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## HAWAII'S ENDANGERED BIRDS - A STATUS APPRAISAL\*

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Sixty-nine different kinds of birds are endemic to the Hawaiian Archipelago (Amadon, 1950); that is, they do not occur naturally anywhere else in the world. Twenty-five (38%) of these unique birds are now known or believed to be extinct according to the International Union for the Conservation of Nature and Natural Resources (Vincent, 1965). Another 22 kinds (31%) are listed as either rare or endangered by the Committee on Rare and Endangered Wildlife Species, Bureau of Sport Fisheries and Wildlife, U.S. Department of Interior. The status of the remaining 22 living species and subspecies of Hawaiian birds may be classified provisionally either as uncertain or relatively secure.

In order to consider Hawaii's threatened birds in perspective it is useful to review briefly the history of vanished birds on a world-wide basis. More than 160 kinds of birds are known or believed to have disappeared from the face of the earth since the year 1600 (Vincent, 1965). The geographical distribution of birds thought to be extinct is given in Table I.

From the information in Table I. it is clearly evident that birds have disappeared from islands with far greater frequency than from the principal land areas of the earth. While only 12 kinds of birds have been lost from continental lands, 149 species have disappeared from islands. It is significant that in the past 366 years no bird species has yet been reported extinct from the vast geographical land areas of Europe, northern Asia, Africa, Central and South America, and Australia, though a great number of species resident in these regions are now regarded as threatened. Thus, birds which have evolved on islands have proved to be much more vulnerable to extinction than those which have developed on lands of continental size.

The pattern of bird species lost on islands seems to have been influenced mainly by (1) the number of endemic species resident on a given island, and (2) the degree of direct influence or environmental change effected by civilized man. The West Indies islands are thought to have lost 26 kinds of birds since 1600 - more than any other island group in the world. The Hawaiian Islands follow closely with 25 species known or believed to be extinct.

Though the role played by man in the world-wide history of bird extinction is not clear in every case, man is known to have directly caused the loss of a living species, either by killing or capture, in only about a dozen instances. Extinction of the Dodo, Great Auk, and Passenger Pigeon are well known examples.

\*Presented at the 47th Annual Conference of the Western Association of State Game and Fish Commissioners, July 16-20, 1967, Honolulu, Hawaii.

Bird species become extinct from natural catastrophes very infrequently, there being only one clear example on record since 1600. The limited range of the Kermadec Islands megapode was destroyed by a volcanic eruption in 1876 and this bird has not been seen since. In the other 150 or so cases man has either been only indirectly responsible for the loss of living species, or the cause is unknown.

Man-introduced creatures such as the rat, cat, pig, and mongoose, are known to have been the greatest single cause of bird extinction. The effect of these efficient predators among flightless and ground-nesting birds on islands has been devastating. Deforestation by man and reduction of natural vegetation by introduced livestock and rabbits has also played a prominent role. Diseases borne by introduced birds and disseminated by parasites have apparently figured significantly, though more subtly, in causes of bird extinction. All of these causes, and others more complex, were responsible either alone or in combination for the decline and final loss of most species now known or believed extinct.

In the Hawaiian Islands, the present-day status of most of the 69 endemic birds can be assigned only on a tentative basis. Twelve species and races are historical residents of more than one island. These birds are listed in Table II together with the provisional status of populations on each island.

It is significant that none of the birds in Hawaii which are resident of more than one island have yet become extinct. But seven of the group listed, more than half, are now considered either rare or endangered. Populations of the remaining five species have either disappeared or are threatened with loss on one or more islands. The Hawaiian Short-eared Owl is the only bird listed which has maintained anything like a representative population on the major islands, and even its long-term future has become clouded in recent years due to the introduction of an adaptable competitor, the barn owl, on several islands.

Fifty-seven of the 69 endemic Hawaiian birds are known only from a single island. Species and races in this group are listed by island in Table III together with indicated status of populations. From these data it is seen that 24 of the 57 single-island residents are either known or thought to be extinct, another 15 are considered to be either rare or endangered, while the status of the remaining 17 remains tentatively unclassified.

