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STATUS OF THE DARK-RUMPED PETREL ON MAUI, 1972

By Karen Buxbaum

I conducted research between 14 June and 13 August 1972 on the status of the Dark-rumped Petrel (*Pterodroma phaeopygia*) in Haleakala National Park, Maui. This work was made possible by grants covering travel expenses by the Hawaii Audubon Society and the International Council for Bird Preservation. Logistic support was generously provided by the staff of Haleakala National Park. In addition Park Service personnel participated in the work periodically.

My program of activities was determined first by the short two-month duration of my stay in Hawaii and second by the priorities and goals established in prior work by Larson (1967) and King (1970). This report will not repeat information contained in earlier reports, but will summarize my activities during 1972. A more comprehensive report incorporating and summarizing the work of all who have worked on the petrel on Maui is in preparation and will be published at a later date.

My activities centered on two main topics, the distribution and abundance of active petrel burrows in Haleakala Crater, and an assessment of the activities of introduced mammalian predators relative to petrel nesting.

1. Distribution and abundance of active petrel burrows.

I concentrated my efforts to locate petrel burrows in the same area King worked in 1970, between White Hill and Kilohana on the West Wall of Haleakala Crater. This area appears to harbor the greatest abundance of petrels remaining on Maui. I relocated all but 4 of the 198 burrows King found in 1970, and found an additional 87. Most of these were burrows dug either in 1971 or 1972; a small, undetermined percentage (perhaps 10%) was probably overlooked by King in 1970. A total of 285 burrows have now been found in this area.

A second area, the Keonehechee Cinder Cone, between the West Wall and the Crater Floor yielded 12 active burrows in 1972. King found only 3 burrows here after a thorough search in 1970.

It is apparent that the petrel population in these two areas increased between 1970 and 1972. Whether this was due in part to actual gains to the population in these areas or to immigration from peripheral areas is not known.

Peripheral areas were surveyed briefly in 1972. These included the South Wall, the Crater Floor and the West Wall north of Kilohana but not Hanakauhi Peak. On the basis of these surveys I concur with King's estimates of 100 burrows on the West Wall north of Kilohana, 35-50 burrows on the South Wall, 20 burrows on the Crater Floor and 100 burrows on Hanakauhi Peak on the North Wall. The population in peripheral areas is probably still declining. A total of 344 burrows is now known, of which 322 were visited in 1972. The following table outlines the status of these burrows:

Total burrows visited	322			
Active burrows	261	81.1%	Inactive to active in 1972 ..	4 1.2%
Inactive burrows	32	9.9%	Signs of hatching	55 17.1%
Active to abandoned in 1972 ..	4	1.2%	Visited only	12 3.7%
Questionably active	6	1.9%	Active to questionably active	2 .6%
Failed (eggs or chicks collected)	10	3.1%	Burrows not visited	22

King estimates from burrow activity studies that at least 25% of active burrows are not used by breeding pairs. Applying this figure to revised population data we arrive at a figure of 450 burrows used by breeding pairs. Thus, the Maui population has the potential of producing 450 young annually, from which, as King observed "an additional undetermined fraction must be taken to account for mortality to chicks because of starvation, genetic defect, disease, predation, or accidents." This year, no adult fatalities were encountered except one adult which appeared to have died on the rocks last year. However, three dead chicks (one still half in its shell) were collected as well as six abandoned eggs and old bones from several burrows. Predation was not an obvious cause of these mortalities, but black rats (Rattus rattus) may have been responsible for one or all of the chick mortalities.

Counting two birds per breeding burrow plus at least that many nonbreeders (figuring from past reports) we arrive at a total of about 1800 petrels in the Maui population.

A detailed map of the location of all burrows was completed so that relocation of burrows in future years will be greatly simplified.

2. Activities of Mammalian predators.

No cats, dogs, or mongooses were encountered within the petrels' prime breeding area in 1972. My trapping program for black rats was augmented by a second program carried out by Park Service personnel. Although rats were caught near petrel burrows in 1972, and therefore were not restricted to areas of human habitation, predation on petrels was thought to be very light in 1972. For example, of the four burrows closest to the Park Visitor Center on the rim of the West Wall, three were active and one was inactive for the entire season (in 1970 King guessed that these burrows were abandoned due to interference by rodents). It is felt that predator control efforts eliminated rodent-caused burrow abandonment wherever traps were concentrated.

In conclusion, the continued existence of the Maui population depends upon adequate monitoring and control of the population of its primary predator, the black rat. It is strongly recommended that the National Park Service will continue to provide personnel to carry out a rat-trapping program to provide clear indication of the size of the rat population, and will control rats, using as an ultimate method broadcasts of poisoned bait in the prime petrel breeding area.

I would like to acknowledge the assistance of Jitsumi Kuniyoki, Robert Kokubun, Russell Cahill and Warren King in carrying out this work and preparing this report.

Literature Cited

- King, W.B. 1971. Report on research conducted June-August 1970 on the status of the Dark-rumped petrel in Haleakala National Park, Hawaii: On file, National Park Service.
- Larson, J.W. 1967. The Dark-rumped petrel in Haleakala Crater, Maui, Hawaii: On file, National Park Service.

HONOLULU ADVERTISER, 21 June 1973, page A-4: 'O'o Birds: A 'Living Treasure' Found on Kauai by Bruce Benson illustrated with an extremely rare photographs of an 'o'o with a worm or some type of grub in its mouth and an 'o'o tending its nest in an 'ohi'a tree.

