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For the Better Protection
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NOTES ON NESTS AND BEHAVIOR OF THE HAWAIIAN CROW *

By P. Quentin Tomich

Third and Final Installment

Wariness

For a crow Corvus tropicus is outstandingly tolerant of humans, but this is not unexpected for an insular species that evolved in the absence of significant predators and that developed no specific conflict with man's interests. The crows were only briefly disturbed at each intrusion into their nesting and foraging habitat, and quickly accommodated to our presence as soon as we settled quietly. The makeshift blind only 18 m from the nest tree consisted of jumbled aa lava, tussocks of fountain grass, and a fallen limb and the trunk of a large 'ohi'a tree. We were only partially concealed as we wrote notes, manipulated field glasses, ate lunch, and occasionally shifted about.

Several references have already been made to the responses of the crows to our activities. When encountered the first day away from the nest, the birds ignored us when we were 70 m off, but flew silently away, toward the nest, when one of us walking directly toward them approached within 35 m. On another instance away from the nest the crows, although they ignored us when we were only 20 m away, soon left the area. When I first climbed to a perch in the tree at the blind the birds were disturbed, but settled into routine activity after 8 minutes. Later, as we ascended and descended individually from the perch among the 'ohi'a branches, the crows did not obviously respond. When I examined their eggs in detail near the beginning of incubation, both birds remained in the vicinity but moved off approximately 15 to 60 m, keeping up a sporadically continuous exchange of alarm cries. Twice they came into the tree but remained for only a short period. Their concern became intensified with time.

When the nest tree was climbed on the final day as the nest was being abandoned, one, and then both, crows came to the nest with the observer only 3 m away. They retreated when a camera was manipulated, but photographs were successfully taken. I concluded that if an observer were to remain quietly in such close proximity to the nest during normal incubation, the birds would probably adapt quickly to his presence. Further evidence that crows ignore humans and are unsuspicious of them was gained when a crow passed overhead only 4 m above, in full view of the occupied blind. The bird continued directly onward to the nest with no alterations in course or behavior.

Vocalization

Calls of the crow form an important aspect of communication between the paired birds. Although modern sonographic equipment would have permitted detailed analysis of vocal sounds as related to behavior, it seems desirable to record what was learned without these aids. Our general impression of the Hawaiian crow is that it is a mild, incurious, unboisterous version of the American crow, Corvus brachyrynchus. Its voice, which is generally mellow and musical, contrasts with the usually coarse and raucous calls of the American crow. The typical crow "caw" as voiced by C. tropicus is more like "cawk." It sounds as if it were produced from a pair of reed pipes of different

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tones, but has a trace of a harsh final inflection. At other times the call is a wild "ca-'wak," which may denote sudden alarm. When the birds were first encountered near the nest, apparently unaware of our presence, they gave, in 30 seconds, three "cawk" calls in sequence which were followed by a fourth one. Then, while we were standing in the open, one bird swooped through the trees past us, uttered a sharp "ca-'wak," and flew on; then the softer "cawk" calls continued in the vicinity between the two birds.

When the pair was together in the vicinity of the nest during its construction, they uttered low, gutteral "cawk" calls while selecting nest materials. When one bird was some distance off, its mate uttered soft, reassuring "cawk" notes that called the other from the nest to join it. In one sequence, after an absence of 6 minutes by both birds, there were loud "cawk" calls; one bird returned to the nest with a twig and the other remained some 60 m away, probably foraging. It was answered only once, with an unconcerned low, rasping "cawk" by the bird working at the nest. After 2 minutes the nest bird called once and the other answered with repeated soft calls; then shortly the nest bird left with a sharp, loud "cawk" and was answered by a similar, but lower-pitched call. After this both birds called repeatedly in low tones from that locality. This exchange demonstrated almost constant communication between the birds that apparently served not only to call them together, but to inform of conditions near and about the separated birds. A few minutes later, when one bird was distant from the nest and the other continued to work at construction, there was a vigorous exchange. The distant bird gave three forceful calls in slow cadence, "cawk--cawk--ca-'wah," as if in question. The nest bird answered somewhat more forcefully and flew off rapidly to join its mate. Nest construction was terminated and the crows appeared to leave the area.

When the crows were disturbed at the nest during completion of the lining, and at other times when we intruded closely to inspect the nest, they voiced loud "caw-'awk" calls as they flew from perch to perch in the tree or in neighboring trees. This alarm cry served to alert the mate if it happened to be out of sight of the nest, and to attract it to return; perhaps also, it reinforced response to intruders as the birds fluttered excitedly about.

When we examined the nest near the beginning of the incubation period, the birds remained nearby; when we moved over to begin observations from the blind, the birds retreated. All was then quiet for 9 minutes. There were three loud calls some distance away that seemed to be an all-clear signal; then one bird returned and quickly settled on the eggs. While arranging itself in the nest the bird uttered five or six low chuckling notes that seemed to denote tranquility. These same calls were heard on another occasion when the birds, who had left the nest as we examined it closely, returned to resume nest attention.

On April 18 at 7:20 A.M., after an absence of 5 minutes by one bird while the other brooded, the off bird sounded a low "churk" from some distance away. About a minute later it returned to the nest. When it worked up to the nest rim from below, one low grating "cawk" was given. There was a second, musical "caw-'awk" with a prominent, ringing two-note effect. Then, immediately, there were three more usual "cawk" calls. There was some suggestion of feeding cries in this example, but it was not possible to learn if one bird had fed the other. When the crows were quiet at the nest there were occasional low, caressing "cawk" sounds. These calls were given also when the birds were together for brief periods, away from the nest.

