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COMMON MYNA PREDATION ON WEDGE-TAILED SHEARWATER EGGS

by G. Vernon Byrd

The Common Myna (Acridotheres tristes) was introduced to Hawaii in 1865 (Munro 1960), and the advisability of that introduction has been debated ever since. Caum (1933) indicated mynas had been charged with robbing nests, and that they had been linked with the decline in native birds in Hawaii. However, he thought the species was less destructive than was generally supposed. Munro (1940) found that mynas interfere with nests of other birds, but he and Berger (1972) both doubted that the myna was responsible for the extinction of any native forest birds. Munro (1940) found that Common Mynas preyed on eggs of Wedge-tailed Shearwaters (Puffinus pacificus) on Manana Island, but Shallenberger (1973) found no mynas on the island from 1969 to 1972, and thus no predation. C. F. Zeillemaker (pers. comm.) first noted the loss of shearwater eggs to mynas at Kilauea Point, Kauai, in 1975. In this study I document the extent of this loss.

In a study area at Kilauea Point in 1978 350 shearwater burrows containing an egg (shearwaters lay a single egg) were checked 2 or 3 times during egg-laying and incubation. A minimum of 74 eggs (21%) were found to be pecked. Of the 74 eggs, 54 (73%) were pecked between 12 and 20 June. This period coincides with the first few days of incubation, since 73% of 90 eggs checked daily at a plot at Kilauea Point in 1978 were laid during the period 9-22 June (Byrd unpub. data). Elsewhere on Kauai, signs of egg predation were found in 12 of 18 shearwater colonies visited by Youth Conservation Corps personnel between June and September 1978, but the magnitude of egg predation was not assessed.

At Kilauea Point, mynas were observed eating eggs on five occasions, and they were seen in shearwater burrows at least 10 times. Probably most eggs were taken when adults left them unattended, a frequent occurrence at Kilauea Point during the first 10 days of incubation. Although it is not certain that mynas were responsible for all pecked eggs recorded, no evidence suggests that other species known to attack seabird eggs, e.g. Ruddy Turnstone (Arenaria interpres), were involved.

In early July 1978 at Kilauea Point several myna control techniques, e.g. shooting live trapping, and scaring with shell crackers (blank shells), were tested. Shell crackers used daily reduced the average number of mynas from about an average of 12 birds seen per

Wedge-tailed Shearwater egg at Kilauea Point apparently pecked by Common Mynas during the 1978 breeding season.

Photo by Dave Boynton

visit to an average of 1 or 2 birds. Shallenberber (1973) found that replacement of lost eggs by Wedge-tailed Shearwaters is rare. Since they lay only one egg, predation can have an important impact. Because of the seriousness of myna predation on Wedge-tailed Shearwater eggs, I recommend an annual control program at Kilauea Point.

Acknowledgements

The following Hawaiian ornithologists offered helpful suggestions: Cameron Kepler, C.J. and Carol Ralph, Rob Shallenberger, John Sincock and Thomas Telfer. Valerie Byrd assisted with the field work.

Literature Cited

Berger, A. 1972. Hawaiian Birdlife. Univ. Press of Hawaii. Honolulu. 270 pp.

Caum, E.L. 1933. The exotic birds of Hawaii. Occ. Pap. Bishop Mus. 10:1-55.

Munro, G.C. 1940. Birds of Hawaii - Wedge-tailed Shearwater. 'Elepaio 1:7-8.

Munro, G.C. 1960. Birds of Hawaii. Charles E. Tuttle Co. Tokyo, Japan. 189 pp.

Shallenberger, R.J. 1973. Breeding biology, homing behavior, and communication patterns of the Wedge-tailed Shearwater, Puffinus pacificus chlororhynchus. Unpublished Ph.D. thesis, U.C.L.A. 418 pp.

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GLEANINGS FROM THE TECHNICAL LITERATURE

THE GREAT PALILA CENSUS

Distribution and Abundance Patterns of the Palila on Mauna Kea, Hawaii

by Charles van Riper, III, J. Michael Scott, and David M. Woodside
Auk 95:518-527, 1978

People used to debate how many angels could dance on the head of a pin. The authors of this paper undertook to answer another much discussed topic: How many Palila are on Mauna Kea? This question, and the related question, "Exactly where do they live on the mountain?" loomed important in deciding that the Palila (Psittirostra baileui) should be on the Endangered Species list and in defining Critical Habitat for it.

