

THE ELEPAIO

Journal of the
Hawaii Audubon Society



For the Better Protection
of Wildlife in Hawaii

VOLUME 33, NUMBER 2

AUGUST 1972

ENDANGERED BIRDS IN HAWAII*

By Winston Banko

...Scientists and interested observers have been keeping serious track of living bird species on a world-wide basis since about 1600. Although some 8,600 full species of birds have been described, more than 160 kinds (species and geographical races) are known to have become extinct in the past 370 years. Let us take a closer look at this long and tragic conservation history with the idea of gaining insight into the problem of bird extinction in Hawaii. The bulk of the following information was gleaned from lists carefully compiled and maintained by the International Union for the Conservation of Nature and Natural Resources and the U.S. Department of the Interior.

It cannot be denied that extinction of birds in nature is a natural event, and in some cases, wholly beyond man's control. But natural extinction, uninfluenced by man, is an exceedingly slow process. Since 1600 there appears to have been only one clear-cut example of natural extinction--the Kermadec Islands Megapode which was lost in 1876 when a volcanic eruption overran its total habitat. In a few more cases, birds disappeared before the possibility of adverse influences from man were recorded. So it is probable that man was indirectly responsible for the extinction of a few, rather than a single species. Viewed over-all, however, natural extinctions total less than five percent of those recorded since the record-keeping began about 1600.

It is also a fact that man has directly exterminated relatively few species. For less than ten percent of the extinct species can it be said that extinction was due solely to wholesale slaughter. The well publicized example of the Dodo, Great Auk, and Passenger Pigeon have perhaps, overemphasized in the public mind, the role of man as a ruthless exterminator, although it is clear that man can play this part well if given the chance.

The record is clear. The vast majority, over 90 percent, of birds known or believed to have become extinct in the world since 1600 have disappeared as the indirect result of activities which may be considered natural to man. Thoughtlessness characterizes man's actions in the field of bird extinction perhaps more than any other term.

It is patently clear; for example, that Max Schlemmer--a bird lover--would not have liberated rabbits on Laysan Island in 1903 if he had given any thought to the ultimate consequences. Many years later, after Schlemmer vacated Laysan, three kinds of birds not known elsewhere in the world became extinct as a result of the eradication of vegetation by Schlemmer's rabbits. Merely the employment of foresight would thus have saved three of Laysan's five species of birds found nowhere else. Use of

* Excerpts from the conference papers of the second Hawaii Wildlife Symposium held in Hilo, Hawaii, 12 May 1971

existing knowledge has extraordinary potential in saving endangered species.

In passing, let us not be deluded that all opportunity to use foresight to save ecologically vulnerable species is behind us. Proposals for biological introductions which possess the potential for altering natural relationships are inherently incompatible with species preservation goals. It is the ultimate and irreversible, not the predictable and short-term consequences that count in nature protection.

Now let us look at bird extinctions from a geographical standpoint. The world-wide disappearance of bird species has a history with much meaning for conservation in Hawaii when considered area by area.

If we sort out the locations where birds have disappeared since record keeping began, we find that the overwhelming majority of extinct species, something over 90 percent, have been lost from relatively small islands. Only about seven percent have vanished from continents. Stated another way, over ninety percent of extinct bird species have become lost on islands which total less than one percent of the world's land mass!

The Hawaiian Islands, with some 25 kinds of birds known or believed extinct, has the most tragic history. Fifteen percent of all the birds known to have passed to oblivion world-wide since 1600 have become extinct in Hawaii!! This should tell us something about interdependence in oceanic island ecosystems.

Nominated for second place in the "Hall of Bird Extinctions" is the West Indies with 17 kinds known to have disappeared (discounting species of doubtful origin). The Philippine Islands comes in a poor third with nine kinds lost, eight in one year due to forest destruction on a single island, Cebu.

Of the continents, North America has the poorest record with seven forms lost. By contrast, not a single bird inhabiting central Euro-Asia is known to have disappeared.

The lesson is loud and clear....Species integrated in oceanic island life systems are extremely vulnerable.

So much for the record of extinct species....Let us project the world-wide list of endangered birds into geographical format. Where do the experts expect the next birds to disappear? Do they think history will repeat itself?

Apparently they do. By far the majority of the more than 400 kinds of birds listed as endangered by the International Union for Conservation of Nature and Natural Resources are to be found on islands. For example, some eighteen kinds of birds in New Zealand, six of which live on small offshore islands, are on the list. Nine species living on the Seychelle Islands in the Indian Ocean are threatened. Cuba and the Bahamas combined have seventeen endangered forms. But again, Hawaii wins hands down with 27 on the list of endangered species maintained by the U.S. Department of the Interior.

A brief review of the conservation status of endangered species in Hawaii seems appropriate at this point. What is being done?