Once, after both birds had gone to different locations away from the nest and had been calling to one another, one returned to the eggs. The second bird gave a loud "cawk" and soon arrived near the nest, intensifying its calls to the level of alarm, where it lit in a tree some 15 m from the nest. The brooding bird was alerted, stood and peered toward its mate, then flew off to the approximate location of that bird. It returned quickly to the eggs, followed by the off bird who settled quietly on the nest rim.

The loudest, most persistent, and perhaps the most distressful calls of the crows were made during the process of nest abandonment on April 26, as already described. These cries had the fluty character of more usual calls, but were forced and seemed to denote extreme anxiety.

Foods and Feeding

It was apparent that the crows, in these brief observations of nesting, were able to sustain themselves in the vicinity of the nest during its building and the incubation of the eggs. The birds were seen as far as 0.6 km from the nest and it is unlikely that they strayed much beyond this limit. Several times food was brought near or to the nest, but seldom did we observe the birds actually eating. On March 26, after being absent from their partially constructed nest, both birds returned, one carrying a large, bright, red-orange fruit, possibly a Solanum, in its open bill. This fruit was about 2.5 cm in diameter. From the nest the bird planed to the ground under a nearby tree, but soon it arose without the fruit. We were unable later to find the fruit. Likely it was eaten. On April 26 when nest attention was fitful and the birds restless during a short period of serene nest keeping, the bird resting on the nest rim stood up with its bill agape, holding a large red fruit, apparently of the same species as that seen before. With the fruit then deep inside its bill the bird flew off to an 'ohi'a 10 m away. At that point, the fruit had either been swallowed or dropped.

On April 12 one crow rested at the nest rim while the other covered the eggs. After 5 minutes the resting bird flew off 6 m to a lama tree where it fed on the ripe fruits, dropping one whole fruit and fragments of others. Then it returned to the nest. We did not determine if one bird fed the other at the nest. During our observations the crows several times appeared to be feeding on the fruits of lama.

On April 18, during incubation, a bird left the nest rim and flew in two stages to the tree above the blind. It landed on a large horizontal limb and, while clinging partly along the side, proceeded lightly to pry bark loose. Then it moved rapidly along the limb, audibly prying as it went. We could not be certain that this bird was actually seeking food. It flew off and 3 minutes later was back at the nest. On the same day a bird that was absent from the nest for 5 minutes returned with a small fruit in its bill. When the bird had mounted the rim of the nest it had by then eaten or dropped the fruit.

The nest was examined closely on April 26. Bits, pieces of rind, and occasional seeds of lama were scattered on the rim. Some of these were fresh. This evidence suggests that the crows habitually bring food materials to the nest and eat them.

Discussion

Other crows were absent from the nest area during this study, which demonstrates that colonial nesting is not necessarily an attribute of this species. The nests found were of several different ages and were evidently constructed and used over a period of years, possibly by a single pair of birds. Approximately annual visits to the area through 1970 revealed no activity of crow after 1964, indicating that the range is now restricted to exclude them. All traces of nests had disappeared by 1969.

The vicinity of the Puuwaawaa Ranch headquarters at 915 m on the north slope of Hualalai, and higher lands of the mountain, may be the last refuge of the Hawaiian crow. Dr. Cameron B. Kepler of Cornell University and his wife report (personal communication) that on December 20, 1965 they were attracted by calls of crows from the eucalyptus grove just above the ranch buildings. "We initially found 3 birds, one of them begging for food and calling in a shrill voice more highly pitched than that of the other birds. This bird, presumably a juvenile, could feed itself effectively. These three birds were ultimately joined by 4 others, and all 7 birds permitted very close approach--to within 15 feet on many occasions. We watched them feeding in the area for over an hour, and they were still there when we left at noon. The gardener mentioned that crows were common in the grove, and were not molested by the ranch hands." From his knowledge of North American crows, Kepler is assured that begging by the young lasts a maximum of 2 to 3 months after fledging, and concludes that the young bird he observed may have come from a nest started as late as July. Exact limits of the breeding season are unknown, but nests active in March and July would suggest a protracted period.

Jon G. Giffin, a biologist of the State Division of Fish and Game, reported that, on October 26, 1970, six crows gathered and watched excitedly, and two were calling some distance away, as he handled a live pig captured at 1,070 m on the west flank of Hualalai. Nine birds were seen about a month earlier in the same vicinity and are supposed to be the same flock. Formation of these aggregations, in spite of a small

total population, seems to be a characteristic of the Hawaiian crow.

Literature Cited

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Tomich, P. Quentin. 1967. Arthropoda associated with a nest of the Hawaiian crow. Proceedings of the Hawaiian Entomological Society, vol. 19, no. 3, pp. 431-432.

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Book Review by William P. Mull: HAWAIIAN BIRDLIFE by Andrew J. Berger (The University Press of Hawaii, Honolulu, 1972. 270 pp. Illustrated. $15.00)

In the opening paragraph of the preface to his latest book, HAWAIIAN BIRDLIFE, ornithologist-conservationist Andrew J. Berger states that "there is a need for an up-to-date book on the birds of the Hawaiian Islands, if for no other reason than to chronicle the continued desecration of the unique Hawaiian forests and their animal life." In clear, lively prose--supplemented by maps, tables, lists, color plates (59) and black-and-white figures (126)--the author proceeds to chronicle what is known about the birds of Hawaii, both extinct and extant, and how they came by their present status.