The authors supervised censuses of the entire mamane and mamane-naio forest on Mauna Kea, thus covering all possible habitat of this finch-billed honeycreeper that feeds on mamane pods. Trained observers walked transects following elevational contours, recording distances to all Palila seen or heard and other pertinent data on the birds and the development of the trees. To check their census technique in two ways, the team repeated the census five times in one area and covered another area so thoroughly that no bird could escape detection. This article reports the census results from January and September 1975, providing a comparison of winter and breeding populations.

The mamane forest covers 21,860 hectares, circling Mauna Kea, with a break only on the north side. However, Palila were found only on the southern half of the mountain, and a significant gap dissects this range. The birds' range covers only about 25% of the available forest. The total population, calculated from the transect data and given with necessarily large variances, was 1,595 individuals (95% confidence interval = 1,416-2,049) in winter and 1,940 (95% confidence interval = 1,643-2,237) in breeding season. The latter figure probably includes some young birds produced that year. For a small bird, presumably with a short lifespan, this is a very small population. Given the small population and the small, dissected range of the species, we can see the Palila deserves its endangered status.

Some information on the Palila's biology emerges from other aspects of the data. Compared with winter, in the breeding season birds were harder to detect, traveled more often alone, and were more widely dispersed over the mountain. The birds seemed to be found most often where mamane pods were most abundant, and this was where the mamane trees were larger. This relationship would indicate the importance of maintaining a mature mamane forest for the sake of the Palila.

Censuses of entire populations of a species are rare events, but these were especially noteworthy because they involved cooperation of two state and two federal government agencies. In this age of great cynicism about government action, it is encouraging to see sincere, productive cooperation such as this. These censuses did not end in 1975; they have continued as yearly event, monitoring populations of this colorful bird of Mauna Kea.

C.P. Ralph

SUCCESSFUL NEWELL'S SHEARWATER SALVAGE ON KAUAI

by Thomas C. Telfer

During the fall, hundreds of Newell's (Manx) Shearwaters (Puffinus puffinus newelli) are found, many of them dead, on the highways of Kauai. This seabird, classified as threatened by the U.S. Fish and Wildlife Service, nests in burrows far inland, making a long journey for young birds going from their nests to the ocean when they fledge. During the 1978 season G. Vernon Byrd, John Sincock (both of the U.S. Fish and Wildlife Service), and I organized a project to salvage at least some of these birds and release them near the sea.

In October we set up eight "shearwater aid-stations," at the County Fire Houses and at the Princeville Shopping Center. We published news articles in the *Garden Island* and made announcements on the local radio stations, requesting people to pick up fallen shearwaters and deposit them at the aid stations. They were instructed to log their birds in a booklet provided, recording the approximate locations of where the birds were falling. We checked the aid stations daily and brought most of the birds to Kilauea Point, where we banded them with monel leg bands, measured, weighed, and released them. A total of 867 shearwaters was collected at aid stations. Only ten of these died before release, and the others presumably made it to sea on their own.

Of the 867 shearwaters picked up, three were classed as adults, three were unknown age, and 861 were hatching year birds. Before this fall we did not know that nearly all of the fallen birds are young birds just leaving the nest for the first time.

Since only small numbers of adult shearwaters fell in lighted areas early in the nesting season, before the aid stations were set up at the end of September, few of these birds were collected and banded. The peak numbers of fallen birds turned in at aid stations occurred during the last week of October and the first week of November. A second, much smaller peak occurred at the end of November and early December, suggesting that renesting may have occurred.

The shearwater aid station method was found to be superior to the previously used method of asking people to toss fallen birds up into the air whenever they were found, hoping they would fly. We found that it was best to permit the birds to depart at will. This prevented further injury, if they were unable to fly after being tossed. It was encouraging to see such a high survival rate of fallen birds. They generally departed from the holding boxes just after dark and were observed climbing low bushes from which to take off. This appears to be an adaptation to their need to get up and out of dense uluhe fern, typical of their nesting habitat.

The Lihue area produced the greatest number of fallen shearwaters (392), most of which came from the Kauai Surf Hotel, indicating that the high density of lights in the more populated areas is the worst hazard to shearwater fledglings.

Despite the success of this salvage program. over 200 shearwaters were actually counted dead on Kauai's highways during this year's season.