President Theodore Roosevelt, far-sighted and keenly interested, set aside most of the Hawaiian Leeward Islands as a federal sanctuary system for birds in 1909. Now staffed and patrolled by Bureau of Sport Fisheries and Wildlife personnel, these refuges protect both populations and habitats of four endangered species, the Niihau Finch and Millerbird, and Laysan Duck and Finch.

In addition to the existing Hawaii State waterfowl sanctuary at Kanaha Pond, Maui, an on-going, funded program has been mounted by the Bureau of Sport Fisheries and Wildlife to acquire, preserve and develop additional wetland habitats for endangered Hawaiian waterbirds--the Duck, Stilt, Gallinule and Coot. Waterbird habitats on US Military Reservations are now also being protected and enhanced for the use of endangered species. Propagation and release programs for two species, Nene and Duck, are being carried out by the Hawaii State Division of Fish and Game. The National Park Service protects the largest single remaining population of Dark-rumped Petrels in Haleakala National Park.

Other good programs exist. The habitats of five kinds of forest birds endemic to Kauai, two thrushes, 'O'o'a'a, 'Alialoa, Nuku-pu'u, are given primary protection in the Hawaii State Alaka'i Swamp Reserve. While such action alone does not guarantee long-term survival, it is reassuring to know that these unique birds are at least safe

from direct habitat destruction by man.

Needed investigations are also being carried out. Breeding ground surveys of two endangered endemic races of pelagic seabirds, Newell Shearwater and Dark-rumped Petrel, have been completed. Ways to provide the breeding populations of these birds with the needed protection are presently being explored by the Hawaii Division of Fish and Game.

Sixteen threatened birds, more than half of those endangered, are thus included in active or imminent conservation programs. While final success of all these varied projects is not yet assured, starts have at least been made.

Conservation action for the remaining eleven or so species of Hawaiian birds has not yet moved out of research, planning and discussion stages. Recommendations for a system of sanctuaries for endangered forest bird species based on pooled knowledge of State and Federal workers are scheduled for formulation this year...

Other efforts are bearing fruit. Field surveys directed toward learning the status and distribution of all native Hawaiian landbird species are a continuing activity of State and Federal agencies. My colleague John Sincock is well into the first comprehensive status and distribution study of birds on the island of Kauai. Data from my literature analysis and field surveys on the island of Hawaii continues to accumulate. Articles containing initial results of these research activities, all aimed towards the conservation of endangered species, have been circulated and published...

But, in spite of these tangible first results and future promises, implementation of a comprehensive and fully effective research and conservation program for most of the Hawaiian threatened species looms overwhelmingly large. Many interrelated, and in some cases, irreversible factors which have adverse effects on native birds have been set in motion since discovery of the Islands by European man.

Historically, the most abundant birds have declined to common, common species have been reduced to rare, and rare kinds have become extinct almost everywhere in Hawaii. This long-term trend is not easy to analyze, and is expected to be even more difficult to stop. For these reasons, results of initial investigations suggest that present input on research and conservation are almost insignificant in relation to overall problem size.

Let me be specific here and explain what I mean, by describing the plight of the Hawaiian Crow (Corvus tropicus). Incidentally, the Hawaiian Crow is an exceptionally interesting full species. Its ~~geographical~~ ^{ancestral} region or origin has never been determined, but in habitats, this bird is distinctly different from its congeners in North America. Limited historically to the island of Hawaii, populations of Corvus tropicus have plummeted from hundreds to a scattered few within memory of many living residents. In a 1969 survey of breeding groups I was able to confirm the existence of only 12 individuals. Even if we double this number to allow for possible birds missed, the total world population numbered only about 24 two years ago. Since the decline in progress has apparently never stabilized, today's population is estimated at fewer than 20 and perhaps not more than about a dozen...

...Something must happen besides an annual count-down of dwindling numbers... Problem complexity and scope suggests several approaches. The plight of many species dictates that no time be lost. A comprehensive program built around the sanctuary concept, captive breeding projects, and beefed-up conservation and research manpower to work at the species level are saving threatened species elsewhere in the world. These concepts, tailored to Hawaiian environment and species needs, should be implemented at once. Put bluntly, ultimate answers to save 27 species of threatened forms cannot be expected to emerge from a two-man field research team in time to save species now in the most precarious position! Funded, staffed, on-going conservation projects are needed now. There is no tomorrow for species reduced to a few scattered individuals.

In closing, I would like to say that I am only optimistic about the future of endangered species of birds in Hawaii if action begins soon and with a ten-fold order of increase of research and conservation effort. Otherwise, like Cinderella, I'm afraid we will make our move too late. Midnight for the Hawaiian crow, at least, is not far off. For this bird, the clock of doom reads 11:45. And other species are in time zones not far behind. History is not kind to those who misjudge priorities.