It is emphasized that the status of birds listed in Tables II and III have been determined only on a preliminary basis. Much more information is needed before the relative state of affairs concerning each species can be classified with certainty.

An island-by-island roll call of species summarizes the situation surrounding the endemic birds of the Hawaiian Islands in detail. Twenty kinds of birds are known only from the island of Hawaii; of these, 10 are known or believed extinct, five are listed either as rare or endangered while the remaining five are believed to be relatively secure. Of Maui's four endemics, one is believed extinct, one is endangered and the other two are believed to be holding their own. Lanai has lost all three of its unique resident birds. Two of the four kinds of birds formerly found only on Molokai are thought to be extinct, another is endangered, while the status of the fourth is undetermined. Oahu originally claimed nine birds distinctly different from those on other islands; only three are living today and one of these, the Oahu Creeper, may be in trouble. Of all the endemic birds of the Hawaiian Archipelago only those on Kauai have entirely escaped the calamity of extinction; the original avifauna of the 10 endemics on that major island is intact, although four are now listed as either rare or endangered.

Two tiny outriders in the Hawaiian Leeward Islands west of the main inhabited islands once boasted a total of seven distinct species and races of birds. Laysan Island, a low coral and sand speck of only two square miles, was once home to an amazing variety of five birds found nowhere else. Today it can claim only two birds exclusively and these are both considered endangered. Nihoa is the other Leeward islet with an endemic bird fauna, and its two races are also listed as endangered.

Both Nihoa and Laysan Island are in the Hawaiian Islands National Wildlife Refuge and are patrolled regularly to guard against possible man-caused catastrophies. Unauthorized landings on these Refuge islands, - the greatest potential danger, are illegal.

Conservation action directed toward saving Hawaii's endangered wildlife is not new. It was first manifest when President Theodore Roosevelt set aside certain of the Leeward Islands as federal bird sanctuaries in 1909. During the intervening years the United States Government sponsored visits to these island refuges by biologists from various universities and agencies. In 1964 a full-time biologist was assigned to protect the unique wildlife assets of these sanctuary islands and to conduct biological investigations crucial to the survival and welfare of the many resident species.

Other conservation programs aimed at restoring Hawaii's unique birds have been implemented in recent years. Research and management of Hawaii's famous State bird - the Nene, by the Hawaii Division of Fish and Game, the federal government cooperating, has attracted world-wide attention. State of Hawaii Division of Fish and Game studies of the Koloa, carried out with the support of The World Wildlife Fund, are also proving valuable in learning the life requirements of this hitherto little understood and endangered species of Hawaiian duck.

The task today is to get on with the job of preventing the extinction of any more of the Hawaiian birds now threatened. One facet of the work is related to the gathering of information concerning the status of endangered species and making it available to the public and the many interested agencies and organizations. The Bureau of Sport Fisheries and Wildlife has stationed two wildlife research biologists in the Hawaiian Islands with this goal in mind.

Research efforts by Bureau of Sport Fisheries and Wildlife biologists have been directed principally toward (1) assembling and organizing an exhaustive library of some 1,500 - 2,000 notes, articles, and books on the Hawaiian avifauna, (2) listing of habitats occupied or used by the endangered Hawaiian water birds - the duck, gallinule, and stilt, and (3) carrying out a district-by-district survey, with ecological emphasis, of Hawaii's other endemic birds. Most of the basic work involved in the first two projects has been finished, but only a bare start on the third has been made. Steep slopes, rough terrain, dense vegetation, and rainfall as heavy as any in the world, all combine to slow progress of ornithological surveys over much of the native bird range in Hawaii.

In considering how Hawaii's endangered birds might best be saved, it is apparent that the lessons of the past point toward solutions for the future. The hour is already late. For example, not much can be done to eliminate the wild populations of the mongoose, rat, cat, and pig from islands on which they are established. But every effort should be made to see that these predators, which have extirpated so many species of island birds in the past history of the world, do not extend their range in Hawaii. Local control of predators on breeding areas of some of the endangered ground-nesting species - such as the petrels - may be found helpful in aiding survival of these species. State, Bureau, and other conservation minded individuals, are fully aware of these possibilities of course, and are already taking positive conservation action at every opportunity.

