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THE PRESENT STATUS OF THE BIRDS OF HAWAII[1]

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Second and Final Installment

10. Meliphagidae (honeyeater family)

This is a large Old World family, containing 160 species of birds. Two genera and five species were found in Hawaii, but all except one species are now thought to be extinct.

The four species of the genus Moho had patches of bright yellow feathers, prized by the early Hawaiians who used them for their feather capes and headdresses. The role that the Hawaiians played in causing the extinction of the several species of the 'O'o is unknown, but it may be significant that the sole known surviving species (on Kauai) has fewer yellow feathers than any of the other species. The evidence also suggests that the 'O'o, like most of the other endemic Hawaiian landbirds, are intolerant to any extensive changes in their environment. Also unknown is the role played by the three species of rats in the islands as predators on the eggs and young of tree-nesting birds; some species of rats are agile climbers and have seen in tall trees and in tree ferns in the 'ohi'a forests.

The Kauai 'O'o (Moho braccatus), formerly thought to be extinct, was rediscovered by Dr. Frank Richardson in 1960 in the depths of the Ala ka'i Swamp region (Richardson and Bowles, 1964). The bird is very rare and nothing is known of its breeding habits.

The Oahu 'O'o (Moho apicalis) is thought to have become extinct within a short period after 1837 (Greenway, 1958, p. 423).

The Molokai 'O'o (Moho bishopi) was last reported in 1904 and is now presumed to be extinct.

The Hawaii 'O'o (Moho nobilis) has not been reliably reported since 1934 and is listed as "probably extinct." It is certain that the birds no longer inhabit the forests where they were collected in the 1890s, but there are vast forest areas on Hawaii which have not been visited by ornithologists, and this species may still exist in remote and relatively undisturbed areas.

The KIOEA (Chaetoptila angustipluma) was a large bird, about 13 inches in total length. Its color pattern was unlike that of any other Hawaiian bird: a black face mask, greenish-brown wings and tail, and a heavily streaked pattern of brown and white feathers on the head, upper back, and underparts. The type specimen was collected by the Pickering and Peale expedition in 1840 on the island of Hawaii, the only known range of the species. According to Munro (1944, p. 88) several additional specimens were collected by Mills about 1859. The species apparently has not been seen since that time.

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11. Drepanididae (Hawaiian honeycreepers)

This endemic Hawaiian family exhibits among its numerous species the most striking example of adaptive radiation from an assumed single ancestral species of any bird family in the world. It demonstrates admirably, therefore, the results of evolutionary processes on oceanic islands. That this family of birds has not been studied more intensively in the past can be attributed, in part, to the fact that Charles Darwin visited the Galapagos Islands and not the Hawaiian Islands.

The members of this family reached all of the main Hawaiian Islands, and two species were found on certain of the Leeward Islands in historic times. The tragic remnant population of three individuals of the Laysan Honeycreeper (also incorrectly called the Laysan "Honeyeater"), a race of the 'Apapane, became extinct in 1923. The finch-billed Laysan Finch and Nihoa Finch still inhabit those respective islands.

It might be noted here that the name "finch" was given to these birds by taxonomists in the 1890s, because they thought that these large-billed birds (as well as some on the main islands) belonged to the finch family (Fringillidae). This interpretation was based almost exclusively on the superficial resemblance in bill shape and size. Later students of Hawaiian birds (particularly Perkins, 1901), concluded that a large number of the endemic Hawaiian birds had evolved from a single ancestral species; all of these were included in the family Drepanididae (formerly, also, Drepaniidae). No suitable evidence has been found since that time to refute this interpretation, although the possibility exists that we are not dealing, in fact, with a true monophyletic family. Nevertheless, I choose to follow the classification of the Hawaiian Honeycreepers proposed by Amadon (1950). There is a more recent system of classification (Greenway, 1968), but that author had no more information on anatomy or breeding biology than was available to Amadon.

Unfortunately, all of the highly specialized honeycreepers have become extinct on Oahu, Molokai, and Lanai, as have most of those on Hawaii, Kauai, the only island on which the mongoose was not introduced, is the only island which still has all of the endemic birds known to have occurred there. Most of these are confined to the Alaka'i Swamp region, and many are now rare. The east and northeast slopes of Haleakala also have proven a haven for the survival of unique Hawaiian birds.