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MAHALO FOR CONTRIBUTIONS

The Society thanks the following for contributions to help the work of the Society: Osee Mallio, Mr. and Mrs. C. Turner Nearing, and James Thropp.

MONK SEAL REFERENCES

A limited number of copies are still available of the publication, "Bibliography of the Monk Seal, *Monachus schauinslandi*" (Technical Report No. 35) by George H. Balazs and G. Causey Whittow. This compilation of 340 references will be provided at no cost in response to written requests addressed to:

Hawaii Institute of Marine Biology
Univeristy of Hawaii
P.O. Box 1346
Kaneohe, Hawaii 96744

ALOHA TO NEW MEMBERS

The Society welcomes the following new members and urges them to participate in the Society's activities.

Local Regular: Ann, Dawson, Honolulu; Cdr. Robert Masten, Barbers Point; William Schipper, APO San Francisco; James Thropp, Paauilo.
Subscriber: Charles Thompson, Warren, NJ
Life Member: A special MAHALO to Benjamin L. Marx of Honolulu.

SOCIETY CRITIQUES HAPU'U HARVESTING

In a recent letter to the Hawaii Board of Land and Natural Resources, the Society's Big Island Representative, Mae Mull, critiqued a draft Environmental Impact Statement (EIS) prepared and submitted to the Board by Environmental Communications, Inc., a consulting firm. The draft EIS was prepared in support of a proposal by the Bishop Estate to begin harvesting hapu'u (tree ferns) on 300 acres in the Kilauea Forest Reserve, in addition to the 150 acres now being harvested (see *Elepaio* 38:75, January 1978, and 38:94, February 1978). The letter points out examples of how the draft EIS in its present form is inadequate, incomplete and biased.

November 21, 1978

Board of Land and Natural Resources
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement for the Proposed Expansion of Hapu'u Harvesting Activities at Kilauea Forest Reserve, Ka'u District, Hawaii.

A review of the draft EIS for the proposed project reveals several deficiencies in complying with the Environmental Impact Statement Regulations (1975) of the Environmental Quality Commission.

The regulations provide under Content Requirements (pp. 14-18) that:

> "The EIS shall, at a minimum, contain the following information: ...
>
> c. Description of environmental setting, including a description of the environment in the vicinity of the action, from both a local and regional perspective. Special emphasis shall be placed on environmental resources that are rare or unique to the region and the project site. . . . "

The draft EIS fails to meet this requirement:

(1) There is no botanical survey of this primary native forest for reviewers to evaluate. Essential to informed decisionmaking on the proposal is an annotated list of plant species that occur in the parcel and the vicinity, indicating relative abundance and pinpointing those with proposed endangered species status. Even if the consultant's recommendation that a survey be included in the final EIS is carried out, reviewers will have lost the opportunity to assess its quality and make recommendations for the management of rare species.

The project applicant knew in January 1978 when the EIS determination was made that an authoritative botanical survey -- conducted by field botanists competent in the identification of rain forest plant species -- would be required for an adequate EIS.

In addition to the possible presence of the endangered *Vicia menziesii*, field botanists have reported a rare *Tetraplasandra* species and a rare *Stenogyne* species in the proposed site. Other species with proposed endangered status may well be present.

In the lengthy discussion under Impact on Flora (pp. 24-29) the effects of logging operations on endemic plants other than tree ferns are given short shrift.

(2) The one-day bird survey along haul roads and skid trails in the existing logging area is scarcely sufficient for the draft EIS Summary (p. iii) to conclude that "no adverse or significant impact was foreseen" on avifauna -- not when the ornithologist under contract to Niu Nursery apparently did not enter the 300-acre requested site. 'Io (Hawaiian Hawk), seen at the present harvesting site (pp. iii, 81), is not identified as an endangered species. Also, four Hawaiian honeycreepers reported by different observers in the vicinity of the proposed logging site are named (p. iii, 81), but are not identified as endangered species: Hawaii Creeper, Hawaii 'Akepa, 'O'u, and 'Akiapola'au.

What could provide valuable information on the impact on avifauna of past, present and future logging would be the periodic reports in fulfillment of condition 9 in the list, "Conditions Established by the Board of Land and Natural Resources for the Hapu'u Harvesting Operations (1971)" -- p. 77 of the draft EIS. Condition 9 reads: "The Division of Fish and Game shall monitor the effect of harvesting on birdlife in the area."