ENDANGERED AND EXTINCT WILDLIFE OF HAWAII

By Harry A. Goodwin*

During relatively recent times the birds of Hawaii included 69 recognized species or subspecies representing 11 families. Within the past 150 years, 24 (possibly 25) of them have become extinct, and another 26 or 27 are either rare or endangered.

Before the Bureau commenced intensive studies of Hawaii's endangered birds, the Molokai creeper, Molokai thrush, and Maui nuku-pu'u were thought to be extinct. They have been "rediscovered" and are now considered "endangered."

Two native mammals, the monk seal and the hoary bat, deserve special attention, and there is much concern for the future of the green sea turtle. Monk seals and sea turtles are protected on the Hawaiian Islands National Wildlife Refuge. But the remaining population of seals is small, and the green sea turtle is a wanderer on the high seas.

Causes for the decline or extinction of some species are obscure. For others, they are obvious. This can best be illustrated by what took place when rabbits were introduced on Laysan Island, a tiny dot in the Pacific between Honolulu and Midway. In the absence of any natural enemies there, the population of these animals literally exploded. They consumed all the vegetation, and the island became a barren waste. The rabbits perished, as did thousands of nesting seabirds and their young who were trapped in their burrows by wind-driven sands. Most tragic was the extermination of three species of small birds found nowhere else in the world but on this island. The Laysan millerbird was gone by 1923. A scientific expedition that year witnessed the extermination of the last three honeycreepers in a sandstorm. The little Laysan flightless rail was also gone.

Destruction of habitat also occurred on the main Hawaiian Islands. Filling, draining, and drastic alteration of marshes, ponds, and other wetlands have been responsible for reducing the number of waterbirds.

Grazing in lowland forests by domestic cattle and feral sheep, goats, and pigs destroyed large acreages of native plants. The introduction of exotic plants greatly changed other areas. Introduced rats, mongooses, feral dogs and cats, and pigs preyed upon birds, their young, and their eggs. Exotic birds introduced over many years may have brought with them diseases to which the native birds had no or very little resistance. Mosquitoes which were also introduced probably transmitted some of these diseases from bird to bird.

All these forces are still active today. Twenty-four (possibly 25) species gone--how many more will go? Extinct forms cannot be brought back, but it is not too late to save those which remain. Government agencies, scientific and educational institutions, private organizations, and individuals working together can preserve Hawaii's unique forms for this and future generations...

Extinct Birds of Hawaii

Laysan rail, Porzanula palmeri. Laysan Island.
Extinct on Laysan Island in 1926. Extinct in 1944 on Eastern Island, Midway Atoll, where transplanted previously from Laysan. Reasons--loss of habitat (rabbits eating vegetation), predation by rats on Midway.

Sandwich /Hawaii/ rail (Moho), Pennula sandwichensis. Hawaii Island.
Extinct about 1893. Reason--probably predation by introduced rats and mongooses.

Oahu thrush, Phaeornis obscurus oahensis. Oahu Island
Extinct after 1825. Reasons--alteration of environment by modern man, probable avian disease from introduced birds and spread by introduced mosquitoes. Predation by introduced rats and cats hypothetical.

Lanai thrush, Phaeornis obscurus lanaiensis. Lanai Island.
Extinct in 1931. Reasons--alteration of environment by modern man, probable avian disease from introduced birds and spread by introduced mosquitoes. Predation by introduced rats, cats, and mongooses hypothetical.

Laysan millerbird, Acrocephalus familiaris familiaris. Laysan Island.
Extinct between 1904 and 1923. Reason--loss of habitat due to introduced rabbits eating vegetation.