It was only 20 minutes by helicopter, but the flight into the Alaka'i Swamp took us back to prehistoric Hawaii, to a remote and inaccessible region where primeval forests have stood changeless for thousands of years. Here, in a swampland of vegetation relatively unmarred by man, we had just become the first people known to have seen and photographed a young 'o'o'a'a fresh out of the nest.

The 'o'o'a'a...--with a total estimated population of perhaps 50 birds--lives here and nowhere else in the world. It is one of the rarest creatures in nature, and as such it is one of Hawaii's most exclusive living treasures.

For John L. Sincock, a research biologist, the excitement of the discovery was roughly comparable to what archaeologists perhaps felt when they first beheld the wonders of King Tut's tomb.

"Oh lord! A baby 'o'o," Sincock exclaimed when the infant was spotted by Advertiser Kauai correspondent Jan Tenbruggencate.

Sincock, with the US Fish and Wildlife Service, has spent the last six years on

Kauai defining the status and distribution of the Island's several endangered birds. He has spent more than 300 days in the Alaka'i Swamp area. In 1971 he became the first person known to have found a nesting 'o'o family. Sincock is one of only seven field biologists in the service assigned to research endangered species. Hawaii has two of the seven researchers. That is a bleak honor. Of all the endangered birds in the United States, fully half of them are within the Hawaiian archipelago. Nonnative, or exotic, birds and plants introduced to the Islands compete for food and nesting areas. The exotic birds can bring diseases. But often the unique creatures of Hawaii become extinct as people simply bulldoze their habitats away. They are the victims of man, a strange species of life that has invented machines to alter nature deliberately rather than learn how to live as a part of nature.

The purpose of the trip was to proceed to a nesting 'o'o family Sincock had located earlier, and make film and tape recordings to provide documentary evidence of their existence and, hopefully, some of their habits.

Success came at the last possible moment. We had little more than 48 hours before we would need to hike out of the rain-drenched forest for a rendezvous with the helicopter to fly out of the swamp.

For some reason, the two adult birds had quit tending the nest shortly after we reached it. There was little to show for the trip as a result when, as we were packing, Tenbruggencate suddenly saw the adults on the lower limb of an 'ohi'a tree.

With them was the infant bird, about 15 feet off the ground. It wobbled uncertainly on the limb as we quickly began filming and taping. Sincock believed it was still a rank novice at flying, and estimated it had taken its first fluttering venture out of the nest only hours earlier.

The Alaka'i Swamp, at about 4,000 feet elevation, is two miles from Mt. Waialeale--the wettest place on earth, with an average annual rainfall of 425 inches. Sincock was once in the swamp when 39.5 inches of rain fell in one day alone.

Bold, heavy clouds boiled through the primitive forest almost continuously. Our spirits rose and fell with a fatiguing regularity as the clouds cast the other-worldly landscape into alternate moods of sunlit cheer and pessimistic gloom.

The swamp is a botanist's paradise, although complete botanical studies have never been accomplished. Several plant species, in addition to the 'o'o and other birds, are endemic--meaning they are found here and nowhere else naturally in the world.

The native vegetation includes 'ohi'a and lapalapa as the dominant trees, with a variety of ferns, sedges, grasses and shrubs such as pelea, broussaia, mokihana, and a cover of ground pine and mosses.

About 20 square miles of the deepest parts of the swamp are set aside as the State's first and only forest bird sanctuary, one possible reason why Kauai is Hawaii's only major Island where all forest bird species are still presumably alive.

Similar pristine habitat accounts for about another 20 square miles on lands surrounding the sanctuary.

The Alaka'i's status means there must be no disturbance of the habitat, no creation of trails, no building of roads, and no overnight camping. Our party retreated for the evening to a simple refuge at the edge of the area.

Sincock said the fringes of the swamp face attack by exotic, or nonnative vegetation, including firebush and the Himalayan blackberry. Nonnative birds, including the Japanese white-eye and the hwa-mei, or Chinese thrush, also move around the fringes.

The 'o'o'a'a is one of several birds classified as endangered that live in the still-virgin depths of the swamp. The others include the 'o'u, 'oma'o, puaiohi, nuaupu'u and possibly the 'akialoa. If 'akialoa isn't seen by the time Sincock wraps up his six-year study on Kauai, it probably will be declared extinct and become the first Kauai forest bird to be lost.

The 'o'o'a'a apparently is the only survivor of four 'o'o species that once lived in Hawaii. Species on Oahu, Molokai and the Big Island are believed to be extinct, although vague reports surface occasionally about a Big Island bird that possibly is an 'o'o.

The bird's name is derived from its call, which presumably sounds like "oh, oh." The 'o'o'a'a of Kauai is the smallest of the four species, about 7 or 8 inches in overall length. In Hawaiian, the word "a" can be translated as "dwarf."

We never heard the 'o'o'a'a let forth with an "oh oh." Its most frequent call was closer to a "beep beep," similar to that of a roadrunner. It also, on occasion, sounded out with what Sincock described as a "very melodic, bell tone whipporwill call." Sincock has heard three other variations, from an "almost mewing to other warbles," he said.

The 'o'o'a'a was an aggressive bird, and seemed to rule the roost within its territory, chasing others out of an area 200 yards or more in diameter. It wasn't an especially attractive bird, boasting mostly black and brown feathers, with small tufts of bright-yellow feathers at its legs on the adults. The yellow feathers apparently were plucked out in earlier times for use in the featherwork of Hawaii's royalty.