In the 4½-page discussion under Impact on the Fauna (pp. 30-34), not a single bird species is mentioned as occurring in either the present or proposed sites. As for other fauna, only pigs, rats and mongooses are presumed present by implication.

(3) The 300-acre parcel in question is part of the remnant, unmanipulated Kilauea Forest Reserve that has been identified repeatedly by biologists and conservation writers since 1970 as diversified primary forest, housing a unique assemblage of endemic plants, birds and invertebrates, having high priority for protection from exploitation. This assessment over eight years appears in communications with the Board of Land and Natural Resources, the Bishop Estate, Hawaii County, and in reports of the International Biological Program (ISLAND ECOSYSTEMS) and other publications.

In addition, the biological value of the Kilauea forest, as contrasted with its commercial logging value, is attested to by the fact that in the early 1970s the Nature

Conservancy made persistent and strenuous efforts to purchase this unique forest for ecological protection in perpetuity. Although the Estate Trustees chose not to sell at that time, the biological value of Kilauea continues to exist and takes on even greater importance as native habitats are eliminated on its western and southern borders.

In spite of this well-publicized background, the draft EIS errs and exhibits inappropriate bias when it labels such biological assessments as "the subjective opinions of the opponents of the project" (p. iv).

Concerns expressed by responsible writers for an objective environmental description and for recognition of the effects of hapu'u harvesting on a unique natural environment are denigrated again as "subjective" (pp. 23, 75), or misinterpreted as an "impact on aesthetics" (p. 35).

Such tactics are not in conformity with the EIS Regulations (p. 14) which require that:

> "The Environmental Impact Statement shall contain a public explanation of the environmental consequences of the proposed action. The contents shall fully declare the environmental implications of the proposed action and shall discuss all relevant and feasible consequences of the action. In order that the public can be fully informed and that the agency can make a sound decision based upon the full range of responsible opinion on environmental effects, this Statement must include responsible opposing views, if any, on significant environmental issues raised by the proposal."

"Other hapu'u forests of this type on the island of Hawaii" (p. 28). The accuracy of this major claim presented in three different places in the draft EIS with slightly different wording (pp. iv, 28, 75) must be challenged. The incorrect assertion is to the effect that the proposed logging site is not unique because there are two other hapu'u forests of this type on the island of Hawaii. The October 8, 1971 staff report to the Board of Land and Natural Resources on the CDUA for hapu'u harvesting in 2,956 acres of the Kilauea Forest Reserve is quoted (p. 28) in identifying those two areas as follows:

> ". . . Approximately four miles from the subject area is a 2,600 acre forest area which is proposed for inclusion within the Natural Area Reserve System, and about 3/4 miles away, is a 9,655 forest area set aside to the National Park. . . "

The first area obviously is Pu'u Maka'ala, reached via Stainback Highway and Disappointment Road. I know this area rather well, having visited it regularly in company with William Mull for biological study since 1972 and occasionally in the company of biologists. This area is quite unlike the Kilauea site in plant species composition, distribution and abundance.

Tree ferns are far less dense at Pu'u Maka'ala than at the proposed Kilauea site, allowing a wide diversity of other fern species, ground cover plants, shrubs and middle-story trees. This 'ohi'a-dominated forest is distinctly dissimilar to the Kilauea hapu'u forest, with only scattered 'ohi'a. The tree fern, meu (*Cibotium hawaiiense*), is common in parts of Pu'u Maka'ala but apparently is absent from the Kilauea site, for example.

The second area listed is the 'Ola'a Tract of Wright Road in the community of Volcano which was conveyed by the State to the National Park Service a number of years ago. I frequently visit parts of this parcel which is different from the Kilauea site in several ways. Useful botanical data for comparison are available in "A Preliminary Bioecological Survey of the 'Ola'a Tract, Hawaii Volcanoes National Park, " by James D. Jacobi and Frederick R. Warshauer, 1975.

These three sites are different in age, climate and elevation; thus their vegetation structure and composition are also different -- as are their faunal components.

Vital information for reviewers and decisionmakers is missing in Section III, The Relationship of the Proposed Action to Land Use Plans, Policies and Controls for the Affected Area. A major undisclosed fact is that the 300-acre site straddles two subzones of the Conservation District that have different objectives and permitted uses.

