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CAPTURE AND RELEASE OF A LAYSAN ALBATROSS ON HAWAII ISLAND

By Barbara Lee

During Easter week of 1981, a Laysan Albatross (*Diomedea immutabilis*) landed on the Kona coast of Hawaii Island, and had several stressful experiences before returning safely to sea.

The "seabird" was first spotted about 4:30 p.m. April 16 at the Natural Energy Laboratory on Keahole Point, one mile south of Kona Airport. While under observation, it landed on the 1801 flow of broken pahoe-hoe (lava) on or close to the entrance roadway to the Laboratory. The bird was chased and captured by several workmen. They attempted to feed it (unsuccessfully), then kept it captive overnight in the tire well of a pickup truck, covered with a canvas tarpaulin.

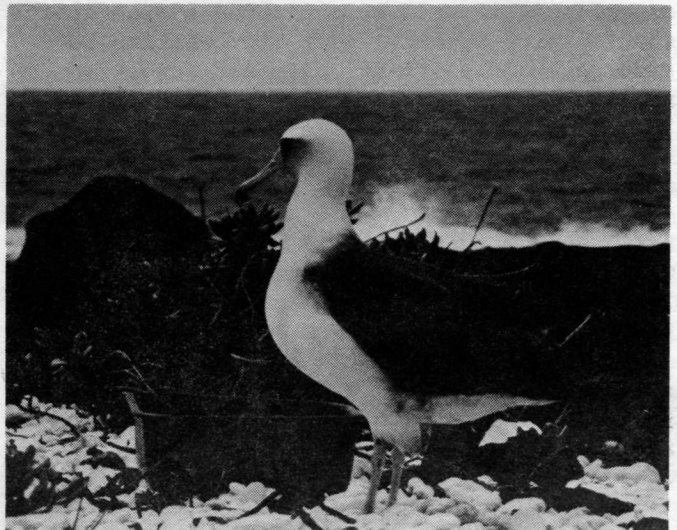
Early the next morning, on the Good Friday holiday, Laboratory Director Larry Hallinger transferred the bird to a fenced enclosure. He notified Kona police, who contacted Jimmy Paul, State Conservation Enforcement Officer, who in turn called me at about 12:30 p.m. I arrived at the Laboratory at 2:00 p.m. and checked the bird's description by telephone with Kay Kepler, who confirmed its identification as a Laysan Albatross.

The bird was inside a fenced area covering approximately 3 acres of graded, rough lava chunks 5 to 15 cm in size. It was in a far corner nearest the ocean. The plumage seemed in good condition except for the tail and the primaries on the folded right wing. It was sitting on the lava, alert, with eyes clear and with no visible signs of injury. I approached to 1 m distance trying to provoke it to rise. It snapped its bill, but refused to stand. The right leg, visible under its plumage, was flesh-colored, tinged with gray. Slight abrasions were noticeable on the leg and web, but were not bleeding. The eye and mandible membranes appeared moist, although still drier than seems characteristic of terrestrial birds.

We caught and examined the albatross; it was not emaciated and its crop was at least half full. We applied Furacin to the abrasions and gave it approximately 2 cups of water by tube. We checked the wings, legs and other body parts and found no noticeable injuries. The bird seemed weak but still "snappish".

We removed it from the compound to a sandy road area, and faced it into the wind for possible maneuvering for takeoff. It was stressed, and panted heavily for the next 30 minutes. It then moved awkwardly into a naupaka clump, lowered itself onto the sand, and remained in that position for an hour and a half.

At about 4:45 p.m. the prevailing wind died. By now the bird appeared calm and alert but still showed no sign of wanting to attempt a takeoff. We provoked it into walking the short distance back into the compound where



Laysan Albatross photographed on
land near Kona.

Photo by B. Lee

it remained for the night. When I left at 5:30 p.m. the bird was sitting near the fence and seemed calm and comfortable.

The following morning (April 18), the gate to the compound was opened at 8:30. The bird walked out on to a coarse coral substrate near a naupaka clump, and was still there when I arrived about 1:00 p.m. I had brought some squid, but was reluctant to try force feeding except as a last resort. We put the squid in a shallow pan in 10 cm of water and placed the pan on the coral. We attracted the bird's attention by waving the squid and sloshing them through the water, then moved the bird close to the pan. The bird showed interest in the squid, but did not eat.

We moved away a respectable distance and watched. We had noticed that the abrasions looked improved, except for one on the right leg joint. The bird remained on its feet facing into the wind for about 15 minutes. The wind freshened and the bird stretched its wings full length, then folded them again. It extended its bill and neck, and uttered a "mooing" call several times. This was the only sound we heard on either day. It craned its neck, looked at the squid and preened near its left shoulder.