One should note that the largest number of species of honeycreepers are now found in two relatively undisturbed wilderness areas: the Alaka'i Swamp of Kauai and the outer, windward slope of Haleakala. These are areas which have not been much disturbed by wild cattle, nor have they been desecrated by State foresters and ranchers.

Despite the remarkable bill adaptations found in the Hawaiian Honeycreepers, very little is known about this family of unique birds. The nests, eggs, and newly hatched young were never described for any of the extinct species (except for the Laysan Honeycreeper). A nest with eggs of the Palila was found for the first time by Andrew J. Berger in 1968 (Berger, 1969b); the first nests of the 'Akepa and the Creeper to be found were reported by C. Robert Eddinger in 1969. The incubation periods for this family also were first determined by Eddinger in 1969.

A. Subfamily Psittirostrinae

'Amakihi (Loxops virens): This, the second most common living honeycreeper, is found on all of the main islands. The four subspecies are distributed as follows: L. v. stejnegeri, Kauai; L.v.chloris, Oahu; L.v.wilsoni, Maui, Molokai, and Lanai; L.v.virens, Hawaii. The 'Amakihi is a characteristic bird of the wet 'ohi'a forests on the windward slopes of the islands, but it is also a common permanent resident of the dry mamane-naio forest on Mauna Kea. This broad climatic distribution suggests that the 'Amakihi may be the most adaptable of the surviving species of honeycreepers.

'ANIANIAU (Loxops parva): This species is endemic to Kauai, and now is limited in distribution to the Koke'e and Alaka'i Swamp regions of the island, where the bird is fairly common. The nest and eggs of this species were first described in 1969 (Berger, Eddinger, and Frings, 1969).

GREATER 'AMAKIHI (Loxops sagittirostris): This bird, which has been called also (inappropriately) the Green Solitaire, had a very short known history. The species was first collected near the Wailuku River on Hawaii in 1892. It was rediscovered by Perkins in 1895, but has not been observed since early in the present century. The early collecting sites probably were near the upper limits of the present sugar cane fields. However, there are extensive cloud forests along the Hamakua Coast of Hawaii where this species might still survive.

CREEPER (Loxops maculata): The six subspecies of this small bird with a relatively short bill are: L.m. bairdi, Kauai; L.m. maculata, Oahu; L.m. flammea, Molokai; L.m. montana, Lanai; L.m. newtoni, Maui; L.m. mana, Hawaii. The creeper is a relatively common bird in the Alaka'i Swamp region of Kauai and on the windward slope of Haleakala Crater, Maui. It is uncommon on Hawaii, rare on Oahu and Molokai, and presumed to be extinct on Lanai. An unusual feature of the Molokai race is that the males are reddish-brown, whereas the males of the other races have yellowish-green or brownish feathers, especially on the dorsal surface.

'AKEPA (Loxops coccinea): This species differentiated into subspecies on Kauai (L.c. caeruleirostris), Oahu (L.c_. rufa), Maui (L.c. ochracea), and Hawaii (L.c. coccinea). The 'Akepa is fairly common in the Alaka'i Swamp region of Kauai. It appears to be rare on Maui and Hawaii, and is presumed to be extinct on Oahu. The males of the Hawaii and Maui races have reddish-orange plumage, whereas the Kauai male has a yellow crown and underparts and olive-green back and wings.

KAUAI 'AKIALOA (Hemignathus procerus): This highly specialized honeycreeper with its long (over 2 inches) and strongly decurved bill was long feared to be extinct, but it was rediscovered in the Alaka'i Swamp region in 1960 by Richardson and Bowles (1964). The bird must be very rare, probably close to extinction, and has been found by very few observers.

'AKIALOA (Hemignathus obscurus): Subspecies of a second closely related species of 'Akialoa formerly inhabited Oahu, Lanai, and Hawaii. Those on Oahu and Lanai are certainly extinct, and the Hawaii race is presumed to be extinct.

NUKUPU'U (Hemignathus lucidus): The strongly decurved bill of the Nukupu'u is unique among birds in that the lower mandible is only about half as long as the upper mandible. Subspecies formerly were distributed as follows: H.l. hanapepe, Kauai; H.l. lucidus, Oahu; H.l. affinis, Maui. The Oahu race is extinct; the Maui race was rediscovered in 1967; and the Kauai race is very rare, inhabiting the depths of the Alaka'i Swamp.