Sincock's labors in the Alaka'i Swamp have brought him to regard this soggy forest, where a man easily sinks up to his knees in the muck, with a strong affection. When he and his wife, Renate, were married, they flew into the region with helicopter pilot Jack Harter, who was best man. Sincock said the minister had intended to perform a 15-minute ceremony. But standing at the edge of the Alaka'i, overlooking Waiamea Canyon and with tropical forest birds streaking through the silence, he more than doubled its length as he too became enchanted with the beauty around him.

TROPICAL SEALS

By G.Causey Whittow

(By special permission reprinted from SEA FRONTIERS, Vol. 17, No. 5, September-October 1971, pages 285-287, magazine of the International Oceanographic Foundation, 10 Rickenbacker Causeway, Virginia Key, Miami, Florida 33149.)

The Hawaiian Monk Seal (Monachus schauinslandi) is one of the very few pinnipeds to have penetrated the tropics. It is found only in the Hawaiian Islands. There it is known as Ilio-O-Ka-Kai, or dog-of-the-sea.

Like most seals, Monk Seals are very fat animals, but unlike other seals, they spend considerable periods of time hauled out on sandy beaches where they are exposed to high air temperatures and strong solar radiation. Although they have sweat glands, Hawaiian Monk Seals have never been observed to sweat and, in spite of their Hawaiian name, they do not appear to pant in order to lose heat. Indeed, if they did use a substantial amount of water from the skin and respiratory tract for evaporative cooling, the benefits in terms of increased dissipation of heat would be offset by the loss of water. There is no fresh water available in their natural environment; their only source of water is the food they eat, and sea water.

How, therefore, do they avoid becoming overheated? As a first step towards finding an answer, Eugene Kridler and Dave T. Olsen of the US Fish and Wildlife Service (now the National Marine Fisheries Service), Hawaii, measured the rectal temperatures of five young Hawaiian Monk Seals in their normal habitat in the Hawaiian Islands National Wildlife Refuge. The average value that they obtained (36.9°C.) was very close to the body temperatures of other pinnipeds, confirming that Monk Seals do not become hyperthermic under natural conditions.

In order to throw further light on this problem, measurements were made on the only Hawaiian Monk Seal in the world in captivity. This is an eight-year-old bull at the Waikiki Aquarium in Honolulu. With the cooperation of Dr. Spencer Tinker, Director of the Aquarium, body temperature of the seal was measured by a telemetry technique, which interfered hardly at all with its normal pattern of behavior.

The seal was fed a fish containing a "radio pill"---a small capsule 1 inch in length. The pill contained a tiny transmitter. The frequency of the signal produced by the transmitter varied with the temperature of the pill. The signal was detected by an antenna that was positioned close to the seal. The antenna was connected to a receiver, and from the nature of the signal received, the body temperature could be determined.

High, Dry and Cool

The body temperature of the seal was found to be close to that of its relatives on French Frigate Shoals and Lisianski, in the Refuge. Surprisingly, the lowest temperature recorded from the seal was not when it was in the water, but when it was high and dry on a rock in the center of the pool. When the Monk Seal entered the water and swam, its body temperature increased, in spite of the fact that the cooling power

of water is considerably greater than that of air.

This suggested that when the seal was asleep on the rock its rate of metabolism might have decreased substantially so that, even though the animal was fully exposed to the sun, it was able to prevent its body temperature from rising. Further experiments will have to be performed in order to find out if this is true.

A "Dry Dive" into the Sand?

Another possibility that might apply to seals lying on the sand, in the Leeward Island Chain, is that heat gained from the sun is lost by conduction to the moist sand under the seal. Hawaiian Monk Seals are known to burrow into the sand and, in so doing, they may expose cool moist sand that might act as an effective heat sink. In addition, the seals, when they burrow their noses into the sand, may be performing a "dry dive." When animals dive, they undergo a sharp reduction in their rate of metabolism. Many seals show the full diving response when only their nose is immersed in water. Is this the way Hawaiian Monk Seals reduce the amount of heat that their bodies produce when they are ashore on the sandy beaches of the Hawaiian Islands National Wildlife Refuge? Once again, additional experiments will have to be carried out in order to answer this question so that one day we shall have a better understanding of the remarkable behavior of this rare tropical seal.

Field Notes from Mae E. Mull: Short-tailed Albatross at Midway Atoll

Four officers of the Society (W.Wingfield, W.Gagne, F.Hendrycy and the writer) had a rare field trip to Midway Atoll during May 10-13, 1973. Shortly after we arrived on Sand Island, three residents informed us that an unusual albatross had been observed and photographed several days earlier in the middle of a mixed Laysan Albatross and Black-footed Albatross nesting area seaward of the principal runway. We examined about twenty color photographs of the bird, taken by Bobby Ho, including one of the bird being held by a resident. This albatross was noticeably larger and had a plumage distinctly different from either of the two nesting species. We thought it to be a juvenile from the brownish patch of feathers on the back of the head. The long bill was pink-yellow with a dark blue tip.

Although we searched the area, our party did not find the bird. Karen Carpenter, resident science teacher, sent data read from the leg band to Eugene Kridler, administrator of the Hawaiian Islands National Wildlife Refuge, in Kailua, Oahu, Hawaii. Residents told us that the same straggler albatross, or one just like it, had first been sighted on Sand Island about a month previously--in early April.

On May 20, Professor Lance Tickell (Makerere University, Box 7062, Kampala, Uganda, East Africa) telephoned me in Honolulu. He is a specialist on albatrosses and had just left Sand Island after a brief visit. From examination of the color photographs that Mrs. Carpenter showed him, Professor Tickell identified the straggler as a Short-tailed Albatross (Diomedea albatrus), also called Stellar's Albatross.