The result is a valuable compendium that fills a vacant niche for those who seek an authoritative, comprehensive, current reference book on birds in Hawaii. It serves also as a powerful narrative account of man's historical, and current, cavalier attitude toward his biotic environment in Hawaii. Those who are concerned will welcome this book with excitement. Some of those who are responsible will encounter it with anger. All who read it will know it is important.

The first chapter, "The Hawaiian Islands: A Bird's-eye View," sketches an introductory picture of the physical and biological facts of life in the 1,900-mile-long Hawaiian Archipelago. It starts with a discussion of geological, geographic and climatic factors that set the parameters for life on the islands--and of modern man's discovery of, destructive exploitation of and deleterious biological introductions into these oceanic islands and their native ecosystems during the past two centuries. It ends with an account of biological principles concerning evolution, extinction and adaptability as they apply to endemic Hawaiian birds and their life-sustaining environment.

"Indigenous Birds," "Endemic Birds" and "Introduced Birds" are treated in that sequence in the three chapters that follow, with discussions of individual species and subspecies under separate subheadings in phylogenetic order within each chapter. Only those birds with populations that breed in the islands are included in these chapters. Indigenous migrants that only breed elsewhere and introduced exotics that have not established breeding populations in Hawaii are listed in appendices at the end of the book, along with "Introduced Game Birds Known to Be Established." As he chronicles what he regards as reliable and pertinent about the life and status of each kind of bird covered, the author synthesizes published data in the form of selected quotations and tight paraphrases, adding unpublished data from his own and others' observations and research. What emerges is a graphic account of what is and is not known about the life of each species discussed--including much data not available, or not easily available, elsewhere.

The chapter on "Indigenous Birds" begins with a discussion of oceanic birds and their habitat areas in Hawaii--mainly the Leeward Chain and the islets offshore from the main islands. Following are individual accounts of 22 kinds of oceanic birds plus the Black-crowned Night Heron, including 3 subspecies of oceanic birds that are "found only in the Hawaiian Islands" but that the author has placed in this chapter, rather than in the chapter on "Endemic Birds" (i.e., Newell Shearwater, Hawaiian Dark-rumped Petrel and Hawaiian Storm Petrel).

The chapter on "Endemic Birds" occupies over 40 percent of the book. It is devoted mainly to individual discussions of 46 kinds of birds, with 21 additional kinds (subspecies) accounted for under several of the species subheadings. This chapter contains much new data on extant endemic forest birds--particularly those in the endemic honeycreeper family (Drepanididae). The reviewer was surprised to find the Red Jungle Fowl or Moa, the chicken brought by early Polynesian settlers, sandwiched in among these pristine Hawaiian endemics.

In the chapter on "Introduced Birds," a general discussion of the perils of introducing exotic species into native ecosystems on oceanic islands like Hawaii is

followed by individual accounts of 32 kinds of exotic birds that have been brought to Hawaii by man and have established breeding populations in the wild.

Listed in the three appendices are 110 "Migratory Species and Stragglers," 110 kinds of "Introduced and Escaped Birds Not Known to Be Established" and 18 kinds of "Introduced Game Birds Known to Be Established"--with brief notations of dates and places of occurrence or introduction. Eleven birds that are considered "regular migrants" and four introduced game birds that are "not open to public hunting" are distinguished by asterisks.

The list of "Literature Cited" and the index are thorough and useful. The book shows careful writing and proofreading throughout. Nomenclature includes the scientific name and the common English and Hawaiian names for each bird treated, except that the Hawaiian name is not given for any bird listed in the appendices.

This gap in Hawaiian names will be a disappointment to readers who use these names, or would like to know them, for some of the common migrants like the Pacific Golden Plover or Kolea. This disappointment will be reinforced by the brief treatment these familiar species receive in the appendix. The main emphasis of the book is on breeding populations and, where data is available, on the breeding biology of these birds. Similarly, the book is not designed to be a bird-identification manual. For a different reason, the reader should not be surprised to find little or no mention, let alone a full description or illustration, of some exotic bird seen occasionally, or even frequently, in his neighborhood in Hawaii. As stressed in the book, records are sadly incomplete on exotics released in the wild in Hawaii--in addition to which, the makeup of these exotic populations is in a constant state of flux, with new species (escaped or released cage birds) becoming established and established species fading out. No book can be complete or up to date on those birds.

Regarding its up-to-datedness in general, the book was a long time in press. The preface is dated October 1970, and the book went on sale in February 1973. During that two-year-plus interim, new discoveries have been made and new information has come to light on birds in Hawaii. Although some manuscript revisions and up-dates are evidenced by occasional citing of 1971 and 1972 dates, it is apparent that 1969-1970 is the cutoff period for much of the data in the book. Nevertheless, 1970 is "up-to-date" for all practical purposes, since the previous general book on the subject (BIRDS OF HAWAII by George C. Munro) was published in 1944. Clearly, HAWAIIAN BIRDLIFE is built to last as "the definitive work on the subject for years to come"--as stated on the jacket.

