comparisons in not undertaking these measurements. ...the conclusions reached on the basis of these comparisons are relatively rough ones that do not go beyond the assumptions employed." In their comparison of the relative size of jaw muscles (pp.74-76), the authors remark that "the muscles are ranked only in relative size with the largest muscle given the rank of '1'; no quantitative values are assigned to the differences in any of these rankings. Larger muscles are assumed to be stronger, i.e., develop a greater maximum force. The only valid comparisons that can be made in these tables are horizontal ones within the homologous muscle or possibly within a set of muscles in the several taxa. Comparisons must not be made vertically along the columns between different muscles or different sets of muscles because the same rank, e.g., 1, in several different muscles does not imply equal size or force development."

Similarly, the attempted correlation of feeding habits with jaw morphology is based on minimal data. For the Hawai'i Creeper (Loxops maculata mana), for example, we find (p.21) that "out of twenty-five descriptions in my field notes twelve of these probings were at the bark of branches and trunks, seven were into hair-like lichens, two onto exposed twigs, two into moss on branches, one in rotten wood, and one underneath a flat lichen growing on a branch." Feeding habits of the Maui Creeper (L.m. newtoni) were observed in the field on only two days; this is one of the more common species in the Maui rain forests. Such limited observations of feeding behavior are surely inadequate for postulating elaborate analyses of bone and muscle mechanics and the possible evolutionary sequence within the genus.

Richards and Bock are well aware of the weaknesses in their presentation. In writing of the Hawai'i 'Akepa (Loxops c. coccinea), they state (p.23): "These crude data may aid in giving an idea of the food niche of this race." Of the functional interpretation of the horny covering of the bill (p.30), they remark that "these correlations between the ramphothecal morphology and feeding observations are largely hypotheses to be tested by further observations, not proven facts." "All conclusions reached in this phase of the study /jaw musculature/ are speculations and must be treated as hypotheses to be tested, not as demonstrated facts" (p.53). In the functional interpretation of the skeletal and muscular mechanism of the jaws (p.78): "We are clearly cognizant of the lack of essential information on the exact movements of the jaws during feeding, on the exact forces, musculature and otherwise, acting on the jaw apparatus, on the exact food preferences of

each species and other equally important factors, so that these conclusions are offered only as hypotheses for further consideration and testing. In spite of their inadequate basis, these conclusions form a valuable basis for further study and we offer them without apology." In their discussion of the correlation between feeding habits and skull morphology, they write (p.111): "The disjointed nature of these summaries does not provide a sufficient basis for understanding the adaptation of the entire feeding apparatus for the feeding habits in each species of Loxops, and most importantly, for comprehending the adaptive history of the genus Loxops. The latter is essential for any future analysis of the evolution and classification of the Drepandididae, including its origin from some mainland group within the New World nine-primaried oscines." Similar qualifying statements are made on pp.32, 84, 110, and 120.

In view of these apologetic statements, one cannot but question the justification for devoting so many pages to hypotheses, when the authors themselves acknowledge that the data are inadequate. It is important, therefore, that ornithologists study this work carefully, so that its hypotheses do not become stated facts in subsequent literature. A number of striking typographical errors are annoying.

I would point out that Richards and Paul H. Baldwin were "modern pioneers" in the study of the endemic Hawaiian forest birds. Their field work in the early 1950's ended a period of nearly 40 years during which virtually nothing was learned about the forest birds. Only someone who has worked in the Hawaiian rain forests can fully appreciate the difficulties faced by these men. I agree fully with the following statement (p.128) made by Richards and Bock: "Hopefully the most significant result of this study of the adaptation in the feeding apparatus of Loxops is to provide a stimulus for additional studies on the comparative biology and evolution of the Hawaiian honeycreepers and the eventual understanding of the classical example of adaptive radiation they provide."

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HONOLULU STAR-BULLETIN, 15 November 1976, A-21, Wilderness Area by Harry Whitten

The major part of Haleakala National Park on Maui has become part of the National Wilderness Preservation System, the first wilderness area to be established in Hawai'i. ...

Wilderness designation was given 19,270 acres in Haleakala Park while another 5,500 acres is potential that may be added after certification by the Secretary of Interior and publication in the Federal Register. The national park has a total acreage of 27,284. From a practical standpoint the wilderness designation will make no difference, as the National Park Service is now managing most of Haleakala as if it were in wilderness, explains Robert L. Barrel, NPS State director. The Wilderness Bill establishes by law the management practices pursued for the last several years, he said.