- Kioea, Chaetoptila angustipluma. Hawaii Island.
Extinct after 1859. Reasons--alteration of environment by modern man, probable avian disease from introduced birds and spread by introduced mosquitoes. Predation by introduced rats and cats hypothetical.
- Oahu 'o'o, Moho apicalis. Oahu Island.
Extinct about 1837. Reasons--alteration of environment by modern man, probable avian disease from introduced birds and spread by introduced mosquitoes, killing by native plume hunters. Predation by introduced rats and cats hypothetical.
- Molokai 'o'o, Moho bishopi. Molokai Island.
Extinct in 1915. Reasons--alteration of environment by modern man, probable avian disease from introduced birds and spread by introduced mosquitoes, killing by native plume hunters. Predation by introduced rats, cats, and mongooses hypothetical.
- Hawaii 'o'o, Moho nobilis. Hawaii Island.
Extinct in 1934. Reasons--same as Molokai 'o'o.
- Laysan 'apapane, Himatione sanguinea freethii. Laysan Island. /Laysan honeyeater/
Extinct soon after 1923. Reason--destruction of the vegetation by introduced rabbits.
- Hawaii mamo, Drepanis pacifica. Hawaii Island.
Extinct about 1898. Reasons--same as Molokai 'o'o.
- Perkins mamo or black mamo, Drepanis funerea. Molokai Island.
Extinct about 1907. Reasons--same as Lanai thrush.
- Oahu 'akialoa, Hemignathus obscurus lichtensteinii. Oahu Island.
Extinct after 1837. Reasons--same as Kioea.
- Lanai 'akialoa, Hemignathus obscurus lanaiensis. Lanai Island.
Extinct about 1894. Reasons--same as Lanai thrush.
- Hawaii 'akialoa, Hemignathus obscurus obscurus. Hawaii Island.
Extinct in 1895. Reasons--same as Lanai thrush.
- Oahu nuku-pu'u, Hemignathus lucidus lucidus. Oahu Island.
Extinct about 1860. Reasons--same as Kioea.
- Oahu 'akepa, Loxops coccinea rufa. Oahu Island.
Extinct 1895. Reasons--same as Lanai thrush.
- Greater 'amakihi (green solitaire), Loxops sagittirostris. Hawaii Island.
Extinct in 1900. Reasons--same as Lanai thrush.
- Lanai alauahio, Loxops maculata montana. Lanai Island. /Lanai creeper/
Extinct in 1937. Reason--destruction of habitat.
- 'Ula-'ai-hawane, Ciridops anna. Hawaii Island.
Extinct about 1892. Reasons--same as Lanai thrush.
- Greater koa finch (Hopue), Psittirostra palmeri. Hawaii Island.
Extinct about 1896. Reasons--same as Lanai thrush.
- Lesser or yellow-headed koa finch, Psittirostra flaviceps. Hawaii Island.
Extinct about 1891. Reasons--same as Lanai thrush.
- Grosbeak finch or kona finch, Psittirostra kona. Hawaii Island.
Extinct in 1894. Reasons--same as Lanai thrush.

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RARE AND ENDANGERED SPECIES OF WILDLIFE OF HAWAII
Compiled by State Division of Fish & Game, Wildlife Branch

Common Name	Scientific Name	Status
<u>Mammals</u>		
1. Hawaiian Monk Seal	<i>Monachus schauinslandi</i>	Rare
2. Hawaiian Bat ('ope'ape'a)	<i>Lasiurus cinereus semotus</i>	Endangered
<u>Birds</u>		
1. Newell Manx Shearwater ('A'o)	<i>Puffinus puffinus newellii</i>	Rare
2. Hawaiian Dark-rumped Petrel ('Ua'u)	<i>Pterodroma phaeopygia sandwichensis</i>	Endangered
3. Nene (Hawaiian Goose).....	<i>Branta sandvicensis</i>	Endangered
4. Laysan Duck	<i>Anas wyvilliana laysanensis</i>	Endangered

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
5. Hawaiian Duck (Koloa)	Anas wyvilliana wyvilliana	Endangered
6. Hawaiian Hawk ('Io)	Buteo solitarius	"
7. Hawn Common Gallinule ('Alae 'ula)	Gallinula chloropus sandvicensis	"
8. Hawaiian Coot ('Alae ke'oke'o)....	Fulica americana alai	"
9. Hawaiian Stilt (Ae'o)	Himantopus himantopus knudseni	"
10. Hawaiian Crow ('Alala)	Corvus tropicus	"
11. Puaiohi (Small Kauai Thrush)	Phaeornis palmeri	"
12. Kauai Thrush (Large)	Phaeornis obscurus myadestrina	Rare
13. Molokai Thrush (Oloma'u)	Phaeornis obscurus rutha	Endangered
14. Nihoa Millerbird	Acrocephalus kingi	"
15. Kauai 'O'o ('O'o'a'a)	Moho braccatus	"
16. Crested Honeycreeper ('Akohekohe)	Palmeria dolei	"
17. Hawaii 'Akepa	Loxops coccinea coccinea	"
18. Maui 'Akepa	Loxops coccinea ochracea	"
19. Molokai Creeper (Kakawahie)	Loxops maculata flammea	"
20. Oahu Creeper ('Alauahio)	Loxops maculata maculata	"
21. 'Akiapola'au	Hemignathus wilsoni	"
22. Kauai 'Alcualoa	Hemignathus procerus	"
23. Kauai Nuku-pu'u	Hemignathus lucidus hanapepe	"
24. Maui Nuku-pu'u	Hemignathus lucidus affinis	"
25. Laysan Finch	Psittirostra cantans cantans	"
26. Nihoa Finch	Psittirostra cantans ultima	"
27. 'O'u	Psittirostra psittacea	"
28. Palila	Psittirostra bailleui	"
29. Maui Parrotbill	Pseudonestor xanthophrys	"

Peripheral Animals

1. Green Turtle	Chelonia mydas mydas	Undetermined
2. Bristle-thighed Curlew (Kioea) ...	Numenius tahitiensis	"
3. Hawaiian Short-eared Owl (Pueo) ..	Asio flammeus sandwichensis	"