The book might have been titled "NEGLECTED HAWAIIAN BIRDLIFE." Much of it is addressed to what modern man has not done to study and conserve Hawaii's unique native birds. The author is explicit, for example, about the paucity of basic data on the breeding biology of Hawaii's disappearing endemics--and even on the more accessible populations of resident exotics. The illustrations tell the same story of neglect: not a single color photograph of an adult endemic honeycreeper. With due credit to Susan Monden's bright new paintings (showing careful attention to correct floral substrates) and to the classic portraits from Rothschild, a few good color photographs of live honeycreepers in their natural habitat would have been most welcome; apparently, none could be found. Scientists, foundations, nature photographers and conservationists take note: Hawaii is a wide-open field for original work on a unique and remarkable avifauna--while it lasts!

Will it last? The author views the prospect as "bleak"--but not hopeless. He takes man to task for his continued neglectful degradation of his life-sustaining biological environment in Hawaii. He concludes that "man as an animal species...is, indeed, a disease on the planet earth." In support of that judgment, he even undertakes "to dispense with the myth that the Hawaiians were conservationists." Although he cites their use of birds (for food, feather cloaks, etc.), he gives no evidence that they seriously depleted or eliminated any bird species before the arrival of Captain Cook and the consequent destruction of Hawaiian culture, including the conservation effect of the early kapu system. Although he is on unfirm ground in judging the early Hawaiians, his main point about modern man appears well taken and amply demonstrated. In using this book to chronicle the ecologically-careless acts of his fellow men in Hawaii, the author is saying "Read it and weep!" He is saying, also, "Do something about it!" Those readers who care, will.

Ahihi-Kinau Proposed as Natural Area Reserve

Released 5 March 1973 by Natural Area Reserves System Commission, State Department of Land and Natural Resources

Cape Kinau, Maui's last known lava flow, and the waters adjoining it are proposed as Hawaii's first Natural Area Reserve under provisions enacted by the 1970 Legislature. A public hearing on the proposal is to be held beginning at 7 P.M. on March 12 in the State Office Building, Wailuku. Besides its geological fame, the area is known to contain unusual plants and aquatic animals as well as outstanding example of native marine communities.

Act 139 of the 1970 Legislature recognized continuing loss of natural assests resulting from increasing growth and development. It called for the establishment of a State system of reserves, to protect and preserve in perpetuity important geological features, rare and endangered species, and specific land or water areas containing native flora and fauna in natural unmodified communities. Act 139 also provided for a Commission within the Department of Land and Natural Resources composed of scientists and administrative experts to evaluate areas of high natural quality for consideration as permanent reserves. That Commission, under the chairmanship of Dr. J. Linsley Gressitt of the Bishop Museum, has nominated several locations throughout the State. Cape Kinau is the first candidate area to reach public hearing status.

The proposed site, located at the southwest point of Maui Island, consists of 1,238 acres of State-owned lava land and 807 acres of surrounding water including the southerly third of Ahihi Bay. Three main reserve components are: lava fields with kipuka that contain evolving dryland vegetation; inshore marine waters with a great diversity of fishes, corals and other invertebrates; brackish ponds and restricted tidepools within the lava that have unusual flora, fauna and environmental character. The area has been surveyed and qualified through the joint efforts of more than a dozen scientists and experts. Its unique aquatic animals are being studied by the University of Hawaii specialists as well as taxonomists from the Smithsonian Institution, the Canadian National Museum, and the Netherland's Rijksmuseum.

Evidence based on a comparison of maps drawn by explorers La Perouse (1786) and Vancouver (1793) indicates that Cape Kinau was formed about the year 1790. The lava came from separate eruptions at Ulupalakua and Kalua o Lapa, a puu about one mile mauka from Keoneoio (La Perouse) Bay. Nearly all of Cape Kinau was formed by the Kalua-o-Lapa flow. This provides an important feature because the reserve can include an entire, intact lava flow from source vent to undersea extension, a situation not possible elsewhere in the State on such a small area. It is a striking, turbulent flow consisting mainly of rugged aa with high ridges, lava tubes and many tumuli and fissures. Several features of Hawaiian antiquity are present, the most obvious being well-preserved ruins of Moanakala, a small fishing village at the shore of Ahihi Bay.

Native land vegetation consists of milo and wiliwili trees, naio, nehe and'auhuhu (the Hawaiian's source of fish poison) shrubs, pili grass, and also several species of plants introduced by ancient Hawaiians, such as hala and noni.

Submerged lands and waters surrounding the Cape to a depth of about 60 feet have been included in the proposed reserve boundaries. These marine waters sustain a great variety of species in natural communities that have not been seriously modified by exploitation and pollution. At least 23 species of stony corals occur in the southern end of Ahihi Bay. It is the greatest diversity of corals known from such a limited area within the State. Fish species are also diverse, particularly among the more common families of reef dwellers such as butterflyfishes, surgeonfishes, and wrasses. Several rare and uncommon fishes were observed. The diversity of species and broad size range of individuals within many species suggest importance as a breeding area. This has been substantiated by a study of larval fishes netted in open nearshore waters. Ninety species of larval fishes have been collected in the vicinity of Cape Kinau, more than four times the average number of species found at locations elsewhere in Hawaii.