Through fortuitous coincidence, Professor Tickell had just returned from a lengthy study of the remnant Short-tailed Albatross population at their nesting grounds on Tori-shima in the Izu Islands. This species had been "nearly extirpated by feather hunters" (King, p.3) in the past, and now the population is increasing slowly, since the nesting grounds are protected by the Japanese government. Professor Tickell said he estimated the population of Short-tailed Albatrosses at Tori-shima to be about 200, and twenty-four chicks were produced this year.

He estimated the age of the straggler at Sand Island to be 8-12 years because the bird was banded, and the Japanese government banding program on Tori-shima extended only from 1960 to 1965. He said that sub-adult plumage is retained for many years and that nesting may occur before full adult plumage is attained.

Of interest is previous occurrence of the Short-tailed Albatross at Midway. A single straggler was observed on Sand Island in December 1938; a lone straggler in 1939 died on the island. Walter Donaghoe, a long-time member of the Society, reported observing a third straggler in November 1940--apparently in immature plumage. Brief accounts of these reports and photographs of the 1939 straggler are given by Bailey (pp. 34-35) and Munro (pp. 20-21).

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History, Museum Pictorial No. 12.

King, Warren B. 1967. Seabirds of the Tropical Pacific Ocean. Smithsonian Institution, Washington, D.C.

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Field Notes from MO-1 John A. Wilder, Box 20, HAVSTA Midway Island, FPO SF, Calif. 96614

As requested by Mrs. Mae Hull I am forwarding these observations: 22 May 1973

Red-tailed Tropicbird

Display dances every day now when the wind is light and the sun is bright and hot through the middle of the day. Many are nesting. Only one chick seen so far on May 18. It has to have been a very early chick as the barred feathers can be seen through the light grey down. All the other adults are incubating eggs. These birds seem to prefer to nest alongside roads or the edges of flat open spaces. Although some are found amongst the ironwood groves and scaevola bushes the larger percentage are nesting within 10-15 feet of the lesser travelled roadways. They also always seem to select a nest site where some form of protection is given to one side of the nest; at the base of an ironwood tree, the base of a bush, or among the branches of a fallen tree. Tail feathers are sometimes shed at the nest site and are an interesting conversation piece.

Laysan Albatross

Chicks are getting full sets of feathers now. Though most are still covered with dark grey or brownish down over the feathers some have lost all the down except on the head and neck which will remain until just before they leave for the open sea. Droop-wing, a disease apparently caused by malnutrition which causes the wings to droop and drag despite constant efforts by the chick to keep them in place, is taking its annual toll. I have seen about 20 so far with droop-wing in the housing areas alone. Death is the inevitable result for these stricken birds. The other chicks are getting trim and strong enough to stand on their feet. Until now they were too heavy to raise themselves off their knees. Their mode of moving around has been to shuffle around on their knees. Another use of the knees for adults as well as chicks when in the sun is to rest on the knees while raising the feet off the ground to lower body heat using the feet as radiators. Some of the more advanced chicks are stretching their wings in the breezes, flapping them up and down or simply stretching them to strengthen muscles needed later when learning to fly. One little-mentioned aspect of the chicks' development activities taking place now is the expelling of indigestibles. Tennis ball sized black balls of squid beaks, ironwood seed cones, bits of twigs, pieces of plastic, bottle caps and even small plastic children's toys are thrown-up after collecting in the chicks' digestive tract from feedings and simply sampling everything to satisfy curiosity since hatching.

Golden Plover

Nearly all gone now. One flock of about 25 birds seen 18 May resting on the aircraft parking area. Two in the flock were in summer plumage. One bird was observed resting on one leg; then when retreating, hopped for several yards before lowering the other leg. Other times I have seen birds even take flight and land on one leg.

Fairy Tern

Have been nesting now for 1½ to 2 months; some chicks in full plumage. Many adults incubating eggs. These birds are truly a pleasure to watch in the morning on the way to work as they provide a delicate air show of acrobatics, banking and turning in formations of 3 or 4 birds with early morning light filtering through the ironwood trees.

Incidental

Brown Booby observed in-flight off north side of Sand Island at dusk. It made several lazy circles then disappeared towards the reef 16 May.

Great Frigatebird, male, seen over Sand Island. During the summer months these birds are sometimes seen over Sand Island but always in flight. Present year-round on Eastern Island.

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Field Notes from Mrs. Patricia A. Parrie, 5198 Iroquois Avenue, Ewa Beach, Oahu 96706, 15 June 1973: Pin-tailed Whydah (Vidua macroura). Origin, West Africa

First seen on 16 September 1972. Noticed long tail while in flight. Observed feeding on lawns alone and subsequently in company of local doves and finches.

Did not fly far when disturbed or approached closely--perched in lower branches of close by trees.

Very melodic distinct calls when compared to local finches and cardinals and was easily located in area around house by this distinctive call.

Observed for two days--have slides taken with telephoto lens and possible movies. The bird has not been observed in the area since then.

Description: Black cap, white band on back of neck, widening on sides of head and running into white/greyish white breast and underparts. Black back and tail. Red-orange beak. Body is $3\frac{1}{2}$ " to 4" long and tail about 8" to 10" long.

Field Trip to Ulupau Head, 8 April 1973 by Fred L. Dunn

The field trip of the Hawaii Audubon Society on 8 April 1973 attracted about 25 members and guests. The trip was led by Charles van Riper (currently engaged in field studies on Hawaii and thus unable to prepare this report). Dr. William Wingfield arranged for the Audubon party to enter the Kaneohe Marine Corps Air Station. We are grateful to those Marine Corps personnel who helped to make it possible for the Society to view the remarkable birdlife and avian habitats that are under the protection of the Air Station.