A comparison of the Vicinity Map (Fig. 2) with the Regulation 4 map delineating subzones shows that more than two-thirds of the upper portion of the site requested falls within the Protective (P) Subzone, while the lower portion, adjacent to the existing logging site, is in the Resource (R) Subzone.

Regulation 4 (p. 4) states the objective of the Protective Subzone as follows:

> "The objective of this subzone is to protect valuable resources in such designated areas as restricted watersheds, fish, plant and wildlife sanctuaries, significant historic, archeological, geological and volcanological features and sites, and other designated unique areas."

Consumptive uses are not permitted in the "P" Subzone, except programs for control of animal,

plant and marine populations. Growing and harvesting forest products is not a permitted use in the "P" Subzone. I raised this issue in comments on the EIS Preparation Notice, but it was not addressed in the consultant's "disposition" reply.

Regulation 4 states the objective of the Resource (R) Subzone as follows: (p. 5)

"The objective of this subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas."

Growing and harvesting of forest products is a permitted use in the Resource Subzone. In determining whether hapu'u logging can be allowed as a conditional use in the Protective Subzone, it appears that the Board of Land and Natural Resources is restrained by the following rules excerpted from Section 6. Standards: Land Use Conditions and Guidelines of Regulation 4 (p. 11):

"B. Guidelines

1. All applications shall be reviewed in in such a manner that the objective of the subzone(s) is given primary consideration.

"C. Deviation

Deviation from any of the conditions provided herein may be considered by the Board, only when supported by a satisfactory written justification that:

...

3. The deviation does not conflict with the objective of the subzone..."

Another potential constraint on hapu'u logging in the relatively intact primary forest are the provisions of the Hawaii Endangered Species Act (Act 65, 1975) which prohibit the taking of an endangered plant species on any lands. "Take" in this sense means "to cut, collect, uproot, destroy, injure, or possess endangered or threatened species of plants, or to attempt to engage in such conduct." "Plant" means "any member of the plant kingdom, including roots, seeds and other parts thereof."

Because the Department of Land and Natural Resources is charged with the administration and enforcement of Act 65, the Division of Forestry is excercising extreme caution in permitting the renewal of bulldozing for koa planting on a Keauhou Ranch plot of 100 acres where ten scattered plants of the endangered Vicia menziesii were discovered recently, It seems likely that DLNR will excercise prudent caution on the kilauea site as well, since it is promising Vicia habitat. In addition, I have been told that it is the policy of the present State Forester to give equal protection to proposed endangered plant species.

To more fully inform reviewers, the Vicinity Map (Fig. 2) should delineate the subzones of the Conservation District for the whole Kilauea Forest Reserve--including the grazing parcels makai of the present logging area--the Upper 'Ola'a Forest Reserve and the 'Ola'a Tract. The Agriculture land use designations for the adjacent Keauhou Ranch and the Wright Road Farm Lots should also be shown.

When adjacent land use is graphically presented in this way, the following statement in the draft EIS (pp. ii, 1) appears to be in error: "The present and proposed harvesting areas are bordered by approximately 20,000 acres of forest land." In fact, the lands on the western, southern and part of the eastern borders have been substantially cleared and are in agricultural use. You would have to reach far beyond the northern and eastern site borders to arrive at anything approaching "20,000 acres of forest land."

The requested site is three miles north of Kilauea Military Camp, not "two miles" as stated on pages ii and 1. Also, the scale on the Location Map (Fig. 1) errs in giving "1 inch-approximately 100 miles." For comparison, it is about 30 highway miles from Hilo to Kilauea.

The prevailing assumption throughout the draft EIS is that if the standing tree ferns and the cut tops continue to grow in length and eventually produce merchantable downed logs, then there will be no damage or destruction to the hapu'u forest--and if sustained yield can be achieved in 50-80 years, there will have been no loss.

Many active in conservation of unique island resources have a different perspective on commercial exploitation of the Kilauea site. we see the proposed site as a primary native forest, relatively unaltered by the hand of man or by his introductions. To bulldoze swaths through this forest is to transform it to a degraded secondary forest where the natural processes of succession, adaptation and evolution are forever altered.