Ponds and pools within the fractured lava provide the most unusual natural feature. They contain brackish water whose level rises and falls with the tide, indicating subsurface connection to the sea. Because connection to the ocean is so restricted, the species of seaweeds and aquatic animals are peculiar and few in number. Common marine predators and competitors are excluded. Crustaceans are the dominant animals

and several new species have been discovered. These include two blind shrimps, one of which is a very primitive type whose only near relative occurs on Acenscion Island in the south-central Atlantic. The loss of vision and red color of some species suggests that they show evolutionary adaptation towards underground life, as within the fractures and crevices of lava. A few fishes, worms, mollusks, and other invertebrate animals occur in some of these habitats, as do strange growth forms of algae. Such pools exist only in some of the more recent lavas and therefore are unique to Cape Kinau on Maui and shoreline zones of Hawaii Island.

The purposes of a reserve are to protect natural attributes for education and research, and especially to provide a baseline by which changes man is causing elsewhere can be assessed. Protective regulations are necessary to accomplish these objectives. Public use must conform to activities that do not modify, degrade, or destroy the natural values. Regulation encourages people to observe, enjoy and photograph these assets without modifying them. Regulation would prohibit pollution, littering, and the damaging, exploitation or removal of living or mineral resources.

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Audubon's position statement to Kenji Eigo, Division of Fish and Game, by William P. Mull, 3 April 1973

This is to re-affirm in writing...the substance of my oral testimony on behalf of the Hawaii Audubon Society at the March 12, 1973 public hearing at Wailuku, Maui, over which you presided as Hearing Master, concerning the proposed Ahihi-Kinau Natural Area Reserve and Regulation 7.

The Hawaii Audubon Society strongly supports the proposal to establish the Cape Kinau and Ahihi Bay areas as part of the Natural Area Reserve System (NARS) of Hawaii. The NARS concept, as outlined in Act 139 of the 1970 Legislature, is of great importance, in the view of our Society, as one effective means toward the better protection we seek for Hawaii's native wildlife and ecosystems.

Above all, we see the NARS as a realistic approach to insuring the long-range availability to the people of Hawaii of their living heritage: a host of diverse and unique life forms of untold potential value as natural resources for future generations of people here. These native species and ecosystems are the real Hawaii, the basic Hawaii; once gone, they cannot be re-created and their potential benefits will be lost forever. These native plant and animal populations can be assured of viable, healthy, productive condition only by insuring the perpetuation of adequate segments of their life-sustaining natural environment in an undisturbed state. This cannot be done in a museum, or even in a zoo, or herbarium, or laboratory. The NARS approaches this problem objectively--and solves it surely, simply and realistically.

We have followed closely the genesis and development of the Ahihi-Kinau Natural Area proposal. We are satisfied that it was conceived and researched with great care and insight, in all its facets and implications--and that it fulfills the intent, purpose and criteria set down for the NARS in Act 139. We support it unconditionally as an essential step in the establishment of a series of unique or representative self-sustaining Natural Areas of prime resource value to the people of Hawaii for generations to come.

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Audubon's Position Statements

To: Senator Kenneth F. Brown, Chairman, and members of the Committee on Ecology, Environment and Recreation by Mae E. Mull, 14 February 1973

RE: Senate Bills 35 and 37

...I have been authorized by the Executive Board to give the position of the Hawaii Audubon Society on a permanent State Commission on Population. ...

We see a direct connection between the rapid population increase and the decline of Hawaii's natural environment. The National Audubon Society and other nation-wide conservation groups give high priority to population stabilization programs. Excessive exploitation of our natural resources comes from two demands. The first is the sheer weight of an increasing number of people. The second is the increasing consumption per person. ...

More highways, more freeways, more airports and runways, more tourist resorts, more power plants, more towers and transmission lines on the mountains, more dams and

water diversion, more golf courses (even on a filled-in lake)--all of these enterprises have devastating effects on the remaining unique natural areas of Hawaii. This legislative committee knows well the sad story of extinction and threatened status of Hawaii's endemic birds that are Hawaii's priceless natural heritage. But people today and tomorrow, no less than native birds, need decent living space if they are to survive as viable elements in this finite island system. Man manipulates nature but often forgets his own dependence on natural processes. We must control our human numbers or suffer the inevitable consequences of overpopulation. ...

To: Representative Stanley Roehrig, Chairman, and members of the House Agriculture Committee by William P. Mull, 21 February 1973. RE: HB 212

...The Department of Agriculture invited our participation in the development of this proposed legislation--HB 212--along with other community organizations. We believe the result is an effective and necessary revision of Hawaii's laws concerning introduction and release of foreign plants and animals that are potentially destructive to our Hawaii natural environment.

Without the flourishing natural ecosystems that comprise our native plant and animal communities, our basic natural resources of soil, water and air will be degraded and depleted. Since agriculture and other basic requirements for sustaining human life on these islands is directly dependent on these resources, it is vital that we protect and conserve this natural environment. Increasingly, experience and new knowledge impress upon us how fragile our island ecosystems are in the face of artificially introduced foreign plant and animal invaders from the continents--and the foreign disease organisms that accompany them.

The bill before you tonight is designed to give the Department of Agriculture a stronger and steadier hand in administering our quarantine functions and controlling the purposeful or accidental introduction of destructive foreign organisms into our vital and fragile island environment. It is unquestionably a necessary step in the right direction, if we are to leave a viable natural environment and the means to a sustained high quality of life to those generations of people that will succeed us on these islands. ...

