# 'ELEPAIO

*Journal of the Hawaii Audubon Society*

*For the Protection of Hawaii's Native Wildlife*

Volume 39, Number 10 April 1979


## POSSIBLE BREEDING COLONIES OF MANX SHEARWATER ON THE ISLAND OF HAWAII


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Newell's race of the Manx Shearwater (*Puffinus puffinus newelli*), known locally as A'o, is thought to have formerly nested on Hawaii, Maui, Molokai, Oahu, and Kauai (Munro 1944, King and Gould 1967, Sincock and Swedberg 1969). By 1944, however, Munro concluded that introduced predators had exterminated the birds from Hawaii, Maui, and Molokai, and speculated that colonies only existed on mongoose-free Kauai and little known Niihau. King and Gould (1967), drawing on extensive at-sea observations, sightings on Kauai, and quantities of downed birds attracted to lights on Kauai's coastal lowlands, concluded that A'o still bred in good numbers on that island. They even constructed a hypothetical breeding season based on the variations in at-sea populations around Kauai, the incidence of calling birds at inland cliffs, and the plumages of downed birds and those collected at sea. Then in July 1967, just before King and Gould's paper was published, Sincock, acting on a tip from a local pig hunter, found A'o nesting on the steep, muddy, uluhe (*Dicranopteris linearis*) covered slopes of Kauai's Makaleha-Anahola Mountains (Sincock and Swedberg 1969). Thus, after more than 60 years, the nest of *newelli* had been rediscovered. The breeding cycle discovered by Sincock and Swedberg confirmed the hypothesis of King and Gould: A'o appear on Kauai in April and court until June, when they lay their eggs. Chicks hatch in late July and leave the island in October and early November, as do other procelariids in Hawaii. The colonies found by Sincock have all been located above 213 m elevation on steep slopes covered by uluhe, and many have a forest overstory of ohia (*Metrosideros collina*) and *Eugenia* sp.

Munro (1944) suggested that A'o formerly nested in Waipio Valley, on Hawaii's Kohala Mountains. A'o were also formerly known from Pu'u-a-'a'o ("a flock of A'o's", now called Pali Puaao), a cliff named for the birds near Waiohinu, in the South Point vicinity some 114 km south of Waipio Valley (Kahuku Ranch Quad). It has been assumed since Munro (1944) that the A'o was absent from Hawaii, extirpated by introduced predators, especially mongooses, rats, dogs, cats, and pigs. However, an adult A'o and an egg were found at Makaopuhi Crater in Hawaii Volcanoes National Park in 1972 (W. E. Banko, unpublished manuscript), evidence for the first breeding record other than Kauai since 1908.

In the last two years a number of people have observed A'o on land on the Hamakua Coast and in the Kohala Mountains, and these records suggest that several small, widely scattered colonies of A'o are still breeding on windward Hawaii. From 13-15 September 1977 Mark Collins heard A'o calling in the Waimanu Valley, Kohalas (Shallenberger 1977). Also, in August 1977 Hall (1978) reported birds calling at night at the "new USGS camp," Kohalas (Honokane Quadrangle) at about 915 m elevation, but did not see them, preferring his tent to the uncertainty of the wet, cold night outside. His observations suggest a breeding colony somewhere nearby. One of us (JJ), formerly with Hilo Coast Processing, saw A'o flying around the powerful night lights on a cane loading crane at Papaikou on 13 July 1977, and captured, identified, and released a single A'o in the same coastal field (35 m elevation) the following night. JJ also saw two groups of A'o (2-3 birds) about 1 km south of Pepeekeo Hill the same night, at 20 m elevation. These birds were also attracted to crane lights. In 1976 three A'o flew from the woods near Kauku Crater, only 4 miles from the 1977 sightings. R. Shallenberger (pers. comm.) found a dead adult A'o on the road at Laupahoehoe in August 1976. Dick Davis heard an A'o calling at 2030 on 13 July 1977 at 500 m elevation near the Awehi River, and on 21 August 1977. A. Taylor and F. Ashman, at an elevation of 643 m, heard an A'o flying SE down the Hakalau River at 0450.

There are several consistent threads to these records. All sightings have been made in very recent years during the period when A'o breed on Kauai. All have been on windward Hawaii near or within dense rain forest, and have involved very small numbers compared with Kauai records. No downed birds with traces of down, indicating successful breeding inland, have yet been found. The records, however,

do suggest that A'o colonies exist within the Hamakua and Kohala forests, but that these colonies are very dispersed and probably contain very few individuals. This is further suggested by the relatively low numbers of A'o found off the Big Island during the breeding season compared with those in waters surrounding Kauai and Niihau (King and Gould 1967).

In 1977 we surveyed the forest birds of the Hamakua forest along 204 miles of linear transects from the Volcano Road to Kukaiau Ranch. We placed 21 transects from the top of the forest to the cane fields at two mile intervals along nearly 50 miles of the northeast coast, yet A'o were only heard at the two locations mentioned above (Hakalau and Awehi Rivers). No A'o were located in similar surveys in the forests in Kau-Kapapala (11 transects, 58 miles) in 1976, nor in Kona from Puuwaawaa Ranch to Kahuku Ranch (33 transects, 243 miles), in 1978.

There are thousands of hectares of steep, muddy uluhe-covered stream banks within the forest on the windward slopes of Mauna Kea. Much of the ohia forest has died and is covered with dense uluhe that covers tens of thousands of additional hectares. Within this area pig densities are relatively low, and mongooses, dogs, cats, and rats are rarely seen, in contrast to forested areas at both higher and lower elevations. We suggest that A'o colonies will be found in this area and in the Kohalas. However, they will be exceedingly difficult to find, and locating them will require luck, hard work, and clues provided by pig hunters and others familiar with the remote forested areas. The location of a possible colony at Makaopuhi Crater (Banko, unpublished manuscript) suggests that pit craters might be reasonable locations in which to search for additional colonies.

We suggest that individuals or organizations with an interest in Hawaii's endangered species make an effort to find nesting shearwaters; when nesting sites are located, steps could be taken to help protect them. This is particularly important now that mongooses appear to have reached Kauai, for this could place A'o on that island under the same stresses that have eliminated this species from most of their former colonies on the other main Hawaiian Islands.

We thank Win Banko for letting us use his unpublished material, and Vernon Byrd, Warren King, C.J. Ralph, Rob Shallenberger, and John Sincock for their helpful comments on the manuscript.

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## Russell Peterson New President of National Audubon Society

Russell W. Peterson, former chairman of the President's Council on Environmental Quality, will succeed Dr. Elvis J. Stahr as president of the National Audubon Society April 1st.