Once mechanical clearing and logging operations disturb a Hawaiian forest, it can never be restored to its original natural state. The machine operations permanently alter the working of the interdependent ecosystem components. Rare endemic species can be eliminated before their presence is even recognized. Aggressive foreign weed species of plants, birds and insects are then invited to invade the previously closed native system. Native Hawaiian ecosystems are small in size and the degradation or destruction of any one of them that remains is an irreversible loss to the natural heritage of us all.

continued (over)

The previously recommended land use alternative available to the land owner/applicant--to maintain the Kilauea Forest Reserve in a natural state of native wilderness for the educational enrichment of Kamehameha Schools--is not treated in the draft EIS or in the "disposition" letter from the consultant.

Thank you for giving these comments careful consideration in the revision of the draft EIS.

Mae E. Mull
Island of Hawaii Representative
Hawaii Audubon Society

NOTE: A final EIS must be submitted and accepted by the DLNR before a harvesting permit may be issued. When the final EIS is submitted to DLNR, letters and comments from Society members urging acceptance or rejection of the EIS will be appropriate. We will keep the membership informed on the state of the EIS.

HAWAII BIRD OBSERVATIONS
MARCH THROUGH JULY, 1978

by Robert L. Pyle

(CONTINUED FROM LAST ISSUE)

Hawaiian Crow ('Alalā)(En)--Several knowledgeable estimates had put the Hawaiian Crow population at about 50 individuals, but the USF&WS survey this season estimated the population on the Kona coast of Hawaii to be somewhat higher, although certainly less than 200 (fide JMS). The species obviously is still highly endangered.

Red-vented Bulbul--A bird spotted on Farrington Highway in downtown Waipahu on the HAS trip July 9 further documents the continuing spread of this species into West Oahu.

Hawaiian Thrush--The Hawaiian Thrush, virtually unknown in the Kona area of Hawaii since the 1900's, was found this season in the extreme South Kona area (fide JMS, F&WS). Only 3 or 4 individuals were found, despite what appears to be excellent habitat in many areas. On June 4, in a kipuka on the slope of Mauna Loa about 5 miles up the Power Line Road from the Saddle Road, JFW found a thrush at its nest, one of the few described nests of the species. Walters' attention was attracted by a thrush flying in and out of a shallow cavity which contained some dried fern. He describes the nest: "It was located about 5 m off the ground in a 'ohi'a perhaps 30-40 cm in diameter. The cavity was more of a shelf in a concavity formed where a branch appeared to have split out of the trunk. A small, bushy shoot partially concealed the cavity. From the road it was possible to see the thrush sitting on the nest, and I was able to take some pictures of the brooding bird from about 20 m away. I could not tell if the nest contained eggs or young; I did not hear any sounds of nestlings."

Lavender Fire-finch--USF&WS summer survey observers (fide JMS) found about ten on Puu Waawaa Ranch, H. in June (PP, PA). This is the first recent record of this species on H., but it is in an area where many exotic species were introduced during the 1950's and 1960's.

Orange-cheeked Waxbill--At least 20, including several apparent immatures, were found in the south pond complex at Waipio, O., May 29, and 2 were seen there again June 24 (RL). These are the first reports of this waxbill away from the point of introduction on Diamond Head, although Red-eared Waxbills were found at Waipio on last year's Christmas Count

Red-eared Waxbill--Five were reported on April 8 at Kuilima Pond, near Kahuku, O. (RL), where the species has been sighted several times in recent winters.

Red Munia--Thirty-eight at Waipio Peninsula, O., June 24 (RL) is an unusually high count for this species.

Pin-tailed Whydah--One male found on Na Laau trail, O., May 27 (JFW) is the only one reported thus far in 1978. This parasitic nesting species may well be disappearing, particularly considering the greatly reduced numbers of waxbills, which were thought possibly to have been the host species.

Saffron Finch--Found by USF&WS summer survey observers to be common in the Puu Waawaa Ranch area, H., especially so around the ranch headquarters, but also in native forests Up to a hundred were seen in a day, with nest building observed (fide JMS). They have spread southward at least to Kailua-Kona, where 2 at Old Kona Airport July 21 (RLP) is the second report from this locality in recent months.

Yellow-faced Grassquit--Several were heard and one was seen well by most of the group on the HAS trip to Manana Trail, O., July 9.

Yellow-billed Cardinal--Twelve were found at their regular haunts near Honokohau Harbor, H., March 17 (EW). In the same area on July 20, two adults were observed at a nest which contained at least 2 young and probably more.

Common Myna in a typical attitude of attention

Photo by Robert J. Shallenberger

Common Myna--Mynas were found to be quite numerous on Sand Is., Midway Atoll during a visit in late July (RBC). They were unknown on Midway ten years ago.