To Representative Richard H. Wasai, Chairman, and members of the Committee on Parks and Fish and Game Management by Mae E. Mull, 19 March 1973

RE: House Resolution 170 - Requesting that the Fish and Game Division of the Department of Land and Natural Resources submit a report on the problem of feral sheep on Mauna Kea

The Hawaii Audubon Society supports the intent and substance of HR 170 in seeking to resolve the problem of feral sheep on Mauna Kea. ...

The Division of Fish and Game tells us that they have a "legislative mandate" to maintain a sustained yield of feral sheep on Mauna Kea--presumably to meet the demand of a small group of Big Island hunters. If such a mandate exists, it should certainly be repealed by this Legislature. The solution to the feral sheep problem surely lies in getting them off the mountain. The Society recommends more specific language to that effect in HR 170. ...

To Representative Jean S. King, Chairman, and members of the Committee on Environmental Protection by Mae E. Mull, 19 March 1973

RE: House Concurrent Resolution 69 & House Resolution 260 - Relating to Salt Lake

On January 31 this Committee gave close attention to the position of the Hawaii Audubon Society on the singular value of Salt Lake as Hawaii's only lowland natural lake, as open space, and as valuable habitat for endangered Hawaiian waterbirds--especially the Hawaiian Stilt and the Hawaiian Coot. We would ask that the spoken presentation, the projected slides, and the written material submitted to the Committee on that occasion also be considered in support of the two present resolutions. The Society agrees wholeheartedly with the intent and substance of HCR 69 and HR 260. ...

Addendum: In response to Committee questions--Despite continuing efforts by the Society since 1939 for public acquisition of permanent refuges for Hawaii's endemic waterbirds that are threatened with extinction, major wetland habitat continues to be destroyed or converted to other uses. Act 49 was passed by the 1972 Legislature,

INDIGENOUS AND ENDANGERED BIRDS AND MAMMALS CONSERVATION ACT. No action has been taken to acquire or even give permanent protection to State-owned wetland habitats. Also, scientific research on the biological requirements of the Threatened HAWAIIAN STILT and HAWAIIAN COOT is seriously needed and could be done by the State under available federal Pittman-Robertson funds.

To Representative Jack K. Suwa, Chairman, and members of the House Committee on Finance by Mae E. Hull, 2 April 1973
RE: HR 233, relating to the preservation of Hawaii's native forests and to the establishment of objectives and policies thereto

The Hawaii Audubon Society appreciates the opportunity to present its position on the conservation of Hawaii's native forests. The Society's primary mission is to get better protection of the unique Hawaiian ecosystems that still exist, including the native birds, plants, insects and other natural elements that are integral parts of Hawaiian forests. ...

The...Society supports the policies and goals contained in this Resolution 233. ...

To Senator Kenneth F. Brown, Chairman, and members of the Committee on Ecology, Environment and Recreation by William P. Hull, 6 April 1973
RE: Senate Resolution 227--relating to acquisition of private property on Paiko Lagoon

The Hawaii Audubon Society still supports State action to make Paiko Lagoon a sanctuary for the Hawaiian stilt andother waterbirds, including acquisition of the property in question for that purpose. Therefore, we support the intent of SR 227 to get an estimate of that cost. Our support remains qualified, though, as it was when we last spoke before this committee on the same subject on February 9, 1971 regarding Senate Bills 236 and 237 of that session.

The crux of the question, from our point of view, is whether Paiko Lagoon will indeed end up as a permanently and effectively protected refuge for the endangered stilt andfor the other waterbirds. If it won't, then we cannot support the expenditure of public money under the label of that purpose. ...

To Hearing Officer, Hawaiian Islands Wilderness Proposal, Hawaiian Islands National Wildlife Refuge, US Department of the Interior by William P. Hull, 14 April 1973
RE: Hawaiian Islands Wilderness Proposal

The Hawaii Audubon Society strongly supports the Hawaiian Islands Wilderness Proposal. We have read the explanatory green-covered brochure and the Draft Environmental Impact Statement concerning this proposal and are satisfied that the objectives and management criteria stated therein are sound and desirable. We are satisfied also that the environmental values and rationale presented in those documents as the basis for this proposal are adequate.

We have one serious question to raise, though. If the submerged lands are an essential part of the proposed Wilderness Area because of their close ecological association with the emerged lands--with which we agree entirely--then why are not the inshore waters above those submerged lands included also in the proposal? ...

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Good News: HONOLULU STAR-BULLETIN, 4 April 1973, page A-5: Navy Will Free Bird Acreage at Kaneohe

WASHINGTON--Senator Hiram L. Fong announced today that 506 acres at the Kaneohe Marine Corps Air Station are surplus to Navy needs and will be relinquished for continued use as a bird sanctuary for the Hawaiian stilt.

He said the Navy already has informed the Armed Services committees of both houses of Congress, which will take action on disposal of the land after 30 days.

The land was acquired by the Navy between 1942 and 1952 for expansion of the base. When this area is relinquished, the air station still will have 2,459 acres.

The surplus area is made up mainly of marshland and contains several large ponds. In addition to its use for amphibious vehicle training, it has been maintained as a sanctuary for the Hawaiian stilt, which is on the endangered species list.

The Navy said it will report the property excess of its needs to the General Services Administration with the condition that "on the conveyance of this property

to a State or federal agency (it would be) for use as a bird sanctuary with the reservation of rights for continued amphibious training and helicopter overflights."