'AKIAPOLA'AU (Hemignathus wilsoni): The upper mandible of this closely related species also is long and strongly decurved but the lower mandible is straight, robust, and only about half as long as the upper mandible. The 'Akiapola'au has woodpecker-like habits in that it pounds its lower mandible into dead branches and tree trunks, searching for grubs and insects; the birds often forage on branches close to the ground. The 'Akiapola'au is endemic to the island of Hawaii. The bird is very rare, and, in recent years, has been sighted only in the mamane-naio forest on Mauna Kea, but formerly, at least, the species was found in Volcanoes National Park.

MAUI PARROTBILL (Pseudonestor xanthophrys): This remarkable stub-tailed bird with a large parrot-like bill is known to have occurred only at higher elevations on the very wet, windward slopes of Haleakala, Maui. Virtually nothing is known about this rare bird. It was observed in the upper reaches of Kipahulu Valley in August 1967.

'O'U (Psittirostra psittacea): The 'O'u is a large-billed, yellow-headed bird with a greenish back. The species once inhabited Kauai, Oahu, Molokai, Lanai, Maui, and Hawaii. It is extinct on Oahu, Molokai, and Lanai; Maui is not even listed as part of the former range in most books, and the species has not been seen there for many years. The 'O'u apparently was last reported seen on Hawaii

in 1955. The bird is rare on Kauai but can be found in the Alaka'i Swamp.

LAYSAN FINCH (Psittirostra cantans cantans): This species was first described by S. B. Wilson in 1890. It was undoubtedly because of its omnivorous feeding habits that the Laysan Finch managed to survive the destruction by rabbits of the vegetation on Laysan Island. During the extended breeding season of the seabirds, the Laysan Finch breaks the eggs of the several species of nesting terns, especially, and eats their contents. Wetmore found several dozen Laysan Finches on the island in 1923. The population has increased steadily since that time, and there were between 8,000 and 10,000 Laysan Finches on the island in 1967. Personnel of the U.S. Bureau of Sport Fisheries and Wildlife have since released birds on Southeast Island of Pearl and Hermes Reef; the population is now thought to number between 75 and 100 birds.

The Laysan Finch also was introduced on Midway Island in 1891 and again in about 1905. Bailey (1956, p. 124) wrote, however, that "the disappearnce of the finches and the /Laysan/ rails was very rapid when rats overran the islands during the war years, and few if any existed on Midway after 1944."

About two dozen Laysan Finches were presented to the Honolulu Zoo in 1966, and a similar number were sent to the University of Michigan.

NIHOA FINCH (Psittirostra cantans ultima): This honeycreeper was named "ultima" in 1917 by W. A. Bryan because he thought it would be the last endemic Hawaiian bird to be discovered. In 1923, however, Alexander Wetmore visited Nihoa and discovered the Nihoa Millerbird.

The Nihoa Finch is a successful species, with an estimated population in 1967 of between 4,800 and 5,000 birds on Nihoa's 156 acres. The survival of the species, however, depends upon maintenance of the native vegetation and prevention of the introduction on the island of rats and other mammalian predators.

PALILA (Psittirostra bailleui): The Palila is superficially similar to the 'O'u, being a large-billed and large-headed bird with a yellow head and throat but with a gray back. The bill of the Palila is dark in color, rather than light, and is differently shaped than the bill of the 'O'u. The Palila is found only on Hawaii. It had a wider distribution on that island in the past but is now known to occur only in the mamane-naio forests on the slopes of Mauna Kea, in general at elevations above 6,500 feet. The survival of the Palila, therefore, is entirely dependent on the recovery and continued maintenance of this forest. The present tree line is located at approximately 9,300 feet and is gradually receding because of overgrazing by the feral sheep on the State-owned game management areas on Mauna Kea. A superabundance of wild pigs also inhabits this relatively dry forest region.

GREATER KOA FINCH (Psittirostra palmeri): This and the next two species of Koa Finch provide ornithologists with a real puzzle. The three species were first discovered and described during the period between 1888 and 1892, all on the Kona slope of Mauna Loa. There are no reliable records of any one of these species having been seen since 1896.