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EXTANT ENDEMIC BIRD SPECIES NOT PRESENTLY ENDANGERED

Compiled by William P. Mull, October 1970

1. Hawaiian Owl (Pueo)	Asio flammeus sandwichensis
2. Hawaii Thrush ('Oma'o)	Phaeornis obscurus obscurus
3. Oahu 'Elepaio	Chasiempis sandwichensis
4. Kauai 'Elepaio	Chasiempis sandwichensis sclateri
5. Hawaii 'Elepaio	Chasiempis sandwichensis sandwichensis
6. Kauai 'Amakihi	Loxops virens stejnegeri
7. Oahu 'Amakihi	Loxops virens chloris
8. Maui 'Amakihi	Loxops virens wilsoni
9. Hawaii 'Amakihi	Loxops virens virens
10. 'Anianiau	Loxops parva
11. Kauai Creeper ('Akikiki)	Loxops maculata bairdi
12. Maui Creeper ('Alauahio)	Loxops maculata newtoni
13. Hawaii Creeper (Olive-green) ...	Loxops maculata mana
14. Kauai 'Akepa ('O'u-holowai)	Loxops coccinea caeruleirostris
15. 'Apapane	Himatione sanguinea
16. 'I'iwi	Vestiaria coccinea

PRESERVATION OF MAUI'S ENDANGERED FOREST BIRDS *

By Winston Banko

Of 56 perching birds (suborder Passeres) found exclusively in the Hawaiian Islands, 10 are known from Maui (Amadon 1950). However, since the 'O'o (Moho sp.) disappeared on Maui before a specimen was collected, only nine have been specifically

described. Information on population status of Maui's native forest birds is summarized in table 1 (Banko 1967, 1968).

TABLE 1: Checklist of Maui's Native Perching Birds

<u>Species or Race</u>	<u>Conservation Status</u>	<u>Provisional Status</u>	<u>Reported on Haleakala</u>
<u>Historically resident on Maui and other islands</u>			
Hawaiian 'Amakihi	Unlisted	Abundant	1967
<u>Loxops virens wilsoni</u> (Rothschild)	USDI ^a , IUCN ^b		
'O'u	Endangered	Possibly extinct	1901
<u>Psittirostra psittacea</u> (Gmelin)	USDI, IUCN		
'Apapane	Unlisted	Abundant	1967
<u>Himatione sanguinea sanguinea</u> (Gmelin)	USDI, IUCN		
Crested Honeycreeper	Endangered	Endangered	1969
<u>Palmeria dolei</u> (Wilson)	USDI, IUCN		
'I'iwi	Unlisted	Common	1967
<u>Vestiaria coccinea</u> (Forster)	USDI, IUCN		
<u>Exclusively resident on Maui</u>			
Maui Creeper	Unlisted, USDI	Undetermined	1969
<u>Loxops maculata newtoni</u> (Rothschild)	Endangered, IUCN		
Maui 'Akepa	Unlisted	Endangered	1950
<u>Loxops coccinea ochracea</u> Rothschild	USDI, IUCN		
Maui Nuku-pu'u	Endangered	Endangered	1967
<u>Hemignathus lucidus affinis</u> Rothschild	USDI, IUCN		
Maui Parrotbill	Endangered	Endangered	1967
<u>Pseudonestor xanthophrys</u> Rothschild	USDI, IUCN		

a US Department of the Interior

b International Union for Conservation of Nature

While definitive data on population size and range of Maui's native forest birds do not exist, none of Maui's historically rare birds ('O'o, 'Akepa, Crested Honeycreeper, Nuku-pu'u, Parrotbill, 'O'u) have been observed outside Haleakala's windward slopes. Populations of the latter four species are judged by US Department of Interior (1968) and International Union for Conservation of Nature (1968) to be in danger of extinction.

The Crested Honeycreeper has been seen a number of times in recent years at high elevations on windward slopes of Haleakala (Richards and Baldwin 1953; Kridler 1966; Banko 1968; Vogl, pers. comm.). This interesting bird apparently disappeared on Molokai, its only other range, sometime after 1907 when it was last reported. Maui Nuku-pu'u was rediscovered and Parrotbill was reported for the second time this century from Kipahulu Valley, windward Haleakala (Banko 1968). The 'O'u has not been recorded from Maui since 1901 and may not now occur there. In addition to these four endangered birds, the Maui 'Akepa has been reported only once this century, in 1950 (Richards and Baldwin, op. cit.). The Maui 'Akepa should therefore be considered endangered if, in fact, a population still exists.

It is thus apparent that except for the Alaka'i Swamp area of Kauai, whose wilderness characteristics are protected by state law, no other Hawaiian forest of comparable size supports as many endangered species of birds as the northeast slopes of Haleakala.