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EXCERPTS: Minutes of the Hawaii Audubon Society general meeting, 16 October 1972

...Wayne Gagne reported on the October 8th field trip to the Waianae Range along the Kanehoa-Hapapa Trail to observe forest birds, land snails, insects and native plants. ...

William Mull reported on the status of native waterbirds at Salt Lake and the potential effects of the application now pending before the Land Use Commission to rezone thirty acres of the nauka lake and shore to urban use. ...

Mrs. Helen Devereux, a Society member and resident of the Salt Lake area, spoke about the work of the Concerned Citizens of Salt Lake and distributed leaflets to the audience about the threatened fill-in of the lake for a golf course and theproposed construction of more high-rise apartments around the lake.

William Mull gave a few highlights of the Third Annual Wildlife Symposium and the 14th Annual Forestry Conference that he and Wayne Gagne attended on Kauai, October 3-6. The serious damage to native vegetation by feral goats and the alteration of native ecosystems by feral goats were well documented in several of the papers presented.

After lengthy discussion at the Executive Board meeting on October 9th, the Board approved the motions to join with other environmental groups in a petition to the Federal Court to seek a temporary restraining order and an injunction to stop the State from awarding bids for the construction of the Reef Runway until the requirements of the National Environmental Policy Act have been fully compiled with. The Society's concern is that alternatives to the Reef Runway were only superficially mentioned in the Final Environmental Impact Statement. In addition, the consequences and mitigation for the loss of feeding grounds for the endangered Hawaiian stilt in Keehi Lagoon was not properly considered.

The Executive Board also approved the motion to join with other environmental groups in the current suit before the Federal Court to stop planning, design and construction work on the H-3 segment through Moanalua and Haiku Valleys until the State and federal governments have properly complied with the requirements of the National Environmental Policy Act. Since this suit is already in progress, the Society will be added as a petitioner if the attorneys consider it appropriate.

...The Board voted to contribute $100 in each suit toward the Society's share of the actual court costs and fees for document preparation and filing. Life of the Land law student, Cindy Winegar, and the attorneys Michael Sherwood and Brook Hart are donating their services.

Due to increased postage fees and paper costs, the Executive Board voted to increase the dues for out-of-state members and organizations from $2.00 to $3.00. Hawaii membership dues will remain at $3.00 for at least one more year, as will the Junior member dues of $1.00. Life membership dues were raised from a single fee of $50.00 to $100.00. The Board decided that an evaluation of the dues structure and expenditures should be made during 1973, so that the Society's publications and program are fully supported from dues income. The book account is kept separate for possible research grants and for publishing a new edition of HAWAII'S BIRDS in the future.

Mr. Paul M. Howard, Western Regional Representative of the National Audubon Society, gave a short talk on the origins of the Audubon movement in the United States. He also reviewed briefly the 10 Audubon National Priorities for the 1970 decade. ...

In the panel discussion that followed on "The Audubon Mission in Hawaii," problems in halting the depletion and degradation of native Hawaiian ecosystems were presented. Steven Montgomery discussed the problems of sustaining diversified native forests with the continuing spread of exotic vegetation and emphasis on introduced tree plantations. Biological control through thoroughly tested insect species may retard the rapid spread of guava. Plantings with native flora and maintenance of native forests need higher priority if threatened species are to survive in the future.

Wayne Gagne stressed the protection that native biota require from the depredation of introduced game animals. Management practices based on sustained yields of exotic game, rather than on carrying capacity of the range, have drastic effects on native

ecosystems. Julia Yoshida spoke of the need for education materials on Hawaii's unique natural environment for teachers' use in developing classroom projects. Only with knowledge of Hawaii's natural heritage can we stimulate concern and desire to protect it. Paul Howard stressed the Audubon responsibility to build up public awareness of man's dependence on the natural environment. Public awareness of what is happening to native plants and animals through the loss of habitat can create political pressure for stronger conservation practices. William Mull raised the issue of human population growth in the islands as the biggest problem of them all. ...

20 November 1972

...William Wingfield reported on the November 12th field trip to shorebird areas. ...Evidence of recent illegal shooting at the Waipio Peninsula settling basins. Flocks of pintails and shovelers were sighted at Salt Lake. ...

Mr. Mull spoke of the events connected with the environmental impact of the Reef Runway Project. Judge Samuel King of the Federal District Court issued a Temporary Restraining Order on November 8th against the opening of the runway construction bids. At the same time Judge King set a Court date of December 1st for a Hearing on the Petition by the environmental groups for a Preliminary Injunction to stop the runway construction until the legal requirements of the National Environmental Policy Act are fully complied with. (The Hearing date has since been changed to December 13th.) The environmental groups ask that detailed consideration be given to alternatives to the Reef Runway in seeking safety and noise reduction. The Society is one of the plaintiff groups. ...

The Society gave testimony on October 20th and November 16th before the Land Use Commission opposing the rezoning of 30 acres of Conservation District Land at Salt Lake to Urban use. ...

For the program several members of the student team from the University of Hawaii discussed their findings and presented slides on the Waihoi Valley Project, East Maui, in the summer of 1972. The team leader, John Kjargaard, told of the planning, organization and support of the study project by the National Science Foundation. Mr. Kjargaard spoke of the ecology of Waihoi, next to Kipahulu Valley, and the several scientific studies conducted by the team. Other team members, including Tonnie Casey, Patrick Conant and Betsy Harrison, described their observations and findings while studying the ecology of Waihoi Valley, associated with the soil, plants, birds, insects and rats in the different study areas. The team is organizing a study project for the summer of 1973 for the Upper Hana Forest Reserve, Maui. ...