Peterson, a scientist and winner of the 1977 Audubon Medal, is currently director of the Office of Technology Assessment, an agency of the Congress. He has a distinguished background in industry and the nonprofit field as well as in government. He worked for the Du Pont Company 26 years and headed the Research and Development Department of its Development Division before he left to run for Governor of Delaware. He was elected to that office in 1968 and won national attention as a conservationist for his tough program to protect the state's coastal zone. He was named chairman of CEQ in 1973, and when he left that post in 1976 he became the founder and first president of New Directions, a citizens' lobbying organization focusng on global issues.

# A STELLER'S SEA EAGLE AT KURE AND MIDWAY: FIRST HAWAII RECORD

by
George H. Balazs and C. John Ralph

We report here the first observation of the Steller's Sea Eagle *(Haliaeetus pelagicus)* in the Hawaiian Archipelago. The only eagle previously recorded in Hawaii is a Golden Eagle *(Aquila chrysaetos)* still present on Kauai after being first reported by G. Swedberg (Ching 1967). The Steller's Sea Eagle is an Asiatic bird rarely reported in Alaska, and then only in the Aleutian area (AOU 1957, Murie 1959). It breeds in coastal Siberia south to North Korea. In the winter, it has been recorded (Brown and Amadon 1968) as far west as Peking, China, and south to the Ryu Kyu Islands, just south of Japan's main islands, and at the same latitude as Kure. This record is thus equal to the southernmost record of the species known to us.

On February 14, 1978, one of us (GHB) was informed by LTJG Bailey, Commanding Officer of the U. S. Coast Guard Loran Station at Kure Atoll (28°25'N, 178°20'W), that an exhausted eagle with water-soaked feathers had taken up residence on Green Island at Kure early in the month, after a period of strong northerly winds and heavy rain.

On February 17, GHB made a one-day visit to Kure in conjunction with field studies of Hawaiian green turtles *(Chelonio mydas)*. At that time, he observed the eagle as close as 50 m while it was roosting on the beach and again in a large *Messerschmidia* tree. The bird was too wary to allow a closer approach. The remains of a freshly consumed adult Black-footed Albatross *(Diomedea nigripes)* and an adult Laysan Albatross *(D. immutabilis)* (both banded) were nearby. Coast Guard personnel had seen the eagle attack and subsequently eat an unidentified albatross. This, not surprisingly, is the first record of the species eating albatross, although the species is well known to eat birds as large as geese (Brown and Amadon 1968).

Between February 24 and March 2, while GHB was again at Kure, the eagle was observed daily. During this period it perched in a number of widely separated locations, including the *Casuarina* trees by the Coast Guard quarters, the cleared areas of the antenna field, the emergent coral rock a short distance off the island's south point, and the eastern end of the runway, where freshwater pools frequently collect after rainshowers. During the afternoon of March 1, it perched on top of a 21 m high radar reflector near the west beach. Between 1000-1500 h of the same day a monk seal pup was born in this area; possibly the event served as an attractant to the eagle.

On one occasion the eagle was observed being moderately harassed by four frigatebirds *(Fregata minor)* while flying.

Although it was not possible to approach the eagle closely on foot, several close-up photographs (Figs. 1 and 2) were obtained using a 250 mm lens from a pick-up truck.

Fig. 1. Steller's Sea Eagle on the runway at Kure Atoll, Hawaii, February 1978.
*Photo by George H. Balazs*

On March 21, 1978, an eagle of similar appearance was reported by Gary Means on Sand Island at Midway, approximately 115 km east-southeast of Kure. This coincided with the absence of any further observations of the eagle at Kure. Nancy Butowski-Casey reported that the bird moved periodically between Midway's inhabited Sand Island and the uninhabited Eastern Island. Occasional sightings at Midway continued until the middle of May, when the bird apparently disappeared.

The bird (Figs. 1 and 2) had a very large, light-colored bill, dark brown head and back, a mottled lightish, wedge-shaped tail, and a distinctively patterned (Brown and Amadon 1968) underwing. The Steller's Sea Eagle is distinguishable from: (1) the young Bald Eagle *(H. leucocephalus)*, which has a rounded tail and largely lacks the patterned underwing; (2) and the young

Fig. 2. Steller's Sea Eagle in flight, with Black-footed Albatross above. Kure Atoll, Hawaii, February 1978.
*Photo by George H. Balazs*

White-tailed Sea Eagle (also known as the Gray Sea Eagle) *(H. albicilla)*, which has a smaller bill, a mottled, light brown head and breast, and lacks the underwing pattern. Roger Clapp and Roxy Laybourne, U. S. National Museum, confirmed the identification from the photographs (Figs. 1 and 2).

### Acknowledgments

We thank the Fourteenth Coast Guard District for providing transportation and other valuable research assistance to the senior author. We thank G. Vernon Byrd, Curt Griffin, Robert L. Pyle, and Carol P. Ralph for helpful comments on the manuscript. The field observations by the senior author were made in conjunction with grants received from the State of Hawaii, Office of Marine Affairs Coordinator, and the University of Hawaii Sea Grant College Program.

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## Natural History Lectures

The Waikiki Aquarium is offering to the public a series of lectures on various topics of Hawaiian and Pacific natural history. Lectures are at 7:30 p.m. at the Aquarium. A donation of $1.00 is suggested. The lectures in April and May are:

The Northwestern Hawaiian Islands -- April 10
Speaker: George Balazs
George is well-known in Hawaii for his work on the ecology and conservation of marine turtles. He has visited the Northwestern Hawaiian Islands many times observing and photographing the animals living there. His photographs appear on this year's Dillingham Tide Calendar.

Hawaii's Native Land Invertebrates -- April 24
Speaker: William P. Mull
Mr. Mull is an accomplished naturalist and nature photographer. His lecture will include the evolution and ecology of Hawaii's native land snails, spiders and insects illustrated with live color photos.

Reptiles and Amphibians of the Hawaiian Islands--May 8
Speaker: Sean McKeown
Sean is Supervising Herpetologist at the Honolulu Zoo, and author of Hawaiian Reptiles and Amphibians which will be available March 1979. He will discuss the natural history of terrestrial, freshwater and marine reptiles and amphibians of Hawaii and his photographic techniques.

# VOLCANO, HAWAII, CHRISTMAS COUNT

by Larry Katahira, Compiler

On Saturday, December 30, 1978, Big Island birders conducted their seventh consecutive Volcano Count. Thirty-three participants worked in 14 parties, spent 97.3 hours in the field, travelled 64.5 miles by car and 86.5 miles by foot. The weather, although chilly (a low 46 in Area 4b), was favorable throughout the day with morning overcast and clear skies, leading to intermittent light rain by late afternoon.