Hawaiian birds have had an especially fateful history of decline and extinction due to environmental changes wrought by civilized man. Preservation of the ecological integrity of Haleakala's windward forests is thus of paramount importance to the survival of at least three, and possibly as many as six, Hawaiian birds.

LITERATURE CITED

- Amadon, D. 1950. The Hawaiian honeycreepers (Aves, Drepaniidae). Bull. Amer. Mus. Nat. Hist. 95:151-262.
 Banko, W.E. 1967. Hawaii's endangered birds--a status appraisal. Proc. 47th Ann.

- Conf. West. Assoc. St. Game Fish Comm. p. 247-261.
- Banko, W.E. 1968. Rediscovery of Maui Nukupuu, Hemignathus lucidus affinis, and sighting of Maui Parrotbill, Pseudonestor xanthophrys, Kipahulu Valleu, Maui, Hawaii. Condor 70:265-266.
- International Union for Conservation of Nature and Natural Resources. 1969. Red Data Book 2. Aves. Morges, Switzerland.
- Kridler, E. 1966. A recent record of the Crested Honeycreeper on Maui, Hawaii. Elepaio 26(10):88.
- Richards, L.P., and P.H. Baldwin. 1953. Recent records of some Hawaiian honeycreepers. Condor 55:221-222.
- US Department of the Interior. 1968. Rare and endangered fish and wildlife of the United States. Govt. Printing Office, Washington, D.C.

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Critique of the Final Environmental Impact Statement on the Reef Runway Project for the Honolulu International Airport, dated January 1972 to Mr. Russel E. Train, Chairman, The Council on Environmental Quality, Washington, D.C., from William P. Hull, Vice President, 18 April 1972:

We note several deficiencies in the subject statement with respect to replacement of wildlife habitat that will be destroyed in the course of the proposed runway construction. Basically, we question how 35 acres in Pearl Harbor can be considered as "adequate replacement" for 186 acres of waterbird habitat to be destroyed by the runway construction at Keehi Lagoon.

Our comments are directed, essentially, to the section on Wildlife (SECTION IV, C,4) on page 26, with particular reference to the Keehi Lagoon Bird Survey (cited as Reference 11 on page 44) conducted over a one-year period and reported by Dr. Andrew J. Berger and Mr. Ronald T. Walker.

As indicated on pages 8 and 10, under PUBLIC HEARING, (1) conservation organizations at the outset voiced great concern over the prospective loss of waterbird habitat as a result of the reef runway project; (2) special emphasis was placed on loss of habitat there by the endangered Hawaiian Stilt; (3) adequate replacement of that lost habitat was recommended; and (4) "The State of Hawaii...will provide...adequate replacement habitat in the Pearl Harbor area...." At that public hearing, on March 22, 1971, our Society strongly recommended that the habitat area to be destroyed be replaced by the creation of a new one of at least equal size or, more desirable because of the uncertain success of such a "created area," twice the size.

On page 26, Wildlife, the following statements are made:

"The use of approximately 186 acres of silted coral mudflats for wildlife roosting and resting areas will be lost in the immediate construction area of the Reef Runway."

"A joint program for replacement of wildlife habitat...consists of developing two wildlife areas in the U.S. Naval Station.../of/ approximately 25 acres.../and/ 10 acres in size...."

"While it has not yet been determined whether these areas are of comparative productivity to the sites lost, biologists are of the opinion that when properly developed and maintained, such areas may be of equal or perhaps greater value to stilts and other wildlife."

On page 3 of his final report (January 18, 1972) on his Keehi Lagoon Bird Survey, Dr. Andrew J. Berger stated:

"As pointed out on page 4 of my July 12, 1971 report to Mr. Dittmar, we estimated that one major island and approximately 186 acres of feeding areas would be destroyed by construction of the reef runway. According to the Preliminary Engineering Report on the New Bird Habitat Relocation for the reef runway project submitted by Austin, Smith & Associates, a total of 31.9 acres of ponds and 3.8 acres of islands would be created in the Pearl Harbor relocation site. This appears on the surface, at least, to be only a token effort to provide adequate substitute feeding and potential nesting

sites as replacement for the large island and the 186 acres of habitat that will be destroyed in the construction of the reef runway."

Thus, in proposing to replace 186 acres of waterbird habitat with 35 acres of habitat, those who prepared the Final Impact Statement apparently ignored both our Society's recommendation for equal or greater replacement acreage and Dr. Berger's conclusion, as their senior scientific advisor on the matter, that the proposed replacement acreage appeared to be a "token effort." In fact, the impact statement not only gives no hint of what we recommended and what Dr. Berger concluded, in this respect, but states that "biologists are of the opinion that...such areas may be of equal or perhaps greater value to stilts and other wildlife." Both our testimony and Dr. Berger's statement on this point are supposed to be part of the official record, but we could find no sign of either in the impact statement. On the other hand, who are the "biologists" who opine that 35 acres will be "of equal or perhaps greater value?" And where, in the official record, is their statement sourced and explained?