The first objective of the field trip was to visit and study the Red-footed Booby colony on the lee slopes of the Ulupau headland. We found a thriving colony which we estimated to number at least 1100 birds, the great majority in adult plumage. Many birds were sitting on nests, and a few eggs were observed. The nests, in kiawe trees (mesquite--Prosopis pallida), were generally 5 to 15 feet above the ground. The colony is composed of about a dozen sub-colonies or nesting clusters in especially favored trees or groups of trees; several of these clusters numbered more than 100 nesting or roosting birds. Some closely observed birds were noted to be parasitized by hippoboscids (flies, usually two or three visible at a time on the back of the head or upper neck (and thus out of range of the host's bill). These large, dark-colored flies were very conspicuous as they moved through the white neck-feathers. One fly was fortuitously collected for future identification, not from a bird but from the head of one enthusiast who had lingered too long (or long enough!) under the kiawe trees.

From Ulupau Head we observed with the aid of telescopes another large colony of Red-footed Boobies on Moku Manu. This offshore island lacks high kiawe trees; the birds appeared to be nesting and roosting close to the ground on low vegetation. Presumably Moku Manu is free of mammalian predators; but several of us saw mongooses in the vicinity of the Ulupau Head colony.

Other birds observed by the party in the vicinity of Ulupau Head or over Moku Manu included numerous Great Frigatebirds, at least five Sooty Terns, a number of Brown Boobies, Common Noddy Terns, Wedge-tailed Shearwaters, and several dozen Golden Plovers, almost all of the latter in full breeding plumage.

After a visit of several hours at Ulupau Head, about 15 of us moved on to the ponds at the neck of the peninsula (and still within the Air Station). There, during the late morning, we observed about six Black-crowned Night Herons, including two immature birds; one group of six Hawaiian Stilts; and four White-capped Noddy Terns. A few species of introduced land birds that are commonly observed on Oahu were also seen during the field trip, but I shall not attempt to record them here.

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Field Trip to Peacock Flats, 13 May 1973 by Daphne F. Dunn

About 25 naturalists, led by Mr. Alex MacGregor, enjoyed a sunny Sunday stroll to Peacock Flats. The term naturalists is used because birders seemed to be a minority, with botanists, and even a couple of malacologists-cum-entomologists, comprising the majority. The Peacock Flats trail is a botanist's delight because, aside from the lower portion, it winds through what is perhaps the largest 'ohi'a stand left on Oahu--certainly the trees themselves are the largest on the island. The associated native flora is also relatively undisturbed.

The first native bird to greet us at the lower end of the 'ohi'a forest and the last to bid us farewell at roughly the same point was the 'Elepaio. Three or four of them were observed, along with a similar number of 'Anakihi and about twice as many 'Apapane. Japanese Bush Warblers were heard everywhere, although not one was sighted. Japanese White-eyes in the same trees were the cause of several false alarms. A Red-

billed Leiothrix was also heard but not seen. Other introduced birds observed were a few American Cardinals, some House Finches, and, in the clearing where lunch was eaten, a pair of Ricebirds.

The scenic highlights of the trip were the panorama along the North Shore from the trail, both coming and going, and, for those with stamina, the spectacular view of the Waianae coast from the ridgeline. No Tropicbirds were seen in the canyon leading to the Waianae coast, although they have been in past years.

A sailplane catching up-drafts off the Waianae and flying at tree-top level accompanied us down the trail, its pilot and young passenger waving to the hikers at each pass.

On the return to Honolulu, one car stopped on the Waipio Peninsula to observe a flock of Black-headed Mannikins on the Makalena Golf Course. A search for Strawberry Finches there was unsuccessful.

Field Trip to Waahila Ridge Trail, 10 June 1973 by Fred L. and Daphne F. Dunn

Twelve members and guests participated in the Society's field trip of 10 June 1973, led by President William Mull. We assembled at the parking area of the Waahila Ridge State Recreational Area, at the top of St. Louis Heights, and devoted the morning to the two mile trail ascent on lands in the Honolulu Watershed Forest Reserve. Our studies of the birdlife were combined with botanical and entomological observations. At lunchtime several of us returned along the same ridge while most of the party descended the Woodlawn Trail to the head of Manoa Valley. The day was fine, with minimal cloud cover, and breezes were moderate, even on the most exposed ridge crests.

During the morning 12 species of birds were observed (or heard). Among these, individuals of two species--Spotted Doves and Barred Doves--were noted only in the vicinity of the parking area and the foot of the trail. Also absent, seemingly, along the ridge itself were Red-billed Leiothrixes, Mynahs, and House Sparrows. On the other hand, several introduced species were conspicuous at all elevations, notably House Finches and Japanese White-eyes. A few other introduced birds were noted, as follows: Shama Thrushes, about three seen and a few others heard, at lower and middle elevations; American Cardinals, especially along the lower portion of the trail; a single Ricebird; Japanese Bush Warblers, many heard and at least one seen along the higher sections of the trail; and a pair of Rock Doves in flight over the head of the Palolo Valley.

The native birds were represented by three and probably four species. About half a dozen 'Amakihi were seen, at middle and higher elevations along the trail, and three 'Elepaio were observed in the large 'ohi'a and koa trees near the top of the trail (i.e. the junction with the Woodlawn Trail). About half a dozen 'Apapane were also seen. Finally, several observers reported good probable sightings of one (or possibly two) Oahu Creepers.