At 2:10 p.m. it extended its wings and took off into the wind, using about 15 m of coarse coral for easy lift off. It immediately headed for the ocean, strong and sure in flight and steady in direction, staying not more than 25 to 30 m above the water. It showed no hesitation and did not circle, but flew straight out to sea in the general direction of Oahu and Kauai. We felt cheered and indeed exhilarated that this magnificent creature, having endured such unpleasant experiences in such unaccustomed surroundings, should, with dignity, pick its own time to rise up and fly off strongly and surely to return to the high seas.

I could find only one prior report of a Laysan Albatross ashore on Hawaii Island--a mention by Wilson and Evans (1890-99, *Aves Hawaiiensis*, p. 217) of a specimen in the Paris Museum that was killed by Theodore Bailleu on Hawaii in the summer of 1876. One was found dead at Hauola Beach, Lanai Island in March 1980 ('ELEPAIO, 41:72), but otherwise the species has been recorded in the main islands apparently only near the nesting sites on Niihau and Kauai, and with a few scattered reports of its occurrence on Oahu and nearby Moku Manu.

I wish to acknowledge the interest and assistance (by telephone) of Angela Kay Kepler of Kula, Maui, in confirming the identification of the albatross; Robert Shallenberger

of Kailua, Oahu provided (also by telephone) both expert advice on feeding and care of the captive bird, and helpful counsel on alternatives for its release or disposition; the interest and direct assistance of Robert Pyle is also gratefully acknowledged. Without his editing of my extensive notes, and his persistence in encouraging my contribution, this most significant occurrence of a Laysan Albatross ashore on Hawaii Island would not have become known to the outside community. And finally, without the deep interest and concern of Larry Hallinger, Executive Director of the Natural Energy Laboratory, this gentle bird probably never would have been able to return to sea.

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RED-VENTED BULBUL FEEDING ON A GECKO

by Richard N. Williams
and
Michael P. Moulton

On 31 July 1981 at 0720 in Koko Crater, we observed an adult Red-vented Bulbul (*Pycnonotus cafer*) with a gecko in its bill. The bird was perched on an exposed twig of a kiawe tree (*Prosopis pallida*) approximately 14 m above the ground and uttering low clucking sounds. We do not know whether the bird captured the gecko alive or found it dead; the gecko was not moving when we saw it. The Red-vented Bulbul normally feeds on fruit and insects in Hawaii, although it has been suggested that small reptiles might also be taken (van Riper et al. *Wilson Bull.* 91:323-328, 1979). This observation confirms the suspicions of these authors. We do not know how important small reptiles are to the diet of the Red-vented Bulbul in Hawaii. But the ability of the species to utilize a novel resource might be responsible, in part, for its success on Oahu.

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STATUS OF HAWAII'S ENDANGERED SPECIES: INSECTS AND LAND SNAILS

Wayne C. Gagné

More insect species, some 1 million of them, have been described than any other group of organisms, while the Mollusca are also one of the larger non-arthropod phyla with upwards of 150,000 species (Meglitsch 1972). In the Hawaiian Islands these two groups are represented by about 7000 insect species, which are almost wholly terrestrial, and by about 2000 molluscans, of which about half are terrestrial (Kay 1979, Christensen, pers. comm.). I will try to assess the status of these 8000+ native terrestrial taxa and mention or compare these with the situation pertaining in other Pacific Basin countries and territories. In some ways, my task is very much simplified by the fact that there are no species of arthropods or snails officially recognized as endangered in Hawaii or in our other Pacific territories at this time. Furthermore, Americans are constantly pummeled by the Madison Avenue "hadabug" gang urging us, often in broken English to use, for example, a product which "kills bugs dead." They must consider us all to have a profound squeamishness about arthropods because I have yet to see an actual insect appear in any several TV aerosol insecticide commercials, unless I am confusing their monstrosities with fantastic new phyla, genera and species of arthropod-like forms.

As regards insect conservation, some other Pacific nations are far ahead of us. Japan, for example, recognized endangered insects as early as 1950 when 30 species were specified on a national basis under the Cultural Properties Act. There are also a considerable number of protected insect species on prefectural, city, town and village bases. These protected insects are not limited to esthetically pleasing butterflies and dragonflies, but also extend to cicadas, wasps and water-striders (Asahina 1980).

Lest the reader consider Japan exceptional, consider third-world Papua New Guinea (PNG), where in 1973, two years before independence, they declared all birdwing butterflies (Papilionidae: genera *Ornithoptera* and *Triodes*) as endangered if their commercial trade was not regulated. PNG became signatory with nearly 60 other countries to the Convention on International Trade in Endangered Species. Their spectacular Manus Island tree snail (*Papuina pulcherrima*) is similarly protected (Gagné & Gressitt in press).