Kauai 'O'o--John Sincock, USF&WS Endangered Species biologist for Kauai and the acknowledged expert on the Kauai 'O'o, saw one for about 15 seconds at its regular haunt in the Alakai Swamp on May 26. There was only one, with no indication of any others and no calling or any evidence of nesting. This was his only observation of it in the four days he was in the area. He had seen two at the same locality in May 1977, but he was unable to find any on 4 later surveys of the area through March 1978.

Drepanids--Two 'Apapane were watched at a nest less than 2 m above ground in a Manono bush near Kalalau Lookout, K., on April 15 (MT). One bird was carrying a twig. Presence of eggs or young was not determined for fear of disturbing the nest. Photos of the nest and birds were obtained. Other birds in the area included 15 Kauai 'Amakihi, 1 'Anianiau, 1 Kauai Creeper and 29 'Apapane. Four Kauai 'Akepa were found at nearby Puu o Kila Lookout April 16 (MT).

In two kipukas along the Power Line Road, 3 to 5 miles off the Saddle Road, H., on June 4, 'I'iwi were almost abundant (at least 30-40 total) (JFW). They were foraging close to the ground in flowering 'akala (raspberry), and were much more conspicuous than 'Apapane. Good numbers of Hawaii 'Amakihi, 'Elepaio and Hawaiian Thrush were present, too. DA found Maui Creeper most abundant and 'I'iwi a close second on the west side of Koolau Gap, M., on July 29. From the tree line at 6000' down to about 5600' elevation, he counted approximately 30 Maui Creeper, 25 'I'iwi, 18 Maui 'Amakihi and only 8 'Apapane. Lack of 'ohi'a bloom might have accounted for the relative scarcity of 'Apapane. He did find 3 'Apapane at the crater rim at 7600', and counted 12 Maui 'Amakihi in pukiawe scrub between the Park road at 8000' and the crater rim.

On the north slope of Hualalai mountain, H., USF&WS summer survey observers (fide JMS) in June found Hawaii 'Akepa widely distributed in low numbers. They also found relatively low numbers of Hawaii Creeper, although 14 were on one transect (fide JMS). 'Akiapola'au were found to be scarce, both on Hualalai and at widely scattered locations in South Kona. One adult was seen feeding the young. The nest was along the trail leading north from near the mauka corner of the harbor, about 60 m in from the edge of the kiawe. It was about 10 m above ground, near the top of a kiawe, in a crotch supported by two nearly vertical twigs. It was of woven grasses, about 10 cm in diameter and 15 cm deep (RLP).

Common Canary--Seventy-three birds were counted in the feral flock on Sand Is., Midway Atoll, during the third week of July (RBC).

Yellow-fronted Canary--Large numbers were observed on Hualalai Mountain, H., in June by the USF&WS summer survey team (fide JMS). At least 2 nests were found. This supports the suggestion by van Riper (*'Elepaio* 38(9):100, 1978) that Puu Waawaa Ranch on Hualalai was the source of flocks observed during the past year at Puu Laau on the slope of Mauna Kea.

ABBREVIATIONS AND OBSERVERS--Endangered species (En); James Campbell National Wildlife Refuge (JCNWR), Pearl Harbor National Wildlife Refuge (PHNWR), U.S. Fish & Wildlife Service (USF&WS). Dave Anderson, Phil Ashman, George H. Balazs, Gordon (Demi) Black, Philip L. Bruner, Tim A. Burr, Nancy Butowski-Casey, G. Vernon Byrd, Roger B. Clapp, Richard A. Coleman, Sheila Conant, Peter J. Connally, Carmelle Crivellone, Norman David, J. Brent Giezentanner, Lawrence Hirai, Peggy Kai, Cameron B. Kepler, Rey Larsen, Jaan Lepson, Garry Means, Dorothy Miles, Walter F. Nichols, W. Michael Ord, Jim Pimental, Peter Pyle, Robert L. Pyle, C. John Ralph, Mark Rauzon, J. Michael Scott, Dan Snider, Hawaii Audubon Society field trip (HAS), Mark Thomas, L. R. Walls, John F. Walters, Erika Wilson.