LESSER KOA FINCH (Psittirostra flaviceps)

GROSBEAK FINCH (Psittirostra kona)

B. Subfamily Drepaniinae

'APAPANE (Himatione sanguinea): This is the most common of the surviving species of honeycreepers, and it has undergone no important geographic variation. One race (H.s. sanguinea) inhabits all of the six main Hawaiian islands. A second race (H.s. freethii) inhabited Laysan Island until becoming extinct in 1923.

The 'Apapane is the most conspicuous of the native birds in the wet 'ohi'a forests on all major islands, in general now above 3,000 feet elevation. It also is found along the Mauna Loa Strip Road in Volcanoes National Park, among both the scattered 'ohi'a trees and the groves of koa (Baldwin, 1953). The species rarely

moves through the mamane-naio forest on Mauna Kea, and is not known to nest there. The places to observe this species most easily are at Koke'e State Park on Kauai, Hosmer's Grove on Maui, and Volcanoes National Park on Hawaii.

CRESTED HONEYCREEPER (Palmeria dolei): This remarkably plumaged honeycreeper (totally unlike any other species) once inhabited both Molokai and Maui. The species is extinct on Molokai, and almost nothing is known about the birds on Maui. There they are found in the cloud forest on the northeast slope of Haleakala, presumably at elevations above 5,000 feet.

'ULA-'AI-HAWANE (Ciridops anna): According to Munro (1944, p. 99), the common name means "the red bird that feeds on the hawane" (the native Hawaiian palm, Pritchardia spp.). The color pattern of this species, too, was unlike that of any other honeycreeper. The species apparently was first collected about 1859 but it was not described until 1879. Palmer and Munro obtained one specimen from natives in the early 1890s, the last of this species ever reported.

'I'IWI (Vestiaria coccinea): This is the most striking in appearance of the common honeycreepers. The head and body feathers are a brilliant vermillion; there is a white patch in the otherwise black wings; and the long, decurved bill is salmon colored. This species once inhabited all of the main islands. It is extinct on Lanai and probably Molokai, and it is rare and presumably on the verge of extinction on Oahu. On Kauai, Maui, and Hawaii, however, it is still fairly common.

MAMO (Drepanis pacifica): The naturalists accompanying Captain Cook first collected this striking yellow and black bird with its very long, decurved, black bill, which was endemic only to the island of Hawaii in historic times. The head and body feathers were black but the rump, upper and lower tail coverts, thighs, bend of wing, and part of the under wing coverts were bright yellow. Munro (1944, p. 91) reported that the birds were still being collected for their yellow feathers in 1880, and that one man shot as many as 12 in one day with a shotgun. The species apparently was last seen in 1899.

BLACK MAMO (Drepanis funerea): This jet black bird with white on the wing feathers had an even larger, decurved bill than the Mamo. Endemic to Molokai, the species was discovered in 1893. The last specimens apparently were collected in 1907, and the species is thought to be extinct.

INDIGENOUS HAWAIIAN BIRDS

Indigenous birds are those native to Hawaii but whose normal range of distribution includes a much wider geographical area. Included among these indigenous Hawaiian birds are many seabirds, the Black-crowned Night Heron, and a number of migratory species that spend the nonbreeding season in the Hawaiian Islands. Most of these birds are illustrated in the books by Ord (1967) and Peterson (1961).

BLACK-CROWNED NIGHT HERON (Nycticorax nycticorax hoactli): This heron is considered indigenous rather than endemic (see gallinule and coot) because the Hawaiian birds have not been recognized as subspecifically distinct in plumage characters from the American continental birds. This subspecies has a very large breeding range, extending from Washington and Oregon south to northern Chile and southcentral Argentina.

The Black-crowned Night Heron, found on all the main islands, inhabits marshes, ponds, and lagoons, where it feeds on aquatic insects, fish, frogs, and mice. The birds roost and nest in trees. The future of this species in Hawaii, like that of the gallinule and coot, is dependent on the preservation of suitable wetland habitat.

The Seabirds

These birds belong to several families of oceanic birds (as indicated below). They breed by the tens of thousands on the Leeward Islands, and certain species nest on the offshore islands of Kauai and Oahu (especially Moku Manu and Manana

Island (Fisher, 1948a, 1966). The offshore islands are State wildlife refuges, and permission is required before visiting these islands.