New Zealand has also found wisdom in declaring amber snails (*Paryphanta* spp.) protected. The Australian National Parks and Wildlife Service have made a preliminary examination of the conservation status of Australian insects (Key 1978) and now proposes to add 10 species in five orders to the protected list (Mahood 1980). The Australian state of Queensland protects two butterfly species, the birdwing (*Ornithoptera priamus*) and the mountain blue (*Papilio uslysses uslysses*). The New South Wales National Parks and Wildlife Service is also reviewing certain insect species for protective status (Shipp 1981).

This is not to say that the U. S. has ignored designating insects and molluscs as endangered. On the mainland, these two groups are now getting attention in the Office of Endangered Species of the U. S. Fish and Wildlife Service. The latest "Box Score of Species Listings" in the May 1981 *Endangered Species Technical Bulletin* has 25 endangered and 5 threatened species of mollusca and 7 endangered and 6 threatened species of insects.

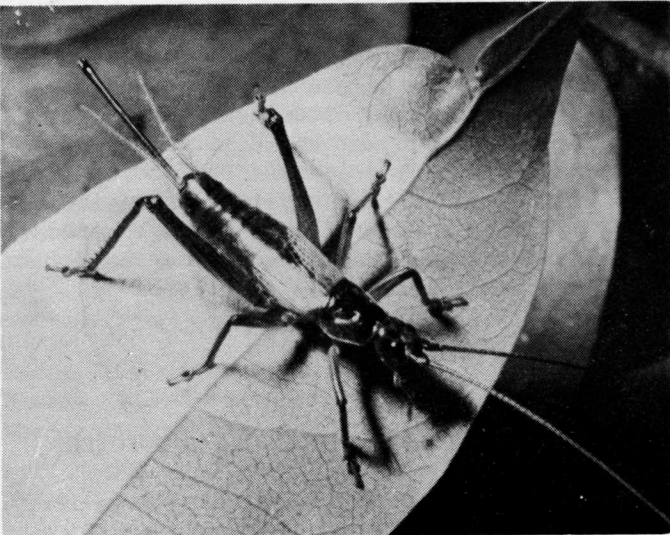
OFFICIAL PROPOSALS FOR HAWAII'S SPECIES

Efforts have been and are being made for recognition of endemic arthropod and snail species. Dr. Frank Howarth of the Bishop Museum has spent considerable time and effort into trying to list two species of extremely restricted Kauai cave arthropods, one affectionately known as the "no-eyed big-eyed hunting spider" or pe'e pe'e maka ole (*Adelocosa anops*), the other an uku noho ana amphipod (*Spelaeorchestia koloana*), only to have a legislative reshuffling of the Federal Endangered Species Act nullify their eligibility because of time limitations on meeting certain economic impact criteria. This was also a serious setback for numerous other proposals in the U. S. A. Recently, the Fish and Wildlife Service (USFWS 1980) proposed all of the extant species of the Oahu tree snail genus *Achatinella* as endangered. That this proposal enthusiastically supported by individuals and community groups, even surfaced was due to the considerable efforts of Mr. Alan Hart, both in the field and through federal channels (Hart 1978).

A court suit was recently initiated by the Environmental Defense Fund against Secretary of the Interior James Watt to contest the six-month postponement of endangered species status for these tree snails.

VALUE OF INVERTEBRATES

Why should we pay any attention to invertebrates, least of all insects, in matters of endangered species? Aren't furry things and birds that sing, so much nearer and dearer, than creatures that go "thump" in the night and don't appear to be too bright? Besides, they don't even show us any respect. Actually, we should realize that in terms of diversity, biomass, energy conversion, etc., this is the Age of Insects. The invertebrates represent the dominant consumer groups on



Hawaiian tree cricket (*Prognathogryllus* sp.) female, one of many native cricket species.

Photo by P. Galloway

oceanic islands, are the main food items for many of the endangered forest birds, and are probably important as pollination of native plants. Pyle et al. (1981) have succinctly listed some more attributes. They state "insects (and we could include snails) include important elements of native ecosystems; provide us with objects of esthetic and artistic appreciation; serve as subjects for important genetic, biogeographical, evolutionary, biochemical and ecological studies; furnish developing nations with non-destructive livelihoods; constitute eminent indicators of environmental degradation; provide us with food and natural products; and serve as natural control agents for the economically serious arthropod and plant pests."