Sections of five transects censused by the U.S. Fish and Wildlife Service in 1977 (J.M. Scott, C. Keppler, et al.) were again included in our Count. These transects provided our group with exceptional coverage in the rich birding habitats of Kilauea Forest Reserve, Keauhou Ranch, Kulani Correctional Facility, Upper Waiakea Forest Reserve, and 'Ola'a Tract.

There were no unusual highs or lows this year, although the 'Apapane topped last year's total (9,024 vs. 7,972). The Kalij Pheasant was not recorded this year (no significant loss); as a result, there was a total of 28 species vs. 29 last year. A refreshing but perhaps temporary note was the fewer numbers of Common Myna, Japanese White-eye, House Finch, and Spotted Munia.

A total of six endangered species were observed during the Count day; however, individual counts for the endangered 'Akiapola'au, 'Akepa, and creeper were somewhat lower this year. This was partly due to less coverage in Keauhou Ranch areas, 4a, 4b, and 4c (12.5 hours and 7.1 miles on foot this year vs. 17.5 hours and 14.5 miles on foot in 1977). A large section of mesic koa-ohi'a forest in Keauhou Ranch has been cleared for the Kilauea-Keauhou Koa "Reforestation" Project. Changes in this site and adjacent areas may cause future alteration of population and distribution of endangered birds and should be monitored.

VOLCANO, HAWAII, CHRISTMAS COUNT, 30 DECEMBER 1978

| Areas: | 1 | 2 | 3 | 4a | 4b | 4c | 4d | 5 | 6 | 7 | 8a | 8b | 8c | 8d | 9 | 10 | mauka 11 | makai 11 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| White-tailed Tropicbird | . | 4 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 4 |
| Hawaiian Goose | . | 2 | 1 | 5 | . | . | . | 4 | . | . | . | . | . | . | . | . | . | . | 12 |
| Hawaiian Hawk | . | . | . | 1 | . | . | . | . | . | . | . | . | . | . | . | 1 | 1 | . | 3 |
| California Quail | 15 | . | 6 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 21 |
| Ring-necked Pheasant | 3 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1 | . | . | 4 |
| Green Pheasant | 2 | . | . | 2 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 4 |
| Golden Plover | 75 | 19 | . | 47 | . | . | . | 2 | 19 | . | . | . | . | . | . | 5 | 15 | . | 182 |
| Spotted Dove | 2 | 4 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 6 |
| Barred Dove | . | 1 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1 |
| Pueo | . | . | . | . | . | . | . | 1 | . | . | . | . | . | . | . | . | . | . | 1 |
| Skylark | 7 | . | . | 29 | . | . | . | 5 | . | . | . | . | . | . | . | . | 1 | . | 42 |
| Melodious Laughing Thrush | . | . | . | . | . | . | 1 | . | . | . | . | . | . | . | . | . | . | . | 1 |
| Red-billed Leiothrix | . | 8 | . | 23 | 10 | 4 | 22 | . | 10 | 3 | 4 | 2 | 8 | 6 | . | 5 | 11 | 9 | 125 |
| Hawaiian Thrush | . | 11 | 3 | 68 | 35 | 125 | 47 | . | 61 | 333 | 70 | 46 | 164 | 38 | 8 | 65 | 115 | 181 | 1370 |
| Hawaii 'Elepaio | 10 | 20 | . | 42 | 5 | 15 | 6 | . | . | 43 | 15 | 3 | 21 | 2 | 3 | 8 | 8 | 11 | 212 |
| Common Myna | 22 | 26 | . | 5 | . | . | . | . | 49 | . | . | . | . | . | . | . | . | . | 102 |
| Japanese White-eye | 18 | 64 | 2 | 30 | 28 | 34 | 35 | . | 69 | 38 | 8 | 16 | 28 | 8 | 8 | 39 | 33 | 19 | 477 |
| Hawaii 'Amakihi | . | 34 | 50 | 44 | 7 | 9 | 7 | 8 | 2 | 20 | 41 | 9 | 5 | 4 | 3 | 57 | 58 | 26 | 384 |
| Hawaii Creeper | . | . | . | 4 | . | 1 | 3 | . | . | . | 3 | 1 | . | . | . | 4 | . | 4 | 20 |
| Hawaii 'Akepa | . | . | . | 9 | 4 | . | 2 | . | . | . | 1 | 1 | . | . | . | 19 | . | 2 | 38 |
| 'Akiapola'au | . | . | . | 3 | . | 1 | . | . | . | . | 1 | . | 1 | . | 1 | . | . | . | 7 |
| 'O'u | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 1 | . | . | . | 1 |
| 'Apapane | 11 | 396 | 75 | 730 | 636 | 390 | 102 | 6 | 334 | 1102 | 231 | 460 | 620 | 62 | 58 | 451 | 2475 | 885 | 9024 |
| 'I'iwi | . | 7 | 1 | 63 | 50 | 26 | 4 | . | . | 219 | 31 | 22 | 36 | 2 | 8 | 163 | 186 | 92 | 910 |
| Spotted Munia | . | . | . | 37 | . | . | . | . | 26 | . | . | . | . | . | . | 15 | 2 | . | 80 |
| House Sparrow | 17 | 38 | . | 10 | . | . | . | . | . | . | . | . | . | . | . | . | . | . | 65 |
| Northern Cardinal | 15 | 1 | . | 6 | . | 10 | 12 | . | 3 | 3 | 2 | 1 | 5 | 3 | . | 1 | 4 | . | 66 |
| House Finch | . | 11 | . | 19 | . | . | 25 | . | . | . | 4 | . | . | . | . | 4 | . | . | 63 |
| No. of Individual birds: | 197 | 646 | 138 | 1177 | 775 | 615 | 266 | 26 | 573 | 1761 | 411 | 561 | 888 | 125 | 90 | 838 | 2909 | 1229 | 13225 |
| No. of Species: | 12 | 16 | 7 | 20 | 8 | 10 | 12 | 6 | 9 | 8 | 12 | 10 | 9 | 8 | 8 | 15 | 12 | 9 | 28 |