RESOLUTION ON THE PROBLEM OF RECENTLY ESCAPED CAGE BIRDS IN HAWAII

The Hawaii Audubon Society is aware of the numbers of species of recently escaped or intentionally released cage birds which are established in the wild in Hawaii. One of our primary concerns regarding these newly introduced birds is the actual or potential danger that they represent to the continued existence of our remaining native Hawaiian birds; specifically their role as carriers of introduced avian diseases and/or direct environmental competitors. We are also aware of the great destructive potential of some introduced exotic fruit- and seed-eating birds to economically important agricultural operations here. The possibility of the spread of diseases such as psittacosis to human populations by certain uncontrolled foreign birds likewise cannot be ignored.

Almost one-third of the species of our unique Hawaiian avifauna have already become extinct in the past century. The reasons for these tragic extinctions will probably never be fully known but in numerous cases highly suspect causes are disease introduction and ecological competition by the many exotic bird species released and established here in the past as a result of man's folly in misguided attempts to "improve" on Nature.

We express our deep concern and respect for all life. Nevertheless, we realize and greatly regret that the control which must somehow be gained over populations of recently introduced cage birds such as parrots and bulbuls--all very abundant birds in

their own countries--may well involve the elimination of some established populations. However, we do not feel that the continued existence in Hawaii of any of these new foreign bird species is worth the risk of losing even one more of our own endangered and unique Hawaiian species. The alternative of not promptly controlling these invading species is to continue to sit by and watch helplessly as an ever-increasing number of our native species succumb to the onslaught of more and more unwanted newly established exotic bird populations. If we do not intervene at this time, we face the possibility of eventual complete replacement of our native forest avifauna by exotic bird life.

Thus, the Hawaii Audubon Society has resolved to express its full support of the State Department of Agriculture's program to complete control or eliminate current populations of certain recently escaped or released cage birds. It is our hope that the Department will approach this problem on a species-by-species basis in developing control or elimination measures. It seems most desirable that these measures follow upon a concerted effort to inform the public of the dangers inherent in the introduction of any foreign animal life.

The Society has also resolved to stress the necessity of initiating prompt and strict enforcement of the provisions of the newly enacted Plant and Non-Domestic Animal Quarantine Law (Act 69 of 1973) to minimize the possibility of even a single new species of exotic bird ever again becoming established in the wild in our State.

The Society has further resolved that a copy of this Resolution be sent to Mr. Frederick C. Erskine, Chairman of the Board of Agriculture; as well as to the Governor of the State, the Chairman of the Board of Land and Natural Resources, and the Directors of the Department of Health and the Office of Environmental Quality Control.

This resolution was adopted with the unanimous approval of members present at the General Meeting on June 18, 1973.

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About 25 copies of the resolution with the following cover letter were sent to relevant government officials on 22 June and to leaders of community/conservation organizations on 27 June 1973 by Mae E. Mull:

The enclosed resolution expresses the Society's support of a carefully planned program to eliminate certain exotic bird populations in the wild which are potentially harmful to agriculture, to native birds and their habitats, and as disease vectors.

It is unfortunate that such control measures are necessary. Cage birds capable of establishing in the wild should no longer be brought into Hawaii. Perhaps we are learning, finally, that exotic animals and plants cannot be introduced endlessly to these fragile oceanic islands without costly and damaging effects on man, his economy, and the natural environment.

Birds and mammals brought here from the continents and liberated have become serious pests later on, and then control or eradication measures follow. It is costly, wasteful, and its most damaging aspect is the lack of respect for life. It makes man callous in attitude and action. Man mistakingly thinks he is master of nature and he can manipulate any process in nature to suit his temporary convenience. It adds up to a lack of respect for the natural systems that sustain man--and this is our chief concern.

We must begin to respect life processes in the natural environment. Man's existence on this finite planet is threatened unless we stop trying to shift laws of nature to suit our desires of the moment. Population explosions of exotic seed eaters are a real problem for sorghum growers on Kauai and the Big Island. The well-established Ricebird, House Finch, and Black-headed Mannikin (an unauthorized cage bird release) are potential agricultural pests to large-scale sorghum growing on Oahu. The exotic Mejiro (Japanese White-eye) is an aggressive competitor with Hawaii's endangered native forest birds.

In order to prevent the same thing from happening by released cage birds that are beginning to reproduce in the wild, we ask that you give your support to the Department of Agriculture in this essential control program now. The Society also calls for community groups to support strict regulations and enforcement on the importation of cage birds that are capable of establishing breeding populations in the wild.

Your help is needed to free Hawaii from the potential menace these birds present to agriculture and to our native flora and fauna.

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HONOLULU STAR-BULLETIN, 6 July 1973, page A-20, Editorial: Birds, Good and Bad

Back in the old days, Hawaii's rice farmers devised various contraptions to scare the hungry ricebirds out of their fields.

The ricebird, by doing what came naturally (eating rice), was one of the first birds to prove that Hawaii was not necessarily helped by importation of new birds.

Nevertheless, quite a long list of new birds have been brought in over the years. Now the State Department of Agriculture is trying to reverse this tendency by a program to control or eliminate populations of certain recently released or escaped cage birds. It also calls the public attention to the new Plant and Non-Domestic Animal Quarantine Law.

The control program, as such programs often do, has sparked opposing viewpoints. The Hawaii Audubon Society has passed a resolution supporting the program. On the other side of the fence, some letter-writers and columnists have asserted that Hawaii needs more variety in its bird life and have expressed doubt as to what damage such an exotic bird as the red-vented bulbul does.