CAUSES OF ENDANGERMENT

Here we consider the various habitat changes and impacts primarily associated with humanity's activities which have resulted in significant declines and possible extinctions of arthropods and snails in the Pacific.

1. Agricultural conversion

Conversion of natural habitats for plantation agriculture and grazing has been extensive in Hawaii, and has taken place in waves beginning early in the last century (Gagné 1975). Much of this conversion took place before comprehensive entomological surveys. Also, the shifting agricultural system of the Hawaiians also had their negative impacts (Zimmerman 1965, Kirch 1975) for we find that the composition of 750 year-old lowland fossiliferous snail deposits is largely of species now confined to mountain forests (Kirch 1975), if they have survived at all. For example, of the predominantly lowland pulmonate family Endodontidae, few of the estimated 200 species survive today, and these few do so on the isolated high-island remnant of Nihoa (Christensen pers. comm.). Mid-elevations (6-8000') on Hawaii and Maui Islands have been converted to grazing over extensive areas with almost complete reduction of the forest-adapted invertebrate faunas to those few species tolerant of pasture lands (Zimmerman 1948, 1965, Opler 1976). My colleagues and I at the Bishop Museum are now trying to reconstruct the entomofaunas of these disrupted regions and we will be relying heavily on 80-year old collections made for the *Fauna Hawaiiensis* surveys.

2. Loss of Host

"When insects (and molluscs) rely on specific animal or plant hosts whose numbers or ranges have become reduced, these specialists may become extinct long before their hosts" (Pyle et al. 1981). Host specificity is a common feature of the Hawaiian entomofauna and many phytophagous insects are known only from single plant species which are themselves often proposed as endangered and/or threatened (Gagné 1974), a case of biological double jeopardy. Although no review has been carried out, the extinction or range reduction of native birds has probably

resulted in the extinction or endangerment of an even larger number of host-limited ectoparasites (for example, see Goff 1980).

3. Exotic Introductions

The effects of various introductions of exotic animals and plants on native arthropods and snails, whether intentional or not, may be direct or indirect. Introduced plants degrade native ecosystems, often in concert with exotic mammals, and lead to loss of native arthropods and snails (see Mueller-Dombois et al. in press). Introduction of the European Hare to Laysan decimated native vegetation and resulted in the extinction of several species of miller moths (Opler 1976) and a biological chain reaction probably ensued with the disappearance of the miller bird largely dependent on these moths for food. Introduction of insectivorous fish may account for the virtual disappearance of the once widespread damselfly, *Megalagrion pacificum*. These examples are by no means exhaustive. Feral herbivores are causing desertification of portions of the higher and drier areas in the main islands. Ants also have been particularly devastating to native arthropods (Gagné in press).

4. Biological Control

Initially spectacular successes early this century with predators of the sugarcane leafhopper have placed biological control on a pedestal here. Criticism and careful analysis of the problems arising from introductions of biological control agents have been meager or ignored, especially in cases where invertebrate introductions are involved. Legions of predators and parasitoids have been introduced with scant attention to their impacts on non-target organisms, nor even in many cases to the impact on the target organisms themselves.

Demonstratively detrimental biological control agents such as the carnivorous snail (*Euglandina rosea*) continue to be foisted upon vulnerable native Pacific island Mollusca, ignoring the widespread protests of knowledgeable biologists (Whitten 1980). This happened most recently when American Samoa contracted with Guam for a shipment of *E. rosea* for use against Giant African Snail (*Achatina fulica*). Biological control schemes with high political visibility but with little biological integrity continue to arise, and more exotic organisms are introduced to our insular environments. A recent example is the on-going attempt at pineapple souring beetles (*Carpophilus* spp.) suppression in pineapple field

refuse with parasitoids and predators. This problem is surely amenable to simple cultural and field alterations. Our diverse (ca. 123 species), economically innocuous, and scientifically valuable souring beetle (*Nitidulidae*) fauna may well be in jeopardy as a result.

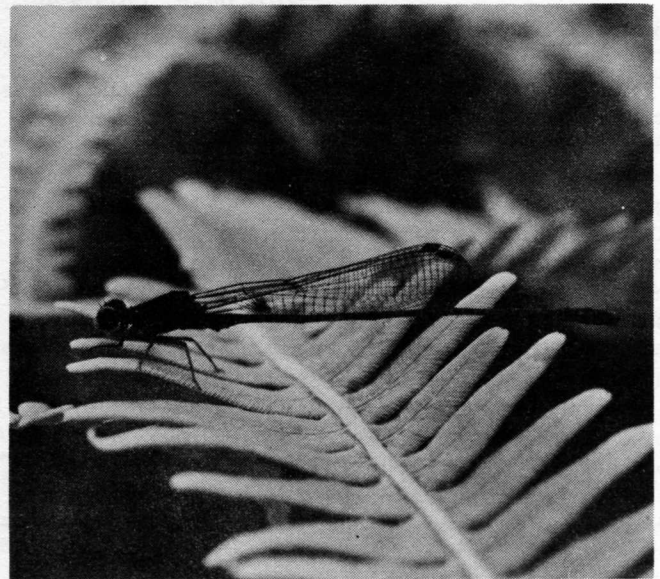
5. Aquatic habitat alteration and pollution