## VOLCANO CHRISTMAS BIRD COUNT 1954-1978

| | Highest Prior Count* | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 |
|---|---|---|---|---|---|---|---|---|
| White-tailed Tropicbird | 3 | 2 | 2 | 3 | . | 2 | 6 | 4 |
| Hawaiian Goose(Nēnē) | . | 6 | 4 | 2 | . | 6 | 13 | 12 |
| Hawaiian Hawk('Io) | 2 | 1 | 4 | 7 | 4 | 3 | 10 | 3 |
| California Quail | 6 | . | 1 | 1 | 29 | 43 | 85 | 21 |
| Chukar | . | 23 | . | . | . | . | . | . |
| Japanese Quail | . | . | . | . | 2 | . | . | . |
| Kalij Pheasant | . | . | . | . | . | . | 12 | . |
| Ring-necked Pheasant | 13 | 1 | 1 | . | . | 4 | 3 | 4 |
| Green Pheasant | ** | 9 | 12 | 17 | 13 | 11 | 14 | 4 |
| Golden Plover | 42 | 68 | 157 | 71 | 346 | 172 | 152 | 182 |
| Spotted Dove | 15 | 2 | 6 | 16 | 24 | 18 | 28 | 6 |
| Barred Dove | 2 | 11 | 18 | 1 | 1 | 2 | 9 | 1 |
| Hawaiian Owl (Pueo) | . | . | . | . | . | . | 1 | 1 |
| Skylark | 44 | 16 | 23 | 16 | 43 | 66 | 103 | 42 |
| Melodious Laughing-Thrush | . | . | . | . | 1 | . | 8 | 1 |
| Red-billed Leiothrix | 196 | 16 | 13 | 84 | 49 | 83 | 144 | 125 |
| Hawaiian Thrush ('Ōma'o) | 19 | 382 | 284 | 702 | 571 | 961 | 1369 | 1370 |
| Hawaii 'Elepaio | 92 | 75 | 68 | 169 | 197 | 299 | 306 | 212 |
| Common Myna | 54 | 19 | 41 | 92 | 157 | 258 | 280 | 102 |
| Japanese White-eye | 122 | 169 | 239 | 330 | 391 | 250 | 845 | 477 |
| Hawaii 'Amakihi | 280 | 128 | 207 | 201 | 240 | 338 | 687 | 384 |
| Hawaii Creeper | 8 | 1 | 3 | 13 | 17 | 23 | 53 | 20 |
| Hawaii 'Ākepa | . | 13 | 13 | 15 | 45 | 100 | 63 | 38 |
| 'Akiapola'au | 4 | 30 | 9 | 20 | 34 | 22 | 37 | 7 |
| 'Ō'ū | . | . | . | . | . | . | 2 | 1 |
| 'Apapane | 1307 | 3269+ | 3061 | 3893 | 2037 | 2755 | 7972 | 9024 |
| 'I'iwi | 71 | 246 | 161 | 424 | 163 | 316 | 852 | 910 |
| Spotted Munia | 46 | 76 | 21 | 93 | 107 | 121 | 318 | 80 |
| House Sparrow | 49 | 2 | 31 | 6 | 31 | 23 | 75 | 65 |
| Northern Cardinal | 11 | 19 | 22 | 42 | 48 | 57 | 95 | 66 |
| House Finch | 236 | 50 | 153 | 54 | 41 | 58 | 142 | 63 |
| No. of Individual Birds: | 2542 | 4634+ | 4554 | 6272 | 4591 | 5991 | 13685 | 13225 |
| No. of Species: | 21 | 25 | 25 | 24 | 24 | 25 | 29 | 28 |

*Prior counts taken January 1,1954; January 1,1955; December 31,1955. Center of count circle 1/4 mile south of Hawaii Volcanoes National Park Headquarters. Number is the highest for the respective species of these three counts.

**Lumped with Ring-necked Pheasant in 1954-55 counts.

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The highlight of the Count occurred on transect 31, area 8d, in 'Ola'a Tract, Hawaii Volcanoes National Park, where Barbara Mull and Paul Higashino recorded two endangered birds; the 'O'u and 'Akiapola'au. In this closed 'ohi'a forest, with hapu'u understory, a single 'O'u was heard calling from 15m away, for approximately 2 to 3 minutes. The party was able to get a visual sighting when the 'O'u called in flight from the upper branches of an 'ohi'a tree. The 'Akiapola'au was heard singing regularly for a couple of minutes from a nearby 'ohi'a tree. Prior to this year's sighting, the 'Akiapola'au was last reported in 'Ola'a Tract in April 1974 by Jacobi and Warshauer (unpublished manuscript).

'Oma'o were once again recorded from the upper sub alpine slopes of Mauna Loa. The dedicated party of Jack and Marti Lockwood hiked from the end of Mauna Loa Road to 8300' were they saw 3 'Oma'o in scattered scrub 'ohia habitat.

Of special interest was the sighting of the endangered Hawaiian hoary bat near the Nene sanctuary in Keauhou Ranch at approximately 1830 hours. A single individual was

observed fluttering overhead by Banko, McEldowney, and Warshauer. This same party recorded the only Pueo of the day while driving down the Mauna Loa Road at dusk.

The amount of variables inherent to this relatively young Count (since 1972) precludes any suggestion of valid trends on populations and distributions.

Our special mahalo goes to Kulani Correctional Facility and Bishop Estate Trustees for allowing our group access within their areas.

Areas Covered

1 Kipuka-Pua-ulu and adjacent areas (Mrs. Ernest Kai, LaVerne Olive, Ray Olive)
2 Rim of Kilauea Crater (Jane Dixon, Bob Fultz, Betty Keylon, Carol Mayo, Ken Nishimoto, John Shipman)
3 Mauna Loa Trail, 6600 - 8200' elevation (Jack and Marti Lockwood)
4a Keauhou Ranch (Jack Jefferey, Doug Mason, Don Peterson, Lani Stemmermann)
4b Keauhou Ranch, Transect 29 (Jim Jacobi, Larry Katahira)
4c Keauhou Ranch, Transect 30 (Dawn Breese, Tim Ohashi, Sue Peterson)
4d Keauhou Ranch, Transect 31 (Joyce Davis, Howard Sakai)
5 Mauna Loa Road 4000 - 6600' elevation (same as 3)
6 Volcano Community (Paul Higashino, Barbara Mull)
7 Stainback Highway and Pu'u Maka'ala (Bill and Mae Mull)
8a Kilauea Forest Reserve (same as 4a)
8b Kilauea Forest Reserve, Transect 29 (same as 4b)
8c Kilauea Forest Reserve, Transect 30 (same as 4c)
8d Kilauea Forest Reserve, Transect 31 (same as 4d)
9 'Ola'a Tract, National Park Service (same as 6)
10 Waiakea Forest Reserve, Transect 27 (Mark Collins, Maile Stemmermann)
11 Kulani Project, Transect 28-mauka (Paul Banko, Holly McEldowney, Rick Warshauer)
11 Kulani Project, Transect 28-makai (Sheila Conant, Don Reeser)

Count taken within 15-mile diameter circle centered on Kulani Cone Summit (19° 31'N, 155° 18'W). Weather: clear to heavy overcast with intermittent light rain; temperature 46-70 F; wind NE 0-5 mph. Date: December 30, 1978 from 0630 to 1830 hours.
Thirty-three observers in 14 parties: Total party-hours, 97.25 (86.5 on foot, 10.75 by car). Total party-miles, 123.3 (58.8 on foot, 64.5 by car).