The Agriculture Department's program was started because of the damage the foreign birds may do to agriculture, to native birds, and as carriers of disease. Already ricebirds have become a major problem to sorghum growers on Kauai. The ricebird, house finch and an unauthorized cage bird release, the black-headed mannikin, are seen as potential pests to farm crops on Oahu. The mejiro (Japanese white-eye), is an aggressive competitor with Hawaii's endangered native forest birds, according to the Hawaii Audubon Society.

Hawaii's native forest birds are in danger. Almost one-third of the species of native birds have become extinct in the last century. There are various reasons for this happening, but the major one seems to be disease that was carried by imported birds. One such disease, psittacosis, sometimes spreads to human beings.

Many of the non-native birds were introduced here with the best of intentions and before their potential for damage was recognized, but evidence of this potential has been mounting in recent years.

Between native birds and foreign birds, no matter how colorful, our vote is for the native birds.

Excerpts of minutes, Hawaii Audubon Society general meeting, 16 April 1973. Minutes taken by Vice President Gagne and typed by Corresponding Secretary Hull.

...The corresponding secretary reported on several conservation issues:

Reef Runway: Judge Samuel King has not yet issued a clarification of his December opinion or an opinion on the March 29 hearing on the Motion for a Permanent Injunction. He is now sitting for a short time on the US Court of Appeals in San Francisco, but he will not be a party to the appeal that will be brought before that Court.

Salt Lake: The Concurrent Resolution introduced by Rep. Jean King for the State to explore the feasibility of acquiring the Salt Lake passed the House of Representatives, but was not brought to the floor of the Senate for a vote. Sunao Kido, Chairman of the Board of Land and Natural Resources, says that the Board will stand by its 1966 decision to fill in the lake.

Forestry plans: A Senate resolution asking that the Animal Species Advisory Commission examine and advise on the Division of Forestry's tree planting plan passed on the last day of the Legislature.

Wildlife Refuges: Senate Resolution 307, "Relating to the Establishment of Wildlife Refuges and Research for the Protection of Endangered Hawaiian Waterbirds," was adopted the last day of the legislative session. It directs the Division of Fish and Game to proceed in establishing refuges for marsh and shorebirds on State-owned lands and to set up programs that utilize federal funds, particularly the Pittman-Robertson funds for Federal Aid in Wildlife Restoration.

Book Chairman William Wingfield told of the accounting system for book sales that has been arranged by the treasurer. The two National Parks in Hawaii have made substantial purchases of HAWAII'S BIRDS in the first quarter.

Wayne Gagne reported small flocks (ca. 6) of what appeared to be Green-cheeked Amazons (*Amazona viridigenalis*) flying makai over his home on Makiki Street on several evenings near sunset recently. He added that they could be heard calling in flight for

some time before they passed overhead.

Via James Jacobi (Hawaii IBP Program), Gagne reported that Jacobi had seen and photographed a surprising number of the rare and endangered 'Akohikohe (Crested Honey-creeper) near Lake Wai Anapanapa on the northeast slope of Haleakala, Maui, in the Upper Hana Forest Reserve. Jacobi and John Kjargaard had gone into the region in early April to survey potential camping sites to establish a base of operations for their upcoming Student Oriented Studies on the native ecosystems there. This field project will be a continuation of their Waihoi Valley Project in 1972, again financed largely through a National Science Foundation grant.

Unoyo Kojima wondered why the Society had not participated in the Great Hawaiian Jubilee held on the weekend of April 14-15. Bill Mull said the Society had not been invited this year. Gagne added that the Jubilee had degenerated to a commercial enterprise of handicraft and snack shops, with little participation by community groups.

Mae Mull urged Society members to write in support of making the Hawaiian Islands National Wildlife Refuge a Wilderness Area to give it extra protection. Wilderness status is currently proposed by the US Bureau of Sport Fisheries and Wildlife. She reviewed the problem of the State being adamant about their claim of control over navigable waters, submerged lands and fishing rights in the proposed wilderness area. The proposal by the US Bureau needs considerable community support in order to overcome the State's position--which can be interpreted as a short-term economic gain situation. She asked that people write to the US Bureau of Sport Fisheries and Wildlife in Kailua or to the Portland, Oregon office in support of the wilderness proposal. ...

Program chairman Wayne Gagne introduced the evening's speaker, Charles van Riper, III a doctoral student under Dr. Andrew J. Berger at the University of Hawaii, who spoke on "Endemic Forest Birds of the Big Island." His talk was copiously illustrated with color slides. Van Riper's presentation took us across the Kohala Mountains, through the Hilo Watershed, into the Kilauea Forest Reserve, on the summit and saddle areas of Hualalai and Puu Waawaa, and finally to the mamane-naio forest on Mauna Kea near Puu Laau, where he is presently conducting studies on the breeding biologies of the Hawaii 'Amakihi and endangered Palila. Conservation problems as they affected the endemic birds were demonstrated in each of these areas. Also the relative abundance of various species was discussed. ...

A short Executive Board meeting was held afterwards. Discussed were:

1. The Finance Committee Chairman's preliminary budget and the need for additional membership and funds.

2. Setting aside receipts from book sales to the amount of about \$30,000 to cover the anticipated costs of printing a new edition of HAWAII'S BIRDS in about two years. Presently in reserve for that purpose is \$14,800 in Bank of Hawaii No Ka Oi Saving Certificates. About 16,000 books remain in stock. The Society's share from sales is about \$1.04 per copy, averaging the different kinds of sales: direct to purchaser (2.00), to retailers (1.20), and to the W.&W. Distributors (.90).