Wilderness classification is given almost all of the crater, from the rim to the Kaupo Gap, and to Kipahulu Valley, down to the 1,200-feet level. The potential wilderness area includes 5,500 acres of State land being transferred to the Park Service. Excluded from wilderness classification are three "islands" surrounding the three cabins in the crater. Under the law, the NPS would not be able to erect cabins at any other areas except by act of Congress. Headquarters area and the area reached by road are also excluded.

The Wilderness Act defines wilderness as an area "where man himself is a visitor who does not remain." The areas must not have roads or permanent habitations, but they are well suited for hiking, camping, or for scientific or educational uses that don't alter their pristine character.

The National Wilderness Preservation system was created by a law signed in 1964 by President Lyndon B. Johnson. The act affects only federal lands administered by the Forest Service, National Park Service, or Fish and Wildlife Service. The 1964 act gave immediate protection to nine million acres. Additions have since been made to the system so that it now includes more than 13 million acres. This appears to be a large figure but it is actually only a small percentage of the 2.27 billion acres in the nation.

Other areas in Hawai'i proposed for wilderness classification are in Hawai'i Volcanoes National Park and in the Hawaiian Islands National Wildlife Refuge in the Northwestern Hawaiian Islands.

Barrel says the Hawai'i Volcanoes proposal has apparently been held up because of requests for special language that would permit continuance of certain scientific research in parts of the affected area. The proposed Hawai'i Volcanoes Wilderness, as submitted to Congress in late 1974 by President Ford, would include 123,100 acres, or 62 per cent of the park.

Wilderness designation has been proposed for 1,762 acres in the Hawaiian Islands National Wildlife Refuge, consisting of the island masses themselves, according to Palmer Sekora, refuge manager. Inclusion of another 256,145 acres has been proposed but this would include submerged land. The State of Hawai'i has expressed interest in the submerged land, so its status will depend on negotiations between the State and Interior Department.

Sekora expressed hope that the new Congress will act on the wilderness proposal, at least for the 1,762 acres.

New Refuge: Sekora announced that two habitats for endangered birds on O'ahu have been officially designated as the Pearl Harbor National Wildlife Refuge. The habitats were built on Navy land to substitute for habitat lost for the Hawaiian stilt (ae'o) by the construction of the reef runway. Units are the Waipā Refuge, consisting of 27 acres near Pearl City, and the Honouliuli Refuge, 44 acres near West Loch.

Sekora said the birds are finding the refuges very valuable; a recent count showed 400 stilt at Waipā. Installation of a water system should increase productivity of the refuges. Each refuge has islets to offer nesting areas safe from mongooses. After observing their use, Sekora and other naturalists have decided the islets are too large and that more birds could be accommodated with more numerous, smaller islets. Funds will be sought to divide the islets, Sekora said. Other plans are to replace some of the existing vegetation with low growth grass that the birds may find more suitable for nesting areas.

HONOLULU STAR-BULLETIN, 3 January 1977, A-15, Endangered Species by Harry Whitten:

During the last week attention has been given once again to Hawai'i's endangered species. For one thing, a story from Washington tells about a proposal for setting aside a 120-square-mile area on the slopes of Mauna Kea to protect the endangered palila. This area would be the first of an expected series of "critical habitat" areas for endangered species.

The December-January issue of NATIONAL WILDLIFE magazine, just received here, has an article on Hawai'i's endangered birds written by Andrew J. Berger, head of the endangered species recovery team that recommended the Mauna Kea area to preserve the palila.

Eugene Kridler, endangered species coordinator in Hawai'i for the U.S. Fish and Wildlife Service, has returned from three and a half weeks on the Canary Islands, where he was part of a four-man American team giving technical assistance to the Spanish government on endangered species recovery.

Kridler says the eight recovery teams for endangered Hawai'i birds have submitted first drafts of their plans to the Portland regional office of the Fish and Wildlife Service for analysis. ...

Besides the palila, the teams are concerned with the Big Island forest birds, the 'alalā or Hawaiian crow, Hawaiian water birds, nēnē or Hawaiian goose, Laysan duck, Kaua'i forest birds, and Maui-Moloka'i forest birds.

In his magazine article Berger said that at least 21 Hawaiian birds are presumed extinct, while 28 others are considered endangered or threatened, according to the Fish and Wildlife Service. "That's nearly half of all the U.S. birds so classified," Berger said.

His article, "Aloha Means Goodbye," discussed reasons for the birds' plight, such as destruction of the rain forest, importation of livestock, feather loss, competition from the foreign birds introduced here, and bird parasites. He gave a rundown on how the forest birds are faring today on each of the major islands.