But there are many threats. The continuing and accelerating development of natural bird habitats into projects designed to serve man exclusively goes on apace in Hawaii as it does everywhere else in the world where economic or social benefits can be sighted. Identification of key habitats necessary to the survival of populations of endangered species is a paramount research goal. But that is only a first step beyond which conservation action becomes necessary.

Some safeguards have already been taken. It is good to know that conservation agreements with private landowners by the Division of Fish and Game on behalf of the Nene have been in effect for many years. Representatives of the Bureau of Sport Fisheries and Wildlife and the Hawaii State Division of Fish and Game are currently negotiating with officials to preserve important breeding and feeding grounds of the



Hawaiian Stilt located on lands under military jurisdiction. In this way it is hoped that habitats important to survival of endangered wildlife can be preserved wherever they occur. Much remains to be done in State and private sectors of land ownership, however, both in identifying key tracts and in seeing that they remain useful to populations of threatened species.

Some dangers are subtle and difficult to appraise. The importation and release, or accidental escape, of exotic species of birds is a problem in Hawaii which has historically caused concern to conservationists because of possible harm they pose to native bird life. Although some degree of official control is exerted in this area, enforcement is difficult or practically impossible. In the past, for example, some introduced birds have become strongly established in habitats of endangered species, raising questions of compatibility and competition that are difficult to answer. The Japanese White-eye (Zosterops japonica) and Red-billed Leiothrix (Leiothrix lutea) in particular, have penetrated to nearly all parts of the range of the native forest birds where they have become the most abundant species present in many areas. The unpredictable ability of exotic birds to adapt and change their habits to match opportunities in an environment to which they have been introduced places a difficult obstacle in the path of biologists charged with nominating or approving species safe for importation.

Other problems in the field of endangered species conservation exist in Hawaii, though none are seen as insurmountable. Much progress has been made in the past few years. Public opinion is becoming aroused and officials are aware as never before of their responsibility to save species in trouble. For the first time wildlife biologists have been assigned on a full-time basis to gather and analyze information, and propose solutions. Qualified ornithologists from the University of Hawaii and the Honolulu Zoo are contributing valuable ideas and efforts. Wildlife capture and release techniques are improving.

The responsibility to take appropriate action in saving threatened species in Hawaii rests ultimately with many individuals and organizations. Great public interest is being evidenced in preserving the greatest possible variety of wildlife species for the enjoyment of future generations. It is hoped that the necessary steps will be taken.

#### References

- Amadon, Dean. The Hawaiian Honeycreepers (Aves, Drepaniidae) Bull.Am.Nat.Hist., Vol. 95, Art. 4, 1950.
- Committee on Rare and Endangered Wildlife Species, Bureau of Sport Fisheries and Wildlife, U.S. Department of Interior (compiler). Resource Publication 34, B.S.F.W., 1966.
- Vincent, Jack (compiler). List of Birds Either Known or Thought to have become Extinct Since 1600. I.U.C.N. Bull. No. 16 New Series, July/September 1965.

Table I. Numbers of bird species or races that have become extinct since 1600 in various areas of the world (Vincent, 1965)

<u>Geographical Area</u>	<u>Kinds of birds extinct since 1600</u>
1. Continents	
North America.....	6
Southeast Asia (India-Burma-Himalaya) .....	5
Middle East (Arabia) .....	<u>1</u>
Total (Continents)	12
2. Large Islands	
New Zealand .....	4
Japan .....	1
Tasmania .....	<u>1</u>
Total (Large Islands)	6

Table I. (Continued)