3. Committed to the Reef Runway Appeal is \$2,500 from the Society.

4. Concerning van Riper's grant request to the Society: He will approach local and Mainland foundations for support. Following that, the secretary will write to those foundations giving the Society's endorsement of the research project and request a grant for van Riper. The Society will draw upon its own funds for a grant, depending upon the response from foundations. A \$500 grant from the Society was suggested.

5. Montgomery suggested that a committee be formed to contact foundations for a Research Fund to receive and disperse funds from foundations, for Society support of student projects on Hawaiian birds and native ecosystems.

HONOLULU STAR-BULLETIN, 20 June 1973, page A-6: First Natural Reserve is Established by State

Gov. John A. Burns yesterday approved the State's first natural area reserve in Ahihi-Kinau on Maui. The Governor's office said access to the area will be restricted to "preserve the area designated in its natural state and to protect it from encroachment by development or by actions that would degrade natural beauty of the land or surrounding waters."

The reserve area was set up under Act 139, passed by the 1970 Legislature. The Act empowers the State to set aside reserves to protect Hawaii's natural assets, including both land and water areas with native flora and fauna.

The Ahihi-Kinau reserve in the Makena area will serve as a model for other reserves that will be established. The reserve includes: 1) Lava flows forming Cape Kinau, resulting from the last volcanic activity on Maui, and their developing dry land vegetation. 2) An in-shore marine ecosystem described as one of the best in the State. 3) Brackish shore ponds have a unique environmental character and contain rare animal life. The total area of the reserve is 1,238 acres of land and 807 acres of ocean.

The public will be allowed to enter the area, but it must follow stringent regulations. The regulations forbid: 1) Cutting, killing, damaging or removing any terrestrial or aquatic plant or animal life. 2) Carrying in implements for removing plants or animals or "objects of human antiquity." 3) Introducing, possessing or releasing any viable form of foreign plant or animal life. 4) Using boats and motor vehicles (except on the county road that crosses the reserve) within the boundaries of the reserve. 5) Discarding any foreign material or litter or depositing into waters any substance that pollutes or is likely to cause pollution of waters. 6) Camping or building fires. 7) Using the area between one-half hour after sunset and one-half hour before sunrise.

Evidence indicates that Cape Kinau was formed from eruptions that occurred about 1790. At least 23 species of stony corals can be found in the southern end of Ahihi Bay, the greatest diversity of coral known to occupy such a limited area in the State. And 90 species of larval fishes have been collected around the cape, more than four times the average number of species found at other locations in Hawaii.

IN MEMORIAM

Two of our long-time members are no longer with us. We have just received word that Mrs. Sue W. Thomas died 18 December 1972 and Miss Irma Botsford on 13 June 1973. Both were very concerned about the environment and ecology long before these words became common usages.

For many years Miss Botsford with the help of her typing students was in charge of mailing out THE ELEPAIO.

Mrs. Thomas was much concerned about Hawaii and felt that Audubon was able to fulfill her mission and not only had become one of the first life members but also generously bequeathed money to the Society to continue the vigilance for Hawaii's unique ecosystem.

Both will be missed, and we extend our deepest sympathy to their families.

ALOHA to new members:

Junior: Alan S. Goya, 1516 Ulupuni St, Kailua, Oahu 96734
 Richard Kan, Jr., 628-A Waipa Lane, Honolulu, Hawaii 96817
 Regular: Robert W. Barefoot, Life of the Land, 404 Piikoi St, Honolulu, HI 96814
 Hilde K. Cherry, 2447 Parker Place, Honolulu, Hawaii 96822
 David D. Dunatchik, PO Box 456, Kahului, Maui 96732
 Mrs. Nancy C. Howarth, 210 Bates St, Honolulu, Hawaii 96817
 G. Haruo Oshiro, PO Box 5129, Honolulu, Hawaii 96814
 Roy E. Shigemura, 3274 Loke Place, Honolulu, Hawaii 96816
 Calif. State Univ.-Humboldt, Business Office, Arcata, Calif. 95521
 Green Bank Elementary School, Green Bank, West Virginia 24944
 Ed. Sierra Club Wildlife Subcom Newsltr, SF Bay Chapter, Oakland, CA 94618

HAWAII'S BIRDS, a field guide, is available for \$2.00. Send in your orders to: Book Order Committee, Hawaii Audubon Society, PO Box 5032, Honolulu, Hawaii 96814.

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AUGUST ACTIVITIES:

12 August - Boat trip to Manana to study seabirds. Trip limited to Society members over 12 years of age. Boat fee \$3.00 per person. Bring lunch and water. Participants should be prepared to get soaked in landing and should be able to swim. Limit 25 persons. Meet at 8:00 a.m. at the parking area at the foot of the Oceanic Institute pier on the Waimanalu side of Makapuu and Sealife Park. Leader: Dr. Robert Shallenberger, telephone 261-3741. Advance reservations required.

PLEASE NOTE: No board nor general meeting for August.

HAWAII AUDUBON SOCIETY EXECUTIVE BOARD: Pres: W.P. Mull, VP: W.C. Gagne, J.K. Yoshida, Sec: L.C. Casey, M.E. Mull, Treas: C.F. Hendrycy, Bd Memb: S.L. Montgomery, Dr. W. Singfield
 Mail Ad: PO Box 5032, Hon. HI 96814. Dues: Reg-\$3.00, Jr(18 yrs & under)-\$1.00, Life-100.00