741 N. Kalaheo Ave.
Kailua, Oahu, HI 96734

REGULAR MEETING

MONDAY, JANUARY 15

"ADAPTATIONS FOR DARKNESS"

In his exciting research Dr. Frank Howarth has discovered many unusual species of cave-dwelling animals, especially insects. At our regular meeting he will give us a talk entitled "Adaptations for Darkness", giving insights into the ecology of Hawaiian caves and their inhabitants. Dr. Howarth will also give us an update on the developments concerning the proposed endangered status of some of Kauai's unique cave fauna.

Dr. Howarth's talk will be amply illustrated by his own and Bull Mull's excellent slides of the denizens of this world of perpetual darkness.

The meeting will be at the McCully-Moiliili Library, 2211 South King at 7:30 p.m.

SUNDAY, JAN. 14

FIELD TRIP TO AIEA TRAIL

The Aiea trail is one of the best sites for watching native and introduced forest birds on Oahu. From the parking lot at the state park it is an easy walk out onto the loop trail through the forest. The tree and bird species are largely introduced, but with a fair component of native species, especially if one takes the spur route along the ridge for a bit. Regularly seen birds include the 'Apapane, 'Amakihi, 'Elepaio, Japanese Bush-Warbler and Shama. 'I'iwi and even the extremely rare Oahu Creeper have been reported in recent years.

Meet at 7 a.m. at the State Library on Punchbowl, just off South King, or at the mauka parking lot of the State Park at 7:30 a.m. Bring water, binoculars, and lunch (if you want to be liesurely),and don't be surprised if the trail or the skies are a bit wet.

For more information, phone Tim Burr at 235-4036.

SATURDAY, JAN. 27

SPECIAL PROGRAM

WILDERNESS TREK THROUGH NEW ZEALAND

The Hawaii Audubon Society has a rare opportunity in January to host a noted Audubon Film Lecturer as he passes through the islands after a whirlwind lecture tour of the western United States. Grant Foster has been with the New Zealand National Film Unit in Wellington since 1957 and has completed many internationally awarded nature films on the unique islands he calls his home. His latest film, "Wilderness Trek Through New Zealand" is a montage of several of Mr. Foster's films. A lucky few of us in the Society had the good furtune to preview this film in October. The wildlife and scenic footage is fantastic. The wide diversity of New Zealand birdlife is beautifully portrayed, including an in-depth coverage of the rare white heron known as Kotuku. The viewer is immediately impressed with the variety of the New Zealand landscapes, with its tall mountains, large lakes and dense forests. One portion of the film involves a beautifully photographed ascent of Mt. Aspiring.

The film will be shown on January 27, at 7:30 p.m. in the McCully-Moiliili Library. Tell your friends about the film as well. We in Hawaii have missed the Audubon Film/Lecture Series because of the cost of bringing speakers from the mainland, so this is a rare opportunity we are happy to take advantage of.

HAWAII'S BIRDS COURSE OFFERED

The Waikiki Aquarium will offer a course on Hawaii's Birds, taught by Drs. Rob Shallenberger and Sheila Conant. The course schedule will be as follows:

Sunday, February 4 - Waterbird field trip
Thursday, February 8 - Lecture on seabirds and waterbirds, Shallenberger
Sunday, February 11 - Seabird field trip to Red-footed Booby Colony, KMCAS
Thursday, February 15 - Lecture on native and introduced land birds, Conant
Saturday, February 17 - Urban bird field trip to Queen Kapiolani Park
Sunday, February 18 - Forest bird field trip to Aiea Trail

Course tuition will be $25. For more information call the Waikiki Aquarium at 923-4725.

HAWAII AUDUBON SCHEDULE OF EVENTS

(For details, see inside back page)

Jan. 8 (Mon.) Board meeting at the home of Rob Shallenberger, 169 Kuulei Rd., Kailua, 7 p.m. (261-3741). All members welcome.

Jan. 14 (Sun.) Field trip to Aiea Trail, Oahu, for native and introduced forest birds. Leader: Tim Burr (235-4036).

Jan. 15 (Mon.) Regular Meeting. Featuring Dr. Frank Howarth, on the *Adaptations for Darkness*, an exciting account of cave animals, their adaptations, and status. McCully-Moiliili Library, 2211 South King St., at 7:30 p.m.

Jan. 27 (Sat.) SPECIAL MEETING. An account of New Zealand's wildlife and scenery *Wilderness Trek through New Zealand*, by Grant Foster, McCully-Moiliili Library, at 7:30 p.m.

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