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'Io or Hawaiian Hawk.
*Photo by R. J. Shallenberger*

## PUBLICATIONS OF THE SOCIETY

HAWAII'S BIRDS by the Society (1978). This is the best field guide to our birds, and includes colored illustrations of all native and well-established exotic species. $3.25 plus postage: 48¢ (surface mail) or 67¢ (air). Hawaii residents only: add 13¢ for tax.

FIELD CHECKLIST OF BIRDS OF HAWAII by R. L. Pyle (1976). A pocket-size field card listing 125 species found in Hawaii with space for notes of field trips.
(Postpaid) . . . . . $ .25
(ten or more, 10¢ per copy)

GUIDE TO HAWAIIAN BIRDING by members of the Society and edited by C.J. Ralph (1977). Where to go and some idea of what you are likely to see. For the islands of Kauai, Oahu, Molokai, Maui and Hawaii.
(Postpaid) . . . . . $ 1.00

PRELIMINARY LIST OF THE BIRDS OF HAWAII by R. L. Pyle (1977). An authoritative compilation of all species naturally occurring in Hawaii as well as those introduced by man which are currently established as viable populations. Gives each species' status.
(Postpaid) . . . . . $1.00

ENDANGERED WATERBIRDS OF THE HAWAIIAN ISLANDS by R. J. Shallenberger (1978). Hawaiian Stilt, Coot, Gallinule and Duck, each described in 2 pages of photos and text. Covers description, ecology, status, and distribution.
(Postpaid) . . . . . $ .50

# WAIPIO CHRISTMAS BIRD COUNT, 1978

by Maile Stammermann, Compiler

In spite of gusty trade winds (up to 75mph in some areas!), the 1978 Waipio Count, now in its second year, recorded 46 species, the same as last year. However, total number of individuals sighted fell from 4616 birds last year to 2766 in 1978. The wide variety of shore birds and ducks found at both Waipio Peninsula and the Pearl Harbor National Wildlife Refuge helped to increase the number of species, while blustery weather and a decrease in the number of observers resulted in decreased individual counts.

Fewer party-hours and party-miles were spent in the field this year, and the decrease in number of observers resulted in a significant change in habitat coverage from last year's Count. Amount of time spent in wetland habitats remained the same, but the percentage of party-hours spent in mountain forests and scrub nearly doubled, with corresponding decreases in coverage of agricultural areas, parks, and residential areas.

The age of the Count, and the shift in habitat coverage and number of observers, make it difficult to discern trends in population numbers this year. Nonetheless, there are several factors which deserve mention. While one elusive species (the 'I'iwi) was found this year, several others, probably present in the Count circle, have still not been officially recorded for the Count. Notables are the Barn Owl, Pueo, Swiftlet, Erkel's Francolin, Melodious Laughing-Thrush, and Oahu Creeper. In addition, there is a host of shorebird species which were recorded at Waipio and the rest of the Pearl Harbor area in the fall of 1978 which did not show up on Count day: a list of the more important of these includes several species of ducks, Ruff, Black-bellied Plover, and Pectoral Sandpiper.

Dowitcher of undetermined species.
*Photo by Greg Vaughn*

Several species, found in the circle last year for the first time, were not recorded in 1978. One of these, the Red-whiskered Bulbul, may not have been recorded due to the substantial decrease in coverage of parks and residential areas. The other two species (the Yellow-faced Grassquit and Red-eared Waxbill) were probably missed because of the poor weather, although the waxbill has not been seen regularly since the last Count and may have disappeared.

At least one change in species count occured which may be indicative of future trends in the area. In spite of poor weather and decreased observer coverage of its habitats, the number of Red-vented Bulbuls in the Count area tripled, from 16 last year to 47 in 1978. The Honolulu Count has shown similar increases in this species, and it is quite likely that the trend will continue as the species expands its range to include the rest of Oahu.

Other drastic changes in species number (for example, the great decrease in number of Black-headed Munia) were probably due to weather problems. Hopefully next year the weather will allow a more representative Count.

Sectors Covered

'A Waipio Peninsula (Bob Beck, Mike Ord)
'B Pearl Harbor National Wildlife Refuge (West Loch and Pearl City Units) (Demi Black, George Campbell, George-Ann Maxon, Bob Pyle)
2 Aiea, Pearl City, Waipahu (Jaan Lepsen, with additional observations by David Bremer)
3A Manana Trail (David Bremer)
3B Poamoho Trail, Summit Trail, Helemano Reserve (Omer Bussen, Frank Howarth, Steve Montgomery, Mark Thomas)
7 Palehua Road, Palikea-Palehua Trail (Sheila Conant, Laura Carter, Maile Stemmermann)

Habitat coverage was mountain forest and scrub 52%, wetlands 19%, parks and residential 19%, agricultural 10%. Date: December 16, 1978 from 0700 to 1800 hours. Weather: partly cloudy, with intermittent rain in mountain areas; temperature 62-85 F; wind NE 0-75 mph. Fifteen observers in 7 parties: Total party-hours, 33.5 (26.75 on foot, 6.75 by car). Total party-miles, 59.75 (16.25 on foot, 43.50 by car).