An additional consideration is that both of the so-called "replacement" areas are already-existing stilt habitat and had been set aside by the U.S. Navy as "conservation" areas before the reef runway habitat-replacement question ever came up. Thus, these areas will not be new, additional habitat and can hardly be considered as "replacement" in that respect. Improving these areas as habitat, under close supervision by competent biologists, is certainly a worthy endeavor--and might be considered as partial compensation for the habitat lost--but even if one stretched a point and accepted these areas on an acre-for-acre basis, the stilts and other waterbirds would still be 150 acres short of the habitat they had before! This is not only bad human arithmetic, it is very bad news for the stilts and other waterbirds on Oahu, whose habitat is shrinking in general at an alarming rate. Portentous testimony to this fact was a statewide stilt survey on April 12, 1972, in which State and Federal biologists found less than 1,000 stilts throughout the State and only 114 stilts on the entire island of Oahu, which has been the greatest stronghold for the besieged Hawaiian stilt until now. With its total numbers declining precariously and its habitat disappearing in general, an additional net loss of 150 acres to the reef runway could have truly a disastrous impact on the endangered Hawaiian stilt.

We strongly urge that, in addition to the 35 acres in Pearl Harbor, a minimum of 150 acres of new, permanent waterbird habitat be created and set aside under protective refuge management on the island of Oahu as the only truly adequate replacement for that which will be lost completely if the reef runway is constructed according to present plans.

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Honolulu Star-Bulletin, 17 May 1972, page A-23: Letters to the Editor--Keehi Lagoon and Stilts by Ronald L. Walker, Oahu-Kauai District Wildlife Biologist

Your article entitled "REEF RUNWAY IS ASSAILED" printed in the Honolulu Star-Bulletin on Monday, April 24, 1972 and quoting Mr. William Mull...while generally factual, does have some misleading statements.

On the surface, the development of 35 acres in the Pearl Harbor area would not seem to be adequate mitigation for the loss of 186 acres of Hawaiian Stilt habitat in Keehi Lagoon. However, it should be emphasized that the area to be lost is exclusively feeding and resting habitat, and the Hawaiian Stilt completely deserts this area during the breeding season to nest elsewhere.

The two areas to be developed near Pearl Harbor will, it is hoped, provide breeding as well as feeding and resting areas, so that the benefit to the species as a whole may be equal to the loss. Of the two areas set aside by the U.S. Navy as sanctuaries, only one supports Hawaiian Stilt in any numbers, and the improvements should double the capacity for breeding purposes. The other area supports only an occasional stilt when rains provide temporary water, but the enhancement program will create breeding habitat that does not now exist.

Detailed studies have shown that the maximum number of Hawaiian Stilts using Keehi Lagoon seldom exceeds 100 individuals, and that probably no more than 20 birds of this species use the 186 acres to be lost to the reef runway.

While it is true that the April 12 count on Oahu numbered only 114 stilts, this

was at a time of year when this species is nesting and is not found in concentrations suitable for an accurate census. The January 1972 count numbered 342 stilts on Oahu and the July 1971 census turned up 369 stilts on this island.

Although Oahu is extremely important to this species, it is not "the greatest stronghold for the besieged Hawaiian Stilt." The same April census showed a total of 360 stilts on Miihau and 419 on Maui. Consistently, the Island of Maui supports an equal or greater number of this species.

And finally, to state that the reef runway project could have a "disastrous impact on the endangered Hawaiian Stilt," is to imply that the loss of feeding grounds for approximately 20 individuals out of a total population of 1,000, despite the creation of new breeding habitat, may lead to its extinction, and this is somewhat misleading.

Field trips by William P. Mull: 9 January 1972 to Sand Island, Fort Kam & West Loch

A compact group of 6 people in 2 cars made this trip to survey the waterbirds and shorebirds at Sand Island, Fort Kamehameha and West Loch.

At Sand Island, 29 pomarine jaegers circled and swooped over the sewer outfall, one brown booby perched on a bobbing buoy, 3 immature ring-billed gulls alternately walked and hovered low over the mudflat, and a mixture of small shorebirds (6 sanderlings, 65 ruddy turnstones and over 100 golden plovers) plied the mudflats, along with 3 Hawaiian stilts.

At Fort Kam, 2 Bonaparte gulls swam in the tidal pools among the mangrove clumps along the shore, while a little assortment of shorebirds (1 sanderling, 5 turnstones, 2 plovers, 9 stilts and 1 wandering tattler) fed on the mudflats nearby. A lone black-crowned night heron sailed by in the air, and a mockingbird showed himself briefly in the trees along the shore.