Stream diversion, channelization, drainage and clearance, especially in lower elevations (e.g. below 1500') has probably resulted in profound changes in aquatic arthropod communities. For example, a native damselfly, *Megalagrion pacificum*, once widespread throughout the main islands at low elevations, has virtually disappeared from former haunts. This provides us with an object lesson that widespread occurrence is in itself no guarantee of a species' safety.

Wetland alteration (for taro culture) has been so extensive that even by the time the first relatively comprehensive insect collections were made about a century ago, little indication remained of what entomofauna might have been present formerly.

6. Urbanization

Honolulu and its suburbs are located upon old collecting sites of several insect species that have not been encountered since the turn of the century, and are likely extinct.

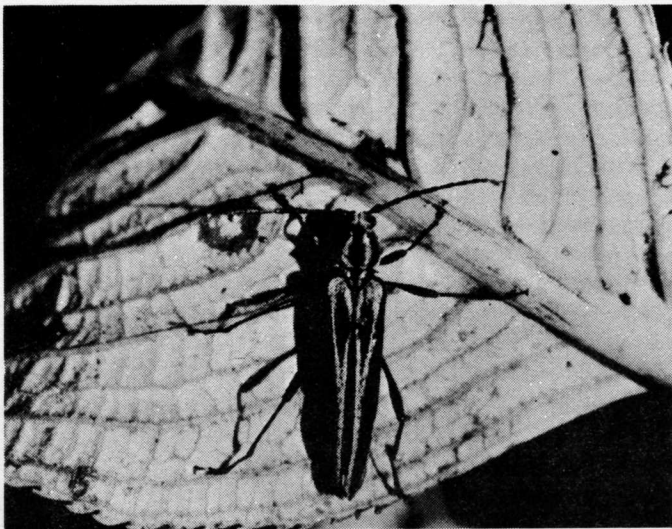


Hawaiian damselfly (*Megalagrion* sp.) male. Naiads are mostly aquatic, several live in leaf axils, and one is terrestrial.

Photo by P. Galloway

7. Light Pollution

Lights along streets and highways, particularly mercury vapor lamps which emit large quantities of ultra-violet radiation are attractive to nocturnal insects, have been implicated in population losses of night-flying insects elsewhere, particularly large moths (Leuschner 1975) and is likely an important detrimental factor in Hawaii and on islands in general (Howarth pers. comm.).



Hawaiian long-horned beetle (*Plagithmysus* sp.) from Oahu one of about 130 species, the larvae of which are mostly restricted to wood.

Photo by P. Galloway

8. Off-road vehicles

Coastal sand dunes and high-altitude cinder cones are especially prone to denudation and disturbance of their fragile ecosystems by off-road vehicles (Howarth & Montgomery 1980, Mull and Mull 1980). Depending on the site and location, dune buggies, motorcycles and 4-wheel drive trucks or jeeps have wrought serious damage. On Mauna Kea surface disturbance and boulder displacement, which shelter essential microhabitats during the summer dry season for specialized aeolian arthropods (Ashlock in press) and plants are of greatest concern. Degradation of native coastal vegetation has surely had severe repercussions for the dependent entomofauna.

9. Overcollecting

Although often mentioned as one of the chief threats to *Achatinella* land snails (USFWS 1980), there are no documented cases of extinctions of Hawaiian tree snails due

to indiscriminate collecting. However, those most likely to be interested in tree snail collecting may be the last to police themselves or to call attention to their own avarice. But this could not account for the apparent extinction of many minute species which were seldom collected by amateurs (Christensen pers. comm.). Most conservationists concerned about invertebrates feel that collecting large numbers of specimens from small natural populations is at least unethical, and as a result several entomological and other societies elsewhere have established collecting policies or guidelines.

10. Pesticides

Thus far, pesticides have largely been applied to non-native agro-ecosystems, and urban environments. Some already degraded streams in urban environments carry pesticides as do portions of Oahu's aquifer. On the island of Lanai there have been widespread aerial applications of insecticides in connection with fruit fly suppression experiments (Boving et al. 1980). This situation may be dramatically increased if the proposed Tri-fly Eradication Program is implemented since it would result in widespread, comparatively massive applications of malathion to the habitats of native insects and snails throughout the main islands of the Hawaiian Archipelago (Ketron 1980). Hopefully, this potential environmental boondoggle as it is presently conceived will never be implemented.