WAIPIO, OAHU, CHRISTMAS COUNT, 16 DECEMBER 1978

| Species | Sectors | | | | | | 1978 | 1977 |
|---|---|---|---|---|---|---|---|---|
| | 1A | 1B | 2 | 3A | 3B | 7 | Total | Total |
| Cattle Egret | 90 | 54 | 13 | . | . | 8 | 165 | 108 |
| Black-crowned Night Heron | 2 | 8 | . | . | . | . | 10 | 13 |
| ibis (sp?) | . | 1 | . | . | . | . | 1 | . |
| Hawaiian Duck (Koloa) | 7 | . | . | . | . | . | 7 | 8 |
| Pintail | 76 | 4 | . | . | . | . | 80 | 14 |
| Green-winged Teal | . | . | . | . | . | . | . | 19 |
| American Wigeon | 19 | . | . | . | . | . | 19 | . |
| European Wigeon | 1 | . | . | . | . | . | . | . |
| Northern Shoveler | 50 | . | . | . | . | . | 50 | 411 |
| Gadwall | . | . | . | . | . | . | . | 2 |
| Lesser Scaup | 10 | . | . | . | . | . | 10 | . |
| scaup (sp?) | 1 | . | . | . | . | . | 1 | 6 |
| Bufflehead | 1 | . | . | . | . | . | 1 | . |
| Ring-necked Pheasant | 2 | . | . | . | . | . | 2 | 1 |
| Hawaiian Gallinule | . | 1 | . | . | . | . | 1 | . |
| Hawaiian Coot | 14 | 1 | . | . | . | . | 15 | 8 |
| Semipalmated Plover | 1 | . | . | . | . | . | 1 | 5 |
| Black-bellied Plover | . | . | . | . | . | . | . | 4 |
| Golden Plover | 98 | 204 | 22 | 56 | 16 | 4 | 400 | 395 |
| Lesser Yellowlegs | . | 6 | . | . | . | . | 6 | . |
| Killdeer | . | . | . | . | . | . | . | 1 |
| Common Snipe | . | . | . | . | . | . | . | 1 |
| Wandering Tattler | 5 | 6 | . | . | . | . | 11 | 9 |
| Ruddy Turnstone | 18 | 23 | . | . | . | . | 41 | 150 |
| Sharp-tailed Sandpiper | 2 | . | . | . | . | . | 2 | 4 |
| Least Sandpiper | 1 | . | . | . | . | . | 1 | 1 |
| Sanderling | 32 | 64 | . | . | . | . | 96 | 64 |
| Dunlin | 2 | . | . | . | . | . | 2 | 8 |
| dowitcher (sp?) | 7 | . | . | . | . | . | 7 | 3 |
| Hawaiian Stilt | 62 | 7 | 3 | . | . | . | 72 | 250 |
| Bonaparte Gull | 1 | . | . | . | . | . | 1 | . |
| Rock Dove | . | 2 | 4 | . | . | 8 | 14 | 25 |
| Spotted Dove | 10 | 13 | 13 | 7 | 6 | 12 | 61 | 95 |
| Barred Dove | 58 | 34 | 116 | 1 | . | 16 | 225 | 377 |
| Skylark | . | . | . | . | . | 4 | 4 | 4 |
| Red-vented Bulbul | 1 | . | 4 | 42 | . | . | 47 | 16 |
| Mockingbird | . | 1 | . | 1 | . | 3 | 5 | 1 |
| Shama | . | 3 | 2 | 1 | . | 1 | 7 | 2 |
| Japanese Bush Warbler | . | 1 | . | . | . | 1 | 2 | 3 |
| Oahu 'Elepaio | . | . | . | 1 | . | 1 | 2 | 5 |
| Japanese White-eye | 4 | 56 | 17 | 12 | 39 | 24 | 152 | 316 |
| Common Myna | 18 | 12 | 75 | 161 | 125 | 3 | 394 | 311 |
| Oahu 'Amakihi | . | . | . | . | 12 | . | 12 | 16 |
| 'Apapane | . | . | . | . | 115 | 26 | 141 | 86 |
| 'I'iwi | . | . | . | . | 1 | . | 1 | . |
| Red-eared Waxbill | . | . | . | . | . | . | . | 5 |
| Red Munia | 29 | . | . | . | . | . | 29 | 58 |
| Black-headed Munia | 6 | 2 | 54 | . | 2 | 2 | 66 | 1154 |
| Spotted Munia | 36 | 2 | 59 | . | 100 | . | 197 | 166 |
| Yellow-faced Grassquit | . | . | . | . | . | . | . | 5 |
| House Sparrow | . | 25 | 35 | 175 | 6 | . | 241 | 205 |
| Red-crested Cardinal | 23 | 11 | 2 | 14 | . | 12 | 62 | 84 |
| Northern Cardinal | 4 | 12 | . | 1 | 7 | 9 | 33 | 54 |
| House Finch | 2 | 1 | 19 | 9 | 33 | 4 | 68 | 141 |
| No. of Individual Birds | 693 | 554 | 438 | 482 | 461 | 138 | 2766 | 4616 |
| No. of Species | 34 | 26 | 14 | 14 | 11 | 17 | 46 | 46 |

# FIELD TRIP TO KANEOHE MARINE STATION AND HAMAKUA DRIVE

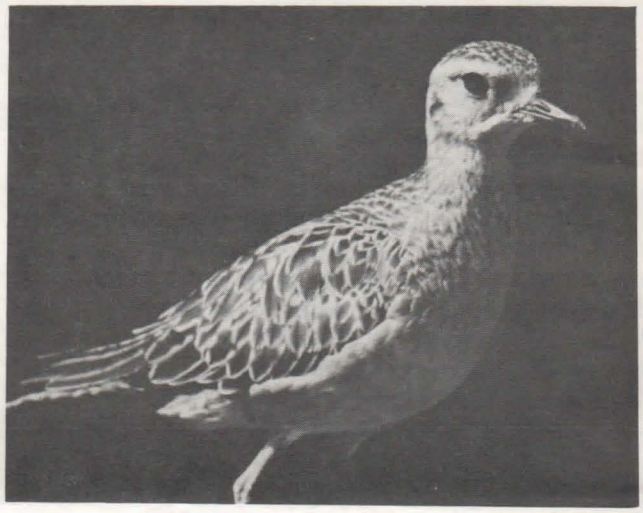
More than thirty participants gathered at the main gate of Kaneohe Marine Corps Air Station on Sunday February 11 for the Hawaii Audubon Society field trip to the ponds at the Station. The frequent rains of recent months had left standing water in lowland areas and had made the normally dry dirt roads very wet and muddy.

At the first viewpoint overlooking Nuupia Pond, near the koloa release pen, the group had good looks through binoculars and scopes at Hawaiian Stilts, Golden Plovers, Wandering Tattlers and Black-crowned Night Herons. One or two Sanderlings and a few Ruddy Turnstones were among them. Two Koloa flew by when the group first arrived, and were seen a few minutes later swimming out in the middle of Nuupia Pond. Two Hawaiian (Black) Noddies worked their way along the near edge of the pond, affording a good look at the very dark plumage and contrasting gray tail which distinguishes them from the Brown Noddies that nest on Manana and Moku Manu Islands.