A few species nest on the main islands. Red-footed Boobies (Sula sula) have established breeding colonies near the Kilauea Lighthouse on Kauai and on Ulupau Head, Oahu. Newell Manx Shearwater (Puffinus puffinus newelli) is known to breed on almost inaccessible cliffs on Kauai. The Hawaiian Dark-rumped Petrel (Pterodroma phaeopygia sandwichensis) nests on the walls of Haleakala Crater, Maui, and, in smaller numbers, on Hawaii. Both species are thought to have nested formerly on all of the high islands, and both are listed as endangered species.

Families containing species that nest in the Hawaiian Islands and the species are these:

Diomedeidae (albatrosses or gooney birds)
- Black-footed Albatross (Diomedea nigripes)
- Laysan Albatross (Diomedea immutabilis)

Procellariidae (shearwaters, petrels, fulmars)
- Wedge-tailed Shearwater (Puffinus pacificus)
- Christmas Island Shearwater (Puffinus nativitatus)
- Newell Manx Shearwater (Puffinus puffinus newelli)
- Dark-rumped Petrel (Pterodroma phaeopygia sandwichensis)
- Bonin Petrel (Pterodroma hypoleuca)
- Bulwer Petrel (Bulweria bulwerii)

Hydrobatidae (storm petrels)
- Harcourt Storm Petrel (Oceanodroma castro)
- Sooty Storm Petrel (Oceanodroma markhami)

Phaethontidae (tropicbirds)
- White-tailed Tropicbird (Phaethon lepturus)
- Red-tailed Tropicbird (Phaethon rubricauda)

Sulidae (boobies and gannets)
- Blue-faced or Masked Booby (Sula dactylatra)
- Brown Booby (Sula leucogaster)
- Red-footed Booby (Sula sula)

Fregatidae (frigatebirds)
- Great Frigatebird (Fregata minor)

Laridae (gulls, terns, and noddys)
- Sooty Tern (Sterna fuscata)
- Gray-backed Tern (Sterna lunata)
- Blue-gray Noddy (Procelsterna cerulea)
- Brown Noddy (Anous stolidus)
- White-capped or Hawaiian Noddy (Anous minutus)
- Fairy Tern (Gygis alba)

Migratory Species

The most conspicuous of these is the Pacific Golden Plover (Pluvialis dominica), which spends the nonbreeding season in Hawaii, inhabiting grassy areas in the cities as well as in the mountains. Most of the birds molt into the full breeding plumage before leaving for Alaska, usually in April.

A number of species of ducks and shorebirds also are winter residents in the Hawaiian Islands (see Ord, 1967; Bryan, 1958; and Clapp and Woodward, 1968).

INTRODUCED OR EXOTIC BIRDS

Virtually all of the landbirds that one sees in Honolulu, as well as in lowland areas on all islands, are introduced species: for example, doves, mynahs, white-eyes, cardinals, mockingbirds, linnets (Fisher, 1948b; Eddinger, 1967a, 1967b; Walker, 1967; Warner, 1968). To see endemic birds, one must get into the mountains and the native forests; and few native birds remain on the island of Oahu.

In addition to the 76 species of game birds known to have been introduced in the main Hawaiian Islands as of 1967, at least 60 species of non-game birds have been released. These cover the gamut from the Chinese Fishing Cormorant (Phala-

crocorax carbo) and the Guam Edible-nest Swiftlet (Collocalia inexpectata) to a wide variety of passerine birds. Fortunately, most of the introductions have been unsuccessful.

The exact number of birds which have been introduced is uncertain because an unknown number of cage birds have been released illegally by presumably well-meaning, but ignorant, citizens. A surprising number of weaver-finches (family Ploceidae, to which the House Sparrow, Passer domesticus, belongs) have been released intentionally by citizens on the slopes of Diamond Head in recent years, and a number of these seem to be established as breeding birds.

The success of an exotic bird introduced into a foreign environment is best exemplified, perhaps, by the Mejiro or Japanese White-eye (Zosterops palpebrosus japonicus; family Zosteropidae). According to Bryan (1958, p. 21), the White-eye was introduced to Oahu from Japan in 1929. This species has spread (apparently unaided by man) to all of the main islands; it is found both in the very dry and the very wet habitats, and from sea level to treeline on the mountains of Hawaii and Maui.