MANAGEMENT AND POLITICAL PROGRAM

U. S. Endangered Species Program

The U. S. Fish and Wildlife Service's Office of Endangered Species has funded a two-year survey devoted to the endemic arthropods of the Hawaiian Islands. This survey involves museum study, literature survey and some field investigation to determine arthropods which may be candidate species for federal listing and subsequent protection. This Bishop Museum-based survey began in May 1980.

Since a thorough survey of all the ca. 7000 native species of Hawaiian arthropods will probably not be possible within the two-year time frame, we have adopted an approach of examining large genera which fall into one of several ecological functional groups. These are: aquatic, semi-aquatic, phytophagous, anthophagous, detritivorous, predaceous, parasitic, and parasitoid

groups. Each species within such genera will be reviewed from literature sources, collections (principally those in the Bishop Museum, University of Hawaii at Manoa, and the Hawaii Department of Agriculture), and some will be supplemented by field spot checks. An "Index of Rarity" will be developed from the following criteria: distribution (altitudinal, geographic), seasonality, behavioral specificity (habitat, host), human and non-human perturbations, protective status, collection history and taxonomic understanding. Each of these categories will be given a "score" of 0 to 3. Those taxa scoring 23 or more will be considered candidates for endangered status, while those with 12 to 22 would be considered threatened. From these two groups will be produced: (1) a comprehensive list of potentially threatened or endangered species annotated with their current conservation status; and (2) data needed for proposals to place selected taxa on the Endangered and Threatened Species Lists. Data will be entered in a computerized information-retrieval system to be coordinated with other systems developed for the Office of Endangered Species.

As with the large proportion of Hawaiian birds, snails, and plants that are either officially or tentatively recognized as endangered or threatened, it is anticipated that a large number of the endemic arthropods will be eventually recognized as also having that potential.

Prognosis and future needs

Despite the flurry of invertebrate conservation activity nationally in the last decade, the field is still in its infancy. There are several major problems that stand between present goals and a meaningful, objective program. One of the major problems in determining which of Hawaii's invertebrates are endangered is our abysmal knowledge of their distribution, habitats and abundance. Also, we need to initiate or strive for habitat acquisition and protection and get meaningful measures to eliminate or alleviate detrimental perturbations on native arthropods and snails. Otherwise this conservation movement will not be more than a token effort.

A review of protective legislation for Lepidoptera in many countries (Pyle 1976) concluded that "although bans have often been legislated, these generally have been ineffective because appropriate habitats have not been protected, and habitat destruc-



Oahu tree snails, *Achatinella mustelinia*, adults and immature on mehame (*Antidesme pulvinatum*) leaf from Waianae Mountains.

Photo by P. Galloway

tion, not collecting, threatens most endangered insects." That quote appears just as apt for snails.

ACKNOWLEDGMENTS

I would like to thank Mr. Peter Galloway and Drs. Francis Howarth and Carl Christensen for information and constructive criticism, and Mr. Hans Megens for technical assistance. I am also indebted to the organizers of the Pacific Island Ecosystems Workshop for affording Hawaiian terrestrial invertebrates this deserved attention. Support for this paper was provided through a contract from the U.S. Department of the Interior, Fish and Wildlife Service. This article was adapted from a paper presented at the Pacific Islands Ecosystem Workshop, 29-30 September 1980 in Honolulu, Hawaii, and was approved for publication by the Office of Endangered Species, U.S. Fish & Wildlife Service, Washington D.C.

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OCTOBER CONSERVATION UPDATE

By the Board of Directors
Hawaii Audubon Society

Conservation Enforcement-Society members are urged to telephone enforcement authorities whenever suspected crimes against Hawaii's biota and other natural resources are observed. For Oahu, the 24-hour "hotline" telephone number of the State's Division of Conservation and Resources Enforcement is 548-5918. Telephone numbers for the neighbor islands are as follows: Kauai 245-4444; Maui 244-4352; Molokai 567-6618; Lanai 565-6688; Big Island 961-7921. The 24-hour "hotline" number for all neighbor islands is Enterprise Operator 5469. For violations that involve whales, porpoise or sea turtles (all of which are fully protected species), a call should also be made to Federal enforcement agents of the National Marine Fisheries Service at 955-8831 in Honolulu. In addition, certain wildlife laws relating to the sale and importation of endangered species are enforced by the U.S. Fish and Wildlife Service at 546-5602 in Honolulu. The earth's creatures and their habitat are unable to speak out in their own defense. They need your help. Please keep these telephone numbers handy and don't hesitate to use them when violations are seen.