After twenty minutes a good shower arrived--the first of several during the morning--and about one-third of the group decided to head for home. The rest drove over to the beach road along the east side of Kaluapuhi Pond. Ten Pintails and about 15 Golden Plovers took flight from the north end of the pond as the group arrived. But four drake Pintails and eight Shovelers including both males and females remained for all to watch. One or two herons were seen and about half a dozen Hawaiian Noddies foraged over the pond, but shorebirds were conspicuous by their absence.

The hardier participants willing to continue then returned to the causeway road west of Kaluapuhi Pond. On the little pond just east of the road was a male scaup in rather good plumage. Although less than ideal light conditions prevented an identification to species, it clearly was the same bird that State Fish and Game personnel have seen there since mid-January, and have identified under much better conditions as a Greater Scaup. A few Hawaiian Stilts and Golden Plovers were also at this pond, and two flocks of Ruddy Turnstones containing 20 to 30 birds each were seen along the causeway road.

From here the dwindling group proceeded along the muddy road south of Nuupia Pond to the Cattle Egret colony near the southwest corner. Those who slogged up the hill and then picked their way down through the thick, wet haole koa and kiawe found several nearly grown Cattle Egret chicks clambering around in the upper branches. At least ten chicks and a few eggs were found in the limited area visited. Egret nesting is at a minimum at this season, but more than 1000 birds roost in the area at night and most of these build nests and raise young there during spring and summer.



Kōlea or Golden Plover

*Photo by Greg Vaughn*

This concluded activities at the Marine Station, since the shooting range was in use preventing access to Ulupau Head and the Red-footed Booby colony. However, on leaving the Station, just past the main gate at the beginning of H-3 Highway, one Brown Booby was seen circling and diving in the corner of Kaneohe Bay.

A few diehards still willing to endure wet clothes and more rain showers drove over to the pasture area on Hamakua Drive in Kailua. From in and near Mr. Sub's parking lot, the group spotted two Hawaiian Coots and about four adult Hawaiian Gallinules, one of which was accompanied by three youngsters about 6 to 8 weeks old. Three Pintails and a few Golden Plovers were also in the pasture, and at least 20 Cattle Egrets were with cattle foraging high on the hillside. Rob Shallenberger pointed out the small area by the parking lot being considered for minimal development as an educational overlook for this unique wetland area.

Arrival of the umteenth shower of the morning signaled the end of the field trip.

*R.L. Pyle*

# HAS CITES INCOMPLETE RECOVERY PLAN FOR BIG ISLAND FOREST BIRDS

Through Hawaii Island representative Mae Mull, the HAS asked the Fish and Wildlife Service to bring up to date the draft of the recovery plan for endangered forest birds on Hawaii Island. The plan was put together by experts in the study of forest birds and representatives of several agencies making up the recovery team.

August 25, 1978

Mr. David B Marshall
U.S. Fish and Wildlife Service
Portland, Oregon 97232

Dear Mr. Marshall:

Thank you for sending me a copy of the Draft Recovery Plan for Endangered Forest Birds, Island of Hawaii, in June.

The draft appears to be a premature analysis and underdeveloped recovery plan because of the extensive field work and data accumulation by Fish and Wildlife Service teams between the draft's publication date of October 1976 and its release in May 1978. Enlightened by the research findings of the 1977 and 1978 surveys, assuredly the next document will address the hard line issue of forest ecosystem protection that is bypassed in the present draft.

## Ecosystem focus

In an ecological approach the endangered forest bird species would be treated as integral members of threatened forest systems. Recovery of forest birds would be inextricably tied to the recovery of the native systems in which the birds evolved and upon which they depend for survival as viable species.

If the objective is restoration of bird populations in self-sustaining natural habitats, then far greater weight will be given to the floral and invertebrate components of the biological communities that support the birds. Sound forest management would benefit all native plant and animal species, not just endangered birds. Manipulation aimed at benefiting one or more selected species seems short-sighted and futile if the desired goal is ecosystem restoration.

In a lay person's view, an encompassing framework for recovery is the long-term stability of high island forest systems interacting on a stage of dynamic equilibrium through the natural processes of succession, adaptation and species diversification in varying ecological regimes over relatively short distances. In this situation the human role should be primarily to remove or inhibit the aggressive nonnative species that interfere with natural processes in the native forest systems.

An ecological perspective on forest habitats could be enhanced by expanding Recovery Team representation to include a qualified ecologist, botanist and entomologist.

## Species List and Hawaiian Names

The magnitude of loss could be more fully illustrated in Table 1 on the status of native forest birds of Hawaii Island by including the species presently considered extinct.

It would be appropriate to use at least the glottal stop in modern English orthography for Hawaiian names of birds: 'O'u, 'Akepa, 'Akiapola'au, 'I'iwi, 'Apapane, 'Amakihi and 'Elepaio. The Hawaiian names of 'Io, 'Alala and 'Oma'o should be added to the list.

## Action on Habitat Protection

The draft suggests (pp.4, 8, 18) that present knowledge on forest bird decline is an insufficient basis on which to formulate habitat management recommendations and that a number of research studies must be accomplished first. Avoiding the sensitive issues of land use practices could well mean more species extinctions before some of the obscure decline questions are even partially resolved.

From the historical record we know that direct destruction of habitat results in the loss of forest bird populations--in both distribution and abundance. We know that bird species have disappeared in forests degraded by exotic plants, feral mammals and foreign insects.

Before all the answers are in on bird decline and extinction, certain stop-gap measures can be taken now to preclude further loss of native habitats:

1) Vigorously pursue cooperative agreements with federal and State foresters to stop bulldozing, logging, strip clearing and underplanting in native forests.
2) Vigorously seek cooperative agreements

now with federal and State game managers to

a) encourage hunting of existing game species and feral cattle in native forests with a control and elimination objective--not a sustained yield objective.
b) preclude further introduction of exotic game species.
c) maintain fence boundaries to keep cattle out of the forests.

If the recovery plan and critical habitat designations are in fact based on biological grounds rather than political considerations, then these suggestions to foreclose further habitat destruction and degradation have merit.

Causative Factors in Bird Decline (p. 4)

Feather collecting (#3) in pre-contact times probably was not "indiscriminate," but controlled by the kapu system in species captured and quantity of feathers taken to benefit the ruling class. The duration of this cultural practice in the pre-contact society is unknown since our knowledge of ancient Hawaiian social life is limited to the customs and oral traditions extant in the immediate generations before the arrival of continental man 200 years ago.

It is useful to make a clear distinction between the intact pre-Cook culture and the swift cultural deterioration that followed the European "discovery" of Hawaii. One devastating effect of dominating continental influences was the early breakdown of traditional social structure and control. The availability of foreign arms permitted indiscriminate bird shooting on a decimation level that could not be equalled by native collection techniques.