The article is illustrated by six superb paintings by H. Douglas Pratt, an artist-biologist who has been studying Hawai'i's forest birds for the past two years and who has explored the Islands' rain forests, photographing, sketching and making recordings of the rarely seen species. Pratt's paintings are of the Moloka'i creeper, 'akiapola'au, crested honeycreeper, 'ō'ū, Kaua'i 'ō'ō, and the 'ākepa. They are part of the 10 paintings he was commissioned to do by the Hawai'i State Foundation on Culture and the Arts. The other four paintings are of the po'o uli, palila, Maui parrotbill, and puaiohi (small Kaua'i thrush). The paintings are distinguished not only by the beauty of the birds but by the detailed study of native vegetation on which the birds rest.

The plan is to place them on a rotating basis in State office buildings so that the public may get a chance to see them.

Pratt, a graduate student at Louisiana State University, will return in March to continue research for his Ph.D. degree in zoology. He is also collaborating with Delwyn Barrett, Brigham Young University, Hawai'i, ornithologist, on a field guide to Pacific birds.

Kridler said the Canary Islands, like Hawai'i, are distinguished by a high rate of endemism among species, that is, the species are native, not found elsewhere.

The islands gave their name to the canary bird, native there and in Madeira. The islands have a climate similar to Hawai'i and a number of similarities to Hawai'i, Kridler said. They are of volcanic origin, with one peak being the highest mountain in Spain. Their conservation problems stem from deforestation, public indifference, and tourism, Kridler said. Both plants and birds are among endemic species endangered in the Canaries, Kridler said, However, much more information is needed.

The team on which Kridler served was chosen from U.S. federal agencies to help the Spanish government develop a master plan for national parks in the Canaries and give advice on endangered species recovery. It worked with Spain's Institute for Conservation of Nature.

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ENDANGERED SPECIES TECHNICAL BULLETIN, Vol.1, No.3, Sep 1976, pp.1-2, Plant Listings Produce Conflicting Views at Hearing: Some of the sharpest disagreement on the proposed listing of plants occurred during the public hearing held in Honolulu on July 14, 1976. One of the major issues was a proposal to begin a commercial timber industry in Hawaii.

Neil Abercrombie, a member of the Hawai'i House of Representatives, said that commercial timber and real estate interests were trying to "emasculate" the proposed listing of nearly 900 Hawaiian plants. He submitted a lengthy statement from a Soviet botanist, Anatol Galushko, who said that preservation of Hawai'i's flora was of "international importance" because it was unique in the world. Galushko warned against trying to start a commercial timber industry at the expense of destroying natural forest. He noted that "natural forests solely can cope with the task of soil protection and moisture retention."

A recommendation to postpone implementing the Endangered plant list for Hawai'i was made by State Forester Thomas Tagawa of the Hawai'i Department of Land and Natural Resources. He explained that he had not been able to obtain supporting data on the location of plant taxa on the list, the reasons for listing, and the criteria applied for Endangered status. He stated that "the State of Hawai'i should not be required post facto to provide the supporting data to declassify a plant species from the proposed Endangered plant list."

A University of Hawai'i scientist, Charles H. Lamoureux, testified that, while the listing of such a large number of plants "may seem politically inconvenient to some, the list reflects accurately the scientific reality of the situation as it exists in Hawai'i today." But a representative of the Hawaiian Sugar Planters' Associarion, Samuel Caldwell, pointed out that the economic well-being of the State's residents required "a balancing of the human needs against the value of the Endangered plant species."

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PURPLE MARTIN NEWS, Vol.11, No.5, 26 May 1976, pp.1 & 20; Nēnē made the first page of this North America's backyard journal of The Nature Society, Griggsville, Illinois, by Richard Sloan's impressively realistic painting of two Nēnē, one standing on the lava and the other in flight. The Nēnē painting is one of The Nature Society's three great print series--

Sloan-birds, Timm-mammals, and Wampler-flowers. The advertisement on page 21 says, "Society artists are dedicated to creating the most authentic and realistic nature studies ever done of North American subjects. Each artist plans to produce 50 paintings, all on 22"x28" format. Each painting is being published in a strictly limited edition of 5,000 extremely high quality reproduction, each signed by the artist and serial-numbered for the purchaser's protection. Price of each edition increases automatically by pre-set jumps as the inventory decreases; consequently, current prevailing prices listed here accurately reflect the relative popularity of various editions. Prices listed are those in effect when this issue of The News went to press, and are subject to change without notice." Nēnē is listed as plate 41 for $50.00. On page 20 is the story of how Nēnē came back from the brink of extinction.