<u>Geographical Area</u>		<u>Kinds of birds extinct since 1600</u>
3. Small Islands		
South Atlantic Ocean Islands .....	4	
North Atlantic Ocean Islands		
West Indies .....	26	
Iceland .....	1	
Indian Ocean Islands		
Rodrigues .....	8	
Reunion .....	6	
Mauritius .....	5	
3 Other Islands .....	5	
South Pacific Ocean Islands		
Lord Howe Island .....	8	
Chatham Islands .....	5	
Society Islands .....	5	
15 Other Islands & Island Groups .....	22	
North Pacific Ocean Islands		
Hawaiian Islands .....	25	
Philippines (Cebu Island) .....	9	
Bonin Islands .....	4	
8 Other Islands & Island Groups .....	10	
Total (Small Islands)	143	

Table II. Checklist and provisional status of endemic Hawaiian birds which are historical residents of two or more islands.

Name	Hawaii	Maui	Lanai	Molokai	Oahu	Kauai
1. *Newell's Manx Shearwater .....	O	O		O		X
<u>Puffinus puffinus newelli</u> Henshaw						
2. *Hawaiian Dark-rumped Petrel .....	XT	XT	O	O	O	O
<u>Pterodroma phaeopygia sandwichensis</u> (Ridgway)						
3. *Hawaiian Duck .....	EX	EX		EX	EX	XT
<u>Anas wyvilliana</u> Sclater						
4. Hawaiian Coot .....	XT	XT		XT	X	X
<u>Fulica americana alai</u> Peale						
5. *Hawaiian Common Gallinule .....	O	O		O	XT	XT
<u>Gallinula chloropus sandwichensis</u> Streets						
6. *Hawaiian Stilt .....	XT	XT		XT	XT	XT
<u>Himantopus himantopus knudseni</u> Stejneger						
7. Hawaiian Short-eared Owl .....	X	X	X	X	X	X
<u>Asio flammeus sandwichensis</u> (Bloxam)						
8. Hawaiian Amakihi .....		X	XT	X		
<u>Loxops virens wilsoni</u> (Rothschild)						
9. *O'u .....	XT	EX	EX	EX	EX	XT
<u>Psittirostra psittacea</u> (Gmelin)						
10. 'Apapane .....	X	X	O	XT	X	X
<u>Himatione sanguinea sanguinea</u> (Gmelin)						
11. *Crested Honeycreeper .....		XT		EX		
<u>Palmeria dolei</u> (Wilson)						
12. 'I'iwi .....	X	X	EX	O	XT	X
<u>Vestiaria coccinea</u> (Forster)						

Legend: \* rare or endangered species (B.S.F.W.)      O population unknown threatened if  
X population known status undetermined      EX population extinct      present  
XT population threatened

Table III. Checklist and provisional status of endemic Hawaiian birds which are historical residents of only one island.

#### HAWAII

* Nene (Hawaiian Goose) .....	<u>Branta sandvicensis</u> (Vigors)
* Hawaiian Hawk .....	<u>Buteo solitarius</u> Peale
** Hawaii Rail .....	<u>Pennula</u> (? <u>sandwichensis</u> ) <u>millsi</u> Dole
* Hawaiian Crow .....	<u>Corvus tropicus</u> (Gmelin)
Hawaii Thrush .....	<u>Phaeornis obscurus obscurus</u> (Gmelin)
Hawaii 'Elepaio .....	<u>Chasiempis sandwichensis sandwichensis</u> (Gmelin)
** Kioea .....	<u>Chaetopila angustipluma</u> (Peale)
** Hawaii 'O'o .....	<u>Moho nobilis</u> (Merrem)
Hawaii 'Amakihi .....	<u>Loxops virens virens</u> (Gmelin)
** Great 'Amakihi .....	<u>Loxops sagittirostris</u> (Rothschild)
Hawaii Creeper .....	<u>Loxops maculata mana</u> (Wilson)
Hawaii Akepa .....	<u>Loxops coccinea coccinea</u> (Gmelin)
** Hawaii 'Akialoa .....	<u>Hemignathus obscurus obscurus</u> (Gmelin)
* 'Akiapola'au .....	<u>Hemignathus wilsoni</u> (Rothschild)
* Palila .....	<u>Psittirostra bailleui</u> (Oustalet)
** Greater Koafinch .....	<u>Psittirostra palmeri</u> (Rothschild)
** Lesser Koafinch .....	<u>Psittirostra flaviceps</u> (Rothschild)
** Kona Koafinch .....	<u>Psittirostra kona</u> (Wilson)
** 'Ula-'ai-hawane .....	<u>Ciridops anna</u> Dole
** Mamo .....	<u>Drepanis pacifica</u> (Gmelin)