NOMINATING COMMITTEE NAMED

The Board of Directors approved the Nominating Committee at the September 14 Board meeting. They are: George Campbell (941-1356), Sheila Conant (948-8241), Norris Henthorne (734-7562), C.J. Ralph (988-6921), and Susan Schenck (488-4974). If you would like to volunteer for a position on the Board, please contact one of the committee members.

REPRINTS OF ARTICLES

Reprints of articles in the *'Elepaio* are available to authors and others at the following rate: for 100 copies, \$10 per page of the article. For each additional 100 copies, add \$3.00 per page.

ALOHA TO NEW MEMBERS

We welcome the following new members and encourage them to join in our activities.

Joint (National and Hawaii): Joe Baldonado, Honolulu; Joyce Hashimoto, Honolulu; Bob and Jackie Leong, Honolulu; Chris Ospital and Family, APO San Francisco; George Gordon Raymond, Honolulu; LL Schreiner, Kaneohe; Wilma K. Tice and Family, Kaneohe; Mrs. Jean Tybuec, Honolulu; R. Walker, Aiea; Mrs. J.C. Yearwood, Kula.

Local: Mary Boak, Kaneohe; Edward H. Carus, Honolulu; Carl C. Christensen, Honolulu; Bryan G. Chun, Honolulu; Mark S. Collins, Volcano; David W. Eickhoff, Aiea; Thea C. Johanos, Hawaii National Park; Joshua Kohn, Hawaii National Park; Claire Luebbin, Honolulu; Michael Porter, Honolulu; Marianne Proctor, Mililani Town; Lenora Springer, Honolulu; Ghyslaine Vitiello, Honolulu; Masako Westcott, Haiku; Hayato Yamanaka, Honolulu.

Subscriber: Rebecca L. Beemer, Concord, CA; William E. Johnston, Los Angeles, CA; Tim Peddicord, Long Beach, CA; Richard N. Williams, Provo, UT.

Junior: Carina Carter, Mililani Town; Jay Kobayashi, Honolulu; Andy McMarlin, Kailua.

Life: L.W. Bryan, Kailua-Kona.

NOTE TO CONTRIBUTORS TO THE 'ELEPAIO

All contributions concerning natural history and conservation are welcomed, especially those pertaining to the Pacific area. The Editorial Committee wishes to encourage material from the Pacific Islands, such as the Trust Territory, Guam, American Samoa, and other areas. Articles on all natural history subjects are solicited.

It would facilitate the processing and review of your contribution if it could be submitted typewritten and double spaced, although this is not a requirement. All articles of a scientific nature are sent out for comments to at least two reviewers familiar with the subject.

To insure proper handling and rapid publishing of your contribution, it should be mailed to the Editor: C.J. Ralph, 3467 Alani Drive, Honolulu, HI 96822.

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SEE YOUR NAME IN PRINT!

The 'Elepaio would like to publish a brief report on the monthly meeting program, so that members unable to attend could at least know the highlights. Would you like to be our reporter? Please call 988-6921 if you would.

PUBLICATIONS OF THE SOCIETY

HAWAII'S BIRDS by the Society (1981). This is the best field guide to our birds, and includes colored illustrations of all native and well-established exotic species. \$3.95 plus postage: 70¢ (surface mail) or \$1.03 (air). Hawaii residents only: add 16¢ for tax.

FIELD CHECKLIST OF BIRDS OF HAWAII by R. L. Pyle (1976). A pocket-size field card listing 125 species found in Hawaii with space for notes of field trips. (Postpaid) \$.25
 (ten or more, 10¢ per copy)

GUIDE TO HAWAIIAN BIRDING by members of the Society and edited by C.J. Ralph (1977). Where to go and some idea of what you are likely to see. For the islands of Kauai, Oahu, Lanai, Molokai, Maui and Hawaii (Postpaid) \$1.50

PRELIMINARY LIST OF THE BIRDS OF HAWAII by R. L. Pyle (1977). An authoritative compilation of all species naturally occurring in Hawaii as well as those introduced by man which are currently established as viable populations. Gives each species' status. (Postpaid) \$1.50

ENDANGERED WATERBIRDS OF THE HAWAIIAN ISLANDS by R. J. Shallenberger (1978). Hawaiian Stilt, Coot, Gallinule and Duck, each described in 2 pages of photos and text. Covers description, ecology, status, and distribution. (Postpaid) \$1.00