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ALOHA to New Members:

Murray D. Bruce, 8 Spurwood Road, Turramurra, N.S.W. 2074, Australia
Alvin P. Dias, 1941 Church Lane, #403, Honolulu, HI 96826
Mrs. Clarence P. Funkhouser, 63 Karsten Drive, Wahiawa, Oahu 96786
Kenneth Gerber, P.O. Box 13, Kidron, Ohio 44636
Frederico Lemus, c/o Instituto Salvadoreno De Turismo, Calle Ruben Dario 619, San Salvador, El Salvador, C.A.
Stephen L. Lindsay, Mus of Nat Hist, Dept of Biol Sci, Walla Walla Coll, Coll Place, Washington 99324
Charles W. Lum, 2965 Loi St., Honolulu, HI 96822
Pete Luscomb, 2707 Hipawai Place, Honolulu, HI 96822
Linda D. Murakami, 1439 Kewalo St., Apt 211, Honolulu, HI 96822
Chris Nielsen, RR 1, Box 38, Haiku, Maui 96708
John L. Sincock, RR 1, Box 197, Koloa, Kauai 96756
Jack L. Throp, Honolulu Zoo, 151 Kapahulu Ave., Honolulu, HI 96815
Julia Williams, 3155-307 Waialae Ave., Honolulu, HI 96816
Mrs. Robert E. Zedekar, 3300 Moorewood Ct., Sacramento, California 95821(Reinstated)
Clare P. Zens, 444 Lunalilo Home Road, #503, Honolulu, HI 96825
Hanahauoli School Library, 1922 Makiki St., Honolulu, HI 96822 (Reinstated)
Hawaii Bound School, P.O. Box 1500, Kailua, Oahu 96734
Pacific Tropical Botanical Garden, P.O. Box 340, Lawai, Kauai 96765
Senckenbergische Bibliothek, Zeitschriftenabteilung/DFG, Bockenheimer Lanstrasse 134-138, D-600 Frankfurt/Main, Germany (Reinstated)

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Donations: MAHALO! Following members have generously included donations with their dues and purchases: Kenneth Gerber-26¢; Mrs. David J. Martin-$4.00; Mrs. George-Ann Maxson-$2.00; Mrs. Kammy Wong-$2.00. MAHALO NUI LOA for your KOKUA!

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The annual index for Volume 37 will be mailed to members only upon request, so if you are interested in receiving a copy, please send in your reservation before June to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816.

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Field Checklist: The Society's new Field Checklist of Birds of Hawai'i is now available. It lists 125 species occurring regularly in Hawai'i, with additional blank spaces for entering less common visiting species. Endemic and Endangered forms are indicated. Three columns are provided for recording observations at different localities. The list is in standard field card format, folded once to 4x6 inches in size. It is available either on heavier card stock for firmer recording in the field, or on lighter paper. When ordered by mail, the list is priced at 25¢ each or 10¢ each for 10 or more, postpaid. Copies obtained directly without mailing are priced at 10¢ each or 5¢ each for 20 or more.

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Please report all bird sightings to field observation recorder, Dr. Robert L. Pyle, 741 N. Kalaheo Avenue, Kailua, Oahu 96734, telephone 262-4046.

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When you find a bird's nest, please call Dr. Andrew J. Berger at the Department of Zoology, University of Hawaii, telephone 948-8655 or 948-8617.

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HAWAII'S BIRDS, a field guide, is available for $3.00 + postage & tax. Postage: U.S. 25¢ book rate, 57¢ first class; foreign--variable, weight 5ozs; sales and mailing in Hawai'i--add 12¢ sales tax. Send in orders to Book Order Committee, Hawaii Audubon Society, P.O. Box 22832, Honolulu, Hawaii 96822.

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APRIL ACTIVITIES:

10 April - Field trip to 'Aiea Ridge trail to study forest birds. Meet at the State Library on Punchbowl Street at 7:00 a.m. Bring lunch, water, and if possible your car. Transportation cost ($1.00) to be paid to the drivers. For information call evenings Tim Burr, 235-4036.
11 April - Board meeting at Waikiki Aquarium Auditorium, 7:00 p.m. Members welcome.
18 April - General meeting at Waikiki Aquarium Auditorium at 7:30 p.m.
Program: Status and Distribution of the Endangered Birds on Kaua'i and the Hawaiian Leeward Islands by John L. Sincock. (color slides and super 8 film of the 'Ō'ō)

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