#### MAUI

Maui Creeper .....	<u>Loxops maculata newtoni</u> (Rothschild)
Maui Akepa .....	<u>Loxops coccinea ochracea</u> Rothschild
** Maui Nuku-pu'u .....	<u>Hemignathus lucidus affinus</u> Rothschild
* Maui Parrotbill .....	<u>Pseudonestor xanthophrys</u> Rothschild

#### LANAI

** Lanai Thrush .....	<u>Phaeornis obscurus lanaiensis</u> Wilson
** Lanai Creeper .....	<u>Loxops maculata montana</u> (Wilson)
** Lanai 'Akialoa .....	<u>Hemignathus obscurus lanaiensis</u> Rothschild

#### MOLOKAI

** Molokai Thrush .....	<u>Phaeornis obscurus rutha</u> W.A. Bryan
** Molokai 'O'o .....	<u>Moho bishopi</u> (Rothschild)
* Molokai Creeper .....	<u>Loxops maculata flammea</u> Wilson
** Black Mamo .....	<u>Drepanis funerea</u> Newton

#### OAHU

** (?Oahu) Rail .....	<u>Pennula sandwichensis sandwichensis</u> Gmelin
** Oahu Thrush .....	<u>Phaeornis obscurus oahuensis</u> Wilson
Oahu 'Elepaio .....	<u>Chasiempis sandwichensis gayi</u> Wilson
** Oahu 'O'o .....	<u>Moho apicalis</u> Gould
Oahu 'Amakihi .....	<u>Loxops virens chloris</u> (Cabanis)
Oahu Creeper .....	<u>Loxops maculata maculata</u> (Cabanis)
** Oahu Akepa .....	<u>Loxops coccinea rufa</u> (Bloxam)
** Oahu 'Akialoa .....	<u>Hemignathus obscurus ellisianus</u> (Gray)
** Oahu Nuku-pu'u .....	<u>Hemignathus lucidus lucidus</u> Lichtenstein

\* rare or endangered

\*\* known or believed to be extinct

Table III (continued)

KAUAI

Kauai Thrush .....	<u>Phaeornis obscurus myadestina</u> Stejneger
* Small Kauai Thrush .....	<u>Phaeornis palmeri</u> (Rothschild)
Kauai 'Elepaio .....	<u>Chasiempis sandwichensis sclateri</u> Ridgway
* Kauai 'O'o .....	<u>Moho braccatus</u> (Cassin)
Kauai 'Amakihi .....	<u>Loxops virens stejnegeri</u> (Wilson)
'Anianiau .....	<u>Loxops parva</u> (Stejneger)
Kauai Creeper .....	<u>Loxops maculata bairdi</u> (Stejneger)
Kauai Akepa .....	<u>Loxops coccinea caeruleirostris</u> (Wilson)
* Kauai 'Akialoa .....	<u>Hemignathus procerus</u> Cabanis
* Kauai Nuku-pu'u .....	<u>Hemignathus lucidus hanapepe</u> Wilson

LAYSAN ISLAND

** Laysan Rail .....	<u>Porzanula palmeri</u> Frohawk
** Laysan Millerbird .....	<u>Acrocephalus familiaris</u> Rothschild
* Laysan Duck .....	<u>Anas laysanensis</u> Rothschild
** Laysan Honeyeater .....	<u>Himatione sanguinea freethi</u> Rothschild
* Laysan Finchbill .....	<u>Paittirostra cantans cantans</u> (Wilson)

NIHOA

* Nihoa Millerbird .....	<u>Acrocephalus kingi</u> Wetmore
* Nihoa Finchbill .....	<u>Psittirostra cantans ultima</u> (W.A. Bryan)

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Have you seen the Honolulu Star-Bulletin, November 30, 1967, page A-4, about the rare find at Kipahulu Valley on Maui?