The underlined additions could be added to decline factor #4:

"Elimination or degradation of habitat by cultivation, lumbering, livestock grazing, exotic plant and animal introductions, and foreign timber planting."

Habitat Preservation and Management (pp. 17-18)

Two significant factors in habitat destruction are underplayed. The following underlined additions would present a more accurate description of past and present threats:

". . .conversion of forests to pasture and commercial timber plantations, . . . conversion of forest to agricultural lands, including displacement by planting exotic tree species."

"Nonnative feral and domestic mammals and intentionally introduced game mammals have been and continue to be highly destructive of native forests."

It is questionable to say that "these practices still occur, but to a lesser extent than in the past." For example, over 25,000 acres of Hawaii Island forests have been demolished in recent decades for occupancy by monoculture plantations.

In addition, the twenty-year advocacy by the US Forest Service for conversion of native forests to timber plantations has not diminished to my knowledge. In 1976, at the same time the draft recovery plan was underway, the US Forest Service took the lead in preparing and publishing Forestry Potentials for Hawaii. In that document three alternative industrial forestry schemes are proposed: an 86,00-acre, 200,000-acre, or 410,00-acre industrial program.

These alternatives "require" sites "presently occupied by native forest types" of 30,000 acres, 110,00 acres and 290,00 acres respectively (Forestry Potentials, pp. 58-61). Under strong pressure from development-oriented foresters and planners, the Governor has supported the "middle" program which calls for conversion of 110,000 acres of native forest to intensive timber production over a thirty-year period.

The major part of this deforestation program would be on Hawaii Island sites presently occupied by native forest birds and their support systems. Such a threat to diversified forest ecosystems must not be overlooked in the recovery plan.

Thank you for the opportunity to make these comments. I would be glad to receive a copy of the final plan.

Aloha,

Mae E. Mull
Island of Hawaii Rep.

Subsequent to the voicing of the Society's concerns, the Fish and Wildlife Service has asked the recovery team to redraft the plan. This is now underway and will add the endangered Newell's Shearwater and 'Io (Hawaiian Hawk) to the plan.

*The Editor*

## April Field Trip

The April 8 field trip will cover 3 windward areas. At Haiku Valley we will look for Japanese Bush Warbler and Melodious Laughingthrush. At midmorning we move to Hamakua Canal to see Koloa, Coot, Stilt, Gallinule, and Auku'u. After lunch we will meet at the gate to Kaneohe Marine Corps Air Station to visit the Red-footed Booby colony and scan nearby Moku Manu for other seabird species. Meet at the Hawaii State Library on Punchbowl Street at 7 a.m. Windward residents may meet at Kaiku and Kahekili Roads at 7:30 a.m. Bring luch and water or get it at Mr. Sub's next to the Hamakua Canal.

## ALOHA TO NEW MEMBERS

The Society welcomes the following new members and hopes that they will join in our activities to further the protection of Hawaii's native wildlife:

Joint with National: Gladys Arisumi, Honolulu; Jon H. Blumhardt, Aiea; Jerry Corn, Honolulu; John Heide, Honolulu; Dennis R. Hilty, Honolulu; Susie Jones, Kaneohe; John E. Kobayashi, Honolulu; Robert F. Lindberg, M.D., Honolulu; James Marnie, M.D., Honolulu; John C. Milnor, M.D., Honolulu; Barbara and Jeanne Ritchie, Aiea; John C. Roberts, Honolulu; Beverly Rothenberg, Honolulu; Lani Stemmermann, Honolulu; Lester R. Walls, Haleiwa; Verne E. Winquist, Honolulu; Carolyn and Bill Wuttke, Pago Pago, American Samoa; Winifred Y. Yamashiro, Honolulu; and Jonathan Yee, Honolulu.

Local Regular: Judith Brenner, Honolulu; Jack Hailman, Kaneohe and Madison, WI; Jennifer Richardson, Midway Atoll.

Subscribers: Rainier Ebel, Edmonton, Alberta, Canada; Bruce Elliott, Salinas, CA; Jules Evens, Pt.Reyes Station,CA; T. R. Harty, S. Auckland, New Zealand; Prentiss Shepherd, Nashua, NH.

LIFE MEMBER: A special MAHALO to new Life Member Clarence Nakashima of Honolulu.

## MAHALO FOR CONTRIBUTIONS

MAHALO NUI LOA to the following members who have generously sent contributions to the Society, ranging from $2.00 to $22.00:

Marie Crocetti, Jules Evens, Patricia Fox, Floraruth Merrihew, Noel Miller, Paul Schaeffer.

## Forest Birds on O'ahu are the Subject at April Meeting

Dr. Rob Shallenberger was Principal Investigator on two recent avifaunal studies on the island of O'ahu. In 1976-77 23 U. S. Army installations on O'ahu were surveyed in order to assess the impact of Army activities on the natural environment. The study included large forested training areas in the Ko'olau and Waianae mountain ranges. Bird surveys continued in the southern half of the Ko'olau Range in 1977-78 during an investigation of 8 Ko'olau Valleys and associated ridge trails. Several ornithologists participated in this study, which involved more than 200 man-days in the forest. Dr. Shallenberger will provide an illustrated discussion of the results of these studies and relate the information to historical data. The study yielded some interesting surprises and suggests the need for a more rigorous approach to continuing research and protection of forest resources on this overpopulated island.

## EEL UPDATE

Legislation that would allow introduction of freshwater eels (Unagi) has apparently died in the 1979 Legislature, due, no doubt, to efforts of HAS members and other concerned citizens who opposed the bills. Mahalo nui loa!

## IF NOT A MEMBER, PLEASE JOIN US

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(National and Hawaii Audubon Societies)

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| Life | 100.00 |

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HAWAII AUDUBON SCHEDULE OF EVENTS

(For details, see inside back cover)

April 3 (Tue.) Board Meeting at the home of Rey Larsen, 2588 Jaluit Place, near Salt Lake(423-1047). Members welcome.

April 8 (Sun.) Field trip to Haiku Valley, Hamakua Drive and Kaneohe Marine Corps Air Station. Leaders: Tim Burr(235-4036) and Rey Larsen (423-1047).

April 16 (Mon.) Regular Meeting. President Rob Shallenberger will describe his recent survey work: *Oahu's Forest Birds -- A Resource Under stress.* McCully-Moiliili Library, 2211 South King St., 7:30 p.m.

VOLUNTEERS - PLEASE KOKUA!

We have had only a few replies to last month's call for volunteer help for the Society. Please let us know if you would like to become involved.

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