Another successful exotic is the Red-billed Leiothrix (Leiothrix lutea; family Timaliidae), which was released in 1918 and again in 1928-1929. This species prefers the wetter areas (both native and introduced vegetation), but is now widely distributed on the main islands. It is a common bird in the native forests, where it, as well as the White-eye, may be competing seriously with the endemic birds.

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Excerpts from the minutes of the Hawaii Audubon Society general meeting, 17 Aug.1970:

...Mr. William Prange reported on the August 9 field trip to Manana (Rabbit) Island....Mr. Robert Shallenberger, graduate student in zoology at UCLA, who is studying the reproductive cycle of the wedge-tailed shearwater on Manana, briefed the group on the nesting seabird species and on how to avoid disturbing the shearwater burrows. The brown noddy eggs and chicks were vulnerable, since with the passage of the group through the nesting area the adult birds would fly off, leaving the eggs and young exposed to the heat of the sun. Mr. Shallenberger led the group along the cliff ridges and, despite the precautions, it was inevitable that some shearwater burrows would be stepped on and some brown noddy eggs inadvertently crushed....One member at the meeting questioned Mr. Prange on the advisability of having a HAS trip to Manana while many shearwaters and brown noddies were still nesting.

Mr. William Hull reported on the birds he and his wife observed recently at the settlement basins of the sugar cane fields on Waipio peninsula. The Oahu sugar Company now has six large basins adjacent to each other that will be excellent wintering habitat for stilts, ducks and shorebirds as long as sufficient water is pumped into the basins as part of the cane operations. In the basins on August 15 were 543 ruddy turnstones, many showing the rusty color of summer plumage; 39 golden plovers, with a majority in various stages of breeding plumage; and the one little blue heron, who has been observed in the West Loch and Waipio areas for

several years, in the company of 89 cattle egrets. A single pectoral sandpiper has been seen at the basins on four occasions since August 9. One "peep" sandpiper, a semipalmated or a western, was observed in the basins on three trips since August 8. On August 16 in the basins the Mulls counted 344 black-necked stilts, over fifty sanderlings, and a striking black-bellied plover in breeding plumage. No ducks were in the basins as of August 16.

Mr. Ronald Walker commented that over 620 black-necked stilts had been counted in the settlement basins the previous week on Waipio peninsula during a count made by the state Division of Fish and Game.

Substituting for Mr. David Woodside, Mr. Ronald Walker showed two films--BIRDS OF HAWAII and WILD WINGS. The latter film was a documentary of the study, care and breeding, and conservation techniques used at the Slimbridge bird sanctuary in England for the preservation of many rare birds and waterfowl. The Hawaiian nene is one that has been bred and studied at Slimbridge, and the nene for the restoration project on Hawaii were obtained from that sanctuary.

Mae E. Mull, Acting Secretary

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BOOK REVIEW by E.H. Bryan, Jr.: Seabirds in the Central Pacific

The U.S. Department of the Interior has just published THE TRADE WIND ZONE OCEANOGRAPHIC PILOT STUDY PART VII: OBSERVATIONS OF SEABIRDS MARCH 1964 to JUNE 1965, by Warren B. King. It is U.S. Fish and Wildlife Service, Special Scientific Report - Fisheries No. 586, Washington, D.C., June 1970. 136 pages, 36 figures.

This book presents reports on birds observed by scientists of the Smithsonian Institution's Pacific Ocean Biological Survey Program for a 15 months' period, from the research vessel Townsend Cromwell. The area covered is from 25° N. to 10° N. and from the main Hawaiian Islands to 148° (about 600 nautical miles to the east). Two experienced observers alternated watches from the vessel, and a record was made of every bird observed. A total of 13,080 sightings were made of 65,707 birds during a cruise of 34,384 nautical miles.

The records are arranged by bird species and the distribution is plotted on sketch maps for each species during different periods. A total of about 24 species were recognized including migratory birds ahd even a Rock Dove.

A copy* of this book may be consulted at the Pacific Scientific Information Center, at B.P. Bishop Museum.

* Another copy at Hawaii Audubon Society Library.

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The Hawaii Audubon Society has a copy of SHOULD AXIS DEER BE RELEASED ON THE ISLAND OF HAWAII? complied by Kohala Branch American Association of University Women, May 1970. 14 pages. It is a mimeographed tabulation of the sources and statements for and against the release of axis deer on the Island of Hawaii. Interested persons may write to Mrs. Ruth M. Stearns, Chairman, Committee on Introduction of Axis Deer to the Island of Hawaii, P.O. Box 147, Hawi, Hawaii 96719.