According to the news item, "The Maui Nuku-pu'u, the bird last seen more than seven decades ago, was discovered by a group of scientists on a month-long expedition into the wilds of the valley in September. Dr. Richard E. Warner, leader of the expedition, said birds observed there include at least three others which are on the endangered species list--the Crested Honeycreeper, the Maui Creeper and the Maui Parrotbill...The Nature Conservancy...has decided to acquire the Valley in order to create a conservation park....

"Dr. Charles Lamoureux, University of Hawaii botanist, said of the rare birds sighted that the Crested Honeycreeper 'is a very rare bird...only two have been sighted in the past 30 or 40 years.' For plantlife, Lamoureux said, 'these communities are like no others, and the valley in this sense offers an opportunity not available elsewhere on this planet.'

"Dr. Nixon Wilson, an entomologist on the staff of Bishop Museum, described the native insect population of the valley as primarily intact and another argument for saving the area..."

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Any information or comments on this subject will be greatly appreciated.

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FIELD NOTES from Peggy B. Hodge, November 16, 1967: 'Iwa (Frigatebird)

Sighted by William C. Hodge, 1044 Koohoo Place, Lanikai, over 100 'Iwa (frigate) birds November 8, 1967 in a period of 40 minutes about 7:30 a.m. They usually come daily in a flock of 20 as we breakfast.

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Excerpts from minutes, Hawaii Audubon Society General Meeting, November 6, 1967: President Michael Ord announced that an advance shipment of 500 copies of HAWAII'S BIRDS were arriving the end of this week....The Christmas count will take place December 31....Robert Pyle will co-ordinate the Christmas count. President Michael Ord will be in Guam until sometime in January.

Dr. R.W. Strandtmann, Bishop Museum Entomologist, presented his excellent



entertaining color movie entitled "Birds of McMurdo Sound, Antarctica." The film showed nesting colonies of two species of penguins, Adele and Emperor, and their predator, the skua....

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# HAWAII'S BIRDS

New field guide now available for \$2.00

HAWAII'S BIRDS discusses and illustrates 74 species with colored photographs or photographs of the excellent plates in the works of Wilson and Evans and Rothschild.

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HAWAII'S BIRDS will be sold in most retail outlets in the islands and by the Society at all general meetings for \$2.00 a copy with envelope. It is pocket size, 5"x7" and will make an excellent gift for mailing to friends, so send in your orders now to: Book Order Committee, Hawaii Audubon Society, P.O. Box 5032, Hon, Haw 96814.

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ALOHA to new members:

Life: Noah K. Pekelo, Jr., P.O. Box 155, Kaunakakai, Molokai 96748.

Regular: Periodicals Dept, Earl Gregg Swem Library, College of William and Mary, Williamsburg, Virginia.

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To the outgoing officers: Thank you for your generous contributions and work well done.

To the incoming officers: Thank you for accepting the responsibilities to continue the good work.

To both: MAHALO NUI LOA & ALOHA.

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## JANUARY ACTIVITIES:

January 8 - Board meeting at the Waikiki Aquarium Auditorium at 7:30 p.m. Members are always welcome.

January 14 - Field trip to study shore birds. Bring lunch, water, and if possible your car. Transportation cost (\$1.00) to be paid to the drivers. Meet at the Library of Hawaii at 8:00 a.m.

Leader: Lt Comdr J. Richard Gauthey, telephone: 430-27218.

January 15 - General meeting at the Waikiki Aquarium Auditorium at 7:30 p.m. Program for the night: AT WAR WITH WASTE, a 30 minute, 16mm National Wildlife Federation color film, illustrating some of the most important conservation problems.

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## HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:

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