11 December 1972

...Upon the invitation of Director Erskine, officers took part in discussion of new draft legislation by the Department of Agriculture on tighter restrictions on the importation and quarantine of exotic plants and animals into Hawaii on December 5.

At the December meeting of the Animal Species Advisory Commission there was discussion of stronger protection of the Green Sea Turtle through regulation and perhaps a new law. Also, Fish and Game Division will circulate a leaflet on the endangered status of the Hawaiian Crow on the Big Island to hunters and others who visit Hawaiian Crow habitat. Mr. Takata asked the Society's help in posting areas on Waipio Peninsula and near the settling basins to help stop the illegal shooting of shorebirds and migratory ducks that has been going on there.

Educational efforts by officers Wayne Gagne and Bill and Mae Mull include leading an ecological field trip for Julia Yoshida's Environmental Science class to the Waianae Range and a talk-slide presentation to a Kalani High Biology class. Now available to officers is a slide set of the color plates from Wilson and Evans, BIRDS OF THE SANDWICH ISLANDS, to use in giving talks to groups.

Mrs. Peggy Hodge is willing to represent the Society on the Kawainui Swamp-shopping center issue on the Windward side. Conflicting with the proposed shopping center are Honolulu County plans for a Regional Park and Bird Refuge at Kawainui.

The 'I'iwi has been sighted on Oahu after no firm reports for several years! Wayne Gagne and Alan Hart reported an unmistakable observation of the 'I'iwi a few days earlier on Dupont Trail on the north flank of Mt. Kaala in the Waianae Range, along with a

probable Oahu Creeper. Lorin Gill had reported seeing an 'I'iwi in the Palikea area of the Waianae Range about two months ago. Bill Mull reported that he heard and then saw a 'I'iwi on the jeep road of Poamoho Trail on the morning of December 9. A short time later a hundred yards down Poamoho Trail Mae Mull observed a pair of 'I'iwi for ten minutes feeding on paper bark blossoms. These sightings of 'I'iwi in both the Waianae and Koolau Ranges brings to mind John Obata's suggestion of continuing 'I'iwi and 'Apapane movement between the islands. Oahu populations may be replenished by Kauai flocks of these two species. Supporting this theory is the fact that I'iwi and 'Apapane have not evolved into separate subspecies on the different main islands.

Bill Wingfield reported seeing in the previous week the single little Blue Heron at the settling basins on Waipio Peninsula that has been resident there for several years.

John Topolinski, a graduate student in education and teacher of Hawaiian culture, presented an unusual and fascinating program on ancient Hawaiian featherwork. He brought a large selection of materials to explain and demonstrte the step-by-step process the Hawaiians followed in gathering, preparing and preserving different types of feather garments and kahili for the royal ali'i. The Hawaiians were pragmatic conservationists. They used their limited natural resources, such as forest birds, with care; they didn't use them up. 'I'iwi and 'Apapane were taken in abundance for their feathers and then used for food. These two species could withstand such harvesting and remained common forest birds long after the arrival of continental man.

Men assigned to the craft had refined techniques in capturing birds, plucking them and assembling the feathers for capes. Women had the job of sorting feathers but never touched capes or helmets. Only men made and wore the feather capes and helmets. Women could wear feather leis but men did not. The effect of the Hawaiian kapu system was conservation of native birds. No known bird species became threatened with extinction until continental man arrived in Hawaii and introduced firearms, cattle, goats, sheep, exotic birds, exotic plants and insects, the mongoose and mainland rats--not to mention his extensive destruction of forested areas. ...

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ALOHA to new members:

Junior: Christi Morgan, 4022 Nuuanu Pali Drive, Honolulu, Hawaii 96817
Lori Yoshida, 3502 Kahawalu Drive, Honolulu, Hawaii 96817

Regular: Mary E. Abbott, 364 Colville Blvd, London, Ontario, Canada N6K 2J5
Drs.N.S. & K.A. Halmi, Route 6, Iowa City, Iowa 52240
Dr. Dan F. Keeney, 1500 Massachusetts Ave,NW, Washington, DC 20005
Curt Schmitz, Environmental Educ Cen, 550 Halekauwila St, Hon. 96813
Mrs. W.K. Steeve, 527 Clark Ave, Council Bluffs, Iowa 51501
Mrs. Lois Mae Young, PO Box 44, Waipahu, Oahu 96796
Fiji Museum, PO Box 2023, Suva, Fiji

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The annual index will be mailed to the members only upon request, so if you are interested in receiving a copy, please send in your reservation before July to Kojima, 725-A 8th Ave, Honolulu, Hawaii 96816

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MAY ACTIVITIES:

13 May - Field trip to Peacock Flat to study native forest birds. Bring lunch, water, and if possible your car. Transportation cost ($1.00) to be paid to the drivers. Meet at the State Library on Punchbowl Street at 8:00 a.m. Leader: Charles van Riper. For information call Tonnie Casey 988-4362.
14 May - Board meeting at McCully-Moiliili Library, 6:45 p.m. Members welcome.
21 May - General meeting at the Waikiki Aquarium Auditorium at 7:30 p.m.
Speaker: Dr. Frank Radovsky, Chairman Entomology Dept, Bishop Museum
Topic: Birds, Parasites and Diseases

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