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A master plan on Hawaiian Islands National Wildlife Refuge is available in booklet form from the Bureau of Sport Fisheries & Wildlife, P.O. Box 698, Kailua, Hawaii 96734 or P.O. Box 3737, Portland, Oregon 97208. This administrative plan was proposed and prepared by the Bureau of Sport Fisheries and Wildlife's Western Region, Portland, Oregon.

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PLEASE IDENTIFY: ...They are a bit smaller than Brazilian cardinals, but about the same shape. They have black topknots, and black masks over their eyes. They are dark on their backs and wings--black shading into dark brown. But the lower part of their faces and their chests and breasts are light, almost white. They come in fairly large numbers to eat the berries on the night-blooming jasmine bushes.... I call the visitors tuxedo birds, because of their black-and-white appearance, though I would be happy to have another name for them. They have been coming

here /Makiki Round Top Drive/ for about a year....Any ideas? Please write to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816.

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ALOHA to new members:

Mrs. W.L. Doty, Jr., Naalehu, Hawaii 96772
Mrs. Kenneth D. Gardner, 2856 Union St, San Francisco, Calif. 94123
Joy C. Harwood, I423 Emerson St, Apt 107, Honolulu, Hawaii 96813
Rose R. Roher, 60 N.E. 50th Terrace, Miami, Florida 33137
Roger E. O'Connor, 4395 Aukai Ave, Honolulu, Hawaii 96815
John D.M. Parkes, 1550 Wilder Ave, A-160, Honolulu, Hawaii 96822
Charles J. Pietsch, 235 Queen St, Honolulu, Hawaii 96813
Serials Unit, The Libraries, Colorado State University, Fort Collins, Colo. 80521
Science Department, Hawaii Preparatory Academy, Kamuela, Hawaii 96743
MacPherson Library, University of Victoria, Victoria, Canada

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1970 Christmas Bird Count

The Honolulu Christmas bird count is scheduled for Sunday, 27 December 1970. The count is conducted within a circle 15 miles in diameter, centered close to Nuuanu Pali. This same area has been covered each year since 1954. General coordinator will be William P. Mull, with groups assigned to territories as follows:

Group A: Kaelepulu Pond, Kawainui Swamp, Kailua residential area, and Kaneohe Marine Corps Air Station
Group B: Aiea Trail
Group C: Keehi Lagoon, Salt Lake and Nuuanu Valley
Group D: Punchbowl and Tantalus
Group E: Manoa Valley, Manoa Falls Trail, and downtown Honolulu
Group F: Kapiolani Park, Zoo, and Ewa side of Diamond Head
Group G: Diamond Head Crater (inside) to Paiko Lagoon and Kuapa Pond including the residential area

All members and guests are welcome to participate in the count. Please call William Mull, 988-6798, to arrange meeting place and time. The National Audubon Society requests $1.00 per participant in the Christmas count to defray the costs of printing the count results. At the 12 October 1970 Executive Board Meeting of the Hawaii Audubon Society it was proposed that this cost be carried by the Society instead of by the participants.

Full details and discussion of count plans will be given at the annual meeting on 14 December.

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The Nominating Committee, Virginia Cone (Chairman), Ernest Holt, and Alexander MacGregor, suggests the following persons as officers of the Society for 1971: President-Charles Kaigler, Vice Presidents-William P. Mull & David Woodside, Secretary-Mrs. William P. Mull, Treasurer-William W. Prange, Jr., and Board Members-Margaret Titcomb & Christine Jones.
Election of officers will be held at the annual meeting, 14 December, at which time nominations will be accepted from the floor.

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DECEMBER ACTIVITIES:

14 December - PLEASE NOTE DATE. Annual meeting at the Wakiki Aquarium Auditorium at 7:30 p.m. Program for the night: (1) Elect officers (2) Work out details of the Christmas bird count.
27 December - Christmas bird count

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HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:
President-LtCol Charles G.Kaigler, Vice Pres.-Miss Margaret Titcomb & Jack L.Throp
Secretary-Mrs. William P.Mull, Treasurer-Willia m W.Prange, Jr.
Board Members-William P. Mull & David H. Woodside
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