The mudflats at Upper West Loch produced 3 sanderlings, 1 turnstone, 96 plovers, 88 stilts, 2 wandering tattlers, 32 night herons and 2 Hawaiian coots--and 2 cattle egrets flew by over the water. Search as we would, we could spot no pintails on the furthest mudflat, where they usually are in winter.

It was a pleasant and rewarding trip under broken clouds and fresh breezes, with no spectacular sightings or surprises.

12 March 1972 to Aiea Loop Trail

In near-perfect weather, 13 members and guests took to Aiea Loop Trail at 8:45 a.m. in search of forest birds, particularly endemics. Despite the lack of wind, we heard and saw few endemics along the two miles of trail: about a dozen 'amakihi and a half-dozen each of 'elepaio and 'apapane. The exotics were more apparent; calls and songs of the Japanese bush warbler and the Japanese white-eye were heard along the full length of the trail, with a scattering of house finches and ricebirds--and an occasional shama thrush.

We noted that this dominance of exotic birds was paralleled by the dominance of exotic plants--and we pondered man's power to change his environment, as we viewed the newly cleared swath that crossed the trail a half mile out and snaked over the hills in a straight line in either direction to mark the course of new power lines.

Some of us pondered also the happy people we met on the trail, out for a walk in the woods. To them a bird was a bird and a tree was a tree. They did not recognize that peaceful woodland as the battleground that it is, with a host of foreign invaders contesting the ground with indigenous nature. To them the question did not exist whether the alien white-eyes and guavas would conquer the native 'apapane and 'ohi'a, nor were they aware of man's role as the instigator of this conflict.

Where do man's best interests lie in this contest? What, if anything, should he do to turn the tide of battle? These are gut questions for the conservationist in Hawaii--for the Hawaii Audubon Society.

9 April 1972 to Sand Island, Walker Bay and West Loch

In dry, mild weather, 15 members and guests departed the Main Library in Honolulu at 8:20 a.m. for a look at shorebird and waterbird areas at Pearl Harbor and Sand Island.

Modest numbers of golden plovers and ruddy turnstones (with some of each in

breeding plumage) were noted at all stops--along with a few sanderlings and an occasional wandering tattler--except at the Waipahu Dump marsh, which was dry and unproductive. Hawaiian stilts were in very short supply--with less than twenty in the Upper West Loch and Walker Bay areas combined, and none seen at Sand Island. Hawaiian coots also were sparse, with less than ten noted in the Pearl Harbor areas. Three shovelers were spotted flying over West Loch, and the resident drake mallard at Walker Bay was his usual lonely self, despite his breeding finery. The Pearl Harbor black-crowned night heron population looked pretty nearly normal, with about 30 at Upper West Loch and another half-dozen at Walker Bay.

At Sand Island, 2 of the 3 immature ring-billed gulls that wintered there were still present on the mudflat opposite the reviewing stand, a dozen or so pomarine jaegers still circled and dipped over the sewer outfall, a half-dozen brown boobies were seen perched on the offshore buoys or flying low over the water, and perhaps a dozen probable red-footed boobies were barely visible as they circled and dove over the distant waves. We studied the hundreds of acres of shallow water and mudflats and small islets before us in Keehi Lagoon--and wondered how 35 acres of improved "replacement habitat" in Pearl Harbor could possibly take their place for shorebird feeding and resting areas, after Keehi Lagoon is filled with new runways and other planned "developments." And we wondered where the jaegers would winter, when the new Sand Island sewage treatment plant is built!

ALOHA to new members:

Life - Nicholas Mitchell, P.O. Box 658, Kealahou, Hawaii 96750
 Junior - Beth Hazzard, 1534 Leha St, Honolulu, Hawaii 96818
 Kathi Macdonald, 1382 Olin St, Honolulu, Hawaii 96818
 Lance Uchida, 1446 Lalamilo Place, Honolulu, Hawaii 96819
 Regular - Amy Greenwell, P.O. Box 23, Captain Cook, Hawaii 96704
 Mrs. I.A. Kleven, 2040 43d E., #103, Seattle, Washington 98102
 Carl N. Nielsen, P.O. Box 4143, Honolulu, Hawaii 96813
 Nellene Smith, 4999 Kahala Ave, Apt 126, Honolulu, Hawaii 96816
 Dr. Arthur W. Ward, 1934 Alaeloa St, Honolulu, Hawaii 96821

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:

- 13 August - Boat trip to Manana to study seabirds. Trip will be limited to Society members. Boat fare is estimated at \$3.00. Bring lunch, water, and if possible your car.
 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: Charles G. Kaigler, telephone 988-3195. Reservations required.
- 14 August - Board meeting at McCully-Moiliili Library, 6:45 p.m. Members welcome.
- 21 August - General meeting at the Waikiki Aquarium Auditorium at 7:30 p.m.
 Speaker: Dr. John Maciolek, Zoology Professor--Hawaii's expert on streams
 Topic: Aquatic Habitats in Hawaii (color slides)

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