'ELEPAIO VIA AIRMAIL

Members and subscribers wishing to have the 'Elepaio sent by airmail to addresses outside Hawaii may now obtain this service by remitting the additional amount needed to cover airmail postage costs. These amounts, for 12 monthly issues, are:

U.S. and Canada	\$4.25
Central America, Caribbean	9.00
South America, Europe, Mediterranean Africa	11.50
USSR, Asia, Africa, Pacific Area	14.00

BIG ISLAND PROGRAM ON HAWAIIAN RAIN FORESTS

William P. Mull, naturalist-photographer of Hawaii's native flora and fauna, will present a program on "Hawaii's Rain Forest Creatures," on Saturday, October 24 at 7:30 p.m. in the Hawaii Volcanoes National Park Auditorium on the Big Island. Mull has spent the past decade photographing live and in color rare Hawaiian invertebrates that have never been photographed before. He has particularly focused on such remarkable new biological discoveries as predatory caterpillars, "happy-face" spiders and lava-tube dark-zone creatures.

Mull is a Research Associate in Entomology with the Bishop Museum and a past president of Hawaii Audubon. This is the fourth program in a new natural history series sponsored by Hawaii Audubon and Hawaii Volcanoes National Park. The programs are for the public and everyone is invited.

IF NOT A MEMBER, PLEASE JOIN US

JOINT MEMBERSHIP

(National and Hawaii Audubon Societies)

Table with 2 columns: Membership Type and Amount. Rows include Individual (\$20.00), Family (25.00), Sustaining (30.00), Supporting (50.00), Contributing (100.00), Donor (250.00), Life (single payment) (1000.00), and Dual Life (single payment) (1500.00).

Special rates for full time students and Senior Citizens (65 years of age or older) are available. Please write for application form.

LOCAL MEMBERSHIP

(Hawaii Audubon Society Only)

Table with 2 columns: Membership Type and Amount. Rows include Regular (\$6.00), Junior (18 and under) (3.00), Subscriber (non-Hawaii residents) (6.00), and Life (150.00, payable in three equal annual installments).

New members who send in dues between January and September will receive, if they request them, all back issues of the 'Elepaio for that year. After September, the dues are counted for the following year.

OCTOBER PROGRAM: BELAU ENVIRONMENTS

Our October speaker will be Joan Canfield, graduate student in Botany at the University of Hawaii who will present an illustrated talk on her experiences and observations on environmental problems while a Smithsonian sponsored Peace Corps volunteer in the Republic of Belau (formerly Palau) during the late 1970's. Her project was to collect the native and naturalized flora of this Pacific island nation in preparation of a flora for Belau. While there, she took numerous slides of natural history subjects and associated environmental problems. The program will be Monday, October 19 in the McCully-Moiliili Library at 7:30 p.m. The public is cordially invited to attend.

OCTOBER FIELD TRIP EXPLORES POAMOHO TRAIL

On Sunday, October 11, the Society will visit one of the best sites for native forest birds on Oahu. The road to the head of the trail has been redone so that it will be possible to start almost at the trail itself. This is a level trail through some of the best forests on the island and the site of recent observations of 'I'iwi, swiftlets, and many other interesting species. Bring water, lunch, binoculars, and interested friends. For information call the leader, Sheila Conant at 948-8241 during the day.

BACK ISSUES OF 'ELEPAIO AVAILABLE

Back issues of the 'Elepaio may be ordered from the Society as follows:

Volume 35(July 1974) to present:

50¢ per issue, \$5 per volume

Volumes 1 through 34:

\$1 per issue, \$10 per volume, 5 or more volumes: \$8 per volume

Volumes 1 through 40(complete to date):

\$300 (\$7.50 per volume)

plus actual postage costs for shipping.

Large orders will be billed at time of shipment. Please indicate if you wish it sent by surface mail or by airmail.

HAS SCHEDULE OF EVENTS

(for details, see inside back cover)

- Oct. 11 (Sunday). Field trip to Poamoho Trail. Meet at the State Library on Punchbowl St. at 7:30 p.m. For information call Sheila Conant (948-8241) during the day.
- Oct. 12 (Monday). Board meeting at 7 p.m. at the home of Robert Shallenberger, 169 Kuulei Rd., Kailua (Phone 261-3741). All members welcome.
- Oct. 19 (Monday). Regular meeting at 7:30 p.m. at the McCully-Moiliili Library, 2211 South King St., on the subject *Belau Environments* by Joan Canfield.
- Oct. 24 (Saturday). Big Island Natural History Series: W.P. Mull on *Hawaii's Rain Forest Creatures* at 7:30 p.m. at Hawaii Volcanoes National Park Auditorium.

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