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Captive-reared Aleutian Canada Geese Migrate to the Marshall Islands

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Some time during late November or on 1 December 1979, two banded Aleutian Canada Geese (*Branta canadensis leucopareia*), a federally listed endangered "species," were observed in the lagoon adjoining Roi-Namur Island (167° 30'E, 09° 20'N), located 80 km (50 miles) northwest of Kwajalein Island in the Kwajalein Atoll, Marshall Islands, U.S. Territories. They were very tame and allowed close approach when they came ashore. On 2 December one of the birds was found dead. The second goose was observed on 3 December, and again in a very weakened condition on 6 December (Figure 1), at which time it was placed in a fenced pond. The bird was missing the following day.

Both geese were part of a group of 48 that had been hatched in an incubator in 1979 and reared at the Aleutian Islands National Wildlife Refuge propagation facility on Amchitka Island. On 9 August they had been transplanted west 400 km (250 miles) to Agattu Island (173° 40'E. 52° 30'N) in the western Aleutians where they were released with 154 other birds hatched in an incubator in 1978 and reared in captivity, and 49 wild birds (1 month to 5+ years old) in a 2.1-ha (5.3-ac), open-topped enclosure containing sedges, a creek, and supplemental feed (Northern Prairie Wildlife Research Center maintenance diet and several grains). The purpose of the release was to restore breeding populations to this former nesting island from which they had been eliminated by arctic foxes (*Alopex lagopus*) introduced for fur farming during the 1920's and 1930's (Martin et al. 1982). Subsequent control operations had eradicated the foxes on Agattu, the last fox being seen in 1979.

When hatched, the geese appeared strong and healthy. At the time of release the first bird, a male, was 94 days old and the second bird, a female, was 86 days old; both were able to fly. They flew out of and back to the pen during the following month, being last seen on 6 September, after which study personnel left the island.

It was hoped that the older wild geese, which had migrated one or more times before, would lead the captive-reared birds to the known wintering grounds in the San Joaquin Valley of California (Woolington et al. 1979). For the most part, however, the wild and captive-reared groups remained segregated. Most of the wild birds were later seen in California, but of the remaining captive-reared birds, only two hatched in 1978 were ever definitely sighted or reported — one in California in the 1980–81 and 1981–82 seasons and a neck band found on Attu Island in the western Aleutians on 14 October 1979, of a bird whose fate is unknown. However, accounts were received of 300–400 Canada Geese in southeastern Alaska at Icy Bay on 5 September 1979 and at Dry Bay during 15–23 September 1979 (Dan Timm, pers. comm.). Half of these birds were reported to have had blue neck bands with white symbols of the type placed on the Agattu-released birds in 1978 and 1979. In addition, two birds with blue neck bands were seen at Juneau on 1 April 1980. Although symbols on the neck bands were not reported in any of these sightings, these geese could have been some of the captive-reared birds that had followed the coastline west and south. No wild Aleutian Canada Geese have ever been recorded in that area; instead all the evidence suggests that they make a flight from the eastern Aleutian Islands across the Gulf of Alaska to northern coastal California (Woolington et al. 1979) and, to a lesser extent, to coastal Oregon and Washington. Cackling Canada Geese (*B. c. minima*) and Black Brant (*Branta bernicla nigricans*) are also known to make trans-gulf flights (Nelson and Hansen 1959, Hansen and Nelson 1957).

This is the only recorded occurrence of the Canada Goose in Micronesia (Pyle and Engbring 1985). Canada Geese have been reported infrequently at Midway Island and other Hawaiian Islands, 2,700-4,200 km (1,700-2,600 miles) northeast of Roi-Namur (Berger 1981), but have been seen nearly every winter in recent years (Pyle 1981). Some of these have been identified as Cackling Canada Geese (Roger Clapp, pers. comm.), but other small subspecies have also been recorded, including an apparent Aleutian Canada Goose in the fall and winter of 1985 (Robert Pyle, pers. comm.) and specimens of Taverner's and Lesser Canada geese (B. c. taverneri and parvipes) identified by John Aldrich (Clapp, loc. cit.). Roi-Namur is 4,800 km (3,000 miles) south of Agattu and 7,200 km (4,500 miles) southwest of southeastern Alaska. If, after departing from the mainland, the geese had stopped first at Midway or other Hawaiian Islands, the shortest distance they would have had to fly is 2,900 km (1,800 miles) from Agattu and 4,600 km (2,900 miles) from southeatern Alaska. Regardless of the route the birds took they had to travel over a large expanse of ocean without any land, although they could have rested on the water. Black Brant fly over water for 4,500 km (2,800 miles) from Izembek Lagoon on the Alaska Peninsula to San Quintin Bay, Baja California, Mexico, in about 21/2 days (Kramer et al. 1979).

A tropical disturbance with winds at Kwajalein up to 45 km (28 miles) per hour from the east (National Oceanic and Atmospheric Administration 1979) passed about 320 km (200 miles) south of Roi-Namur on 29–30 November (Joint Typhoon Warning Center 1979), causing heavy seas. This weather system later developed further west into Typhoon Abby. We think that without the benefit of guide birds or previous experience, the birds had wandered to the vicinity of the Marshall Islands where possibly the high winds associated with the tropical disturbance helped direct them to Roi-Namur. The ability to the geese to make this long oversea journey attests to the high quality of care and conditioning received under the captive-rearing program.



This incident demonstrates the innate tendency noted also in subadult, captive-reared Giant Canada Geese (*B. c. maxima*) released in vacant but formerly occupied nesting areas to fly in the fall in a southerly direction when there are no older, experienced birds to lead them over the previously established migration route of the wild population (Lee *et al.* 1976). An earlier experiment by Bellrose (1958) with wild juvenile Blue-winged Teal (*Anas discors*) released in the fall 10 to 40 days after the last migrating teal had departed revealed that they also flew southward along routes normally used by the species. Griffin (1955) cited similar examples of other species of detained or displaced birds that flew in a generally southerly direction when released in the fall.

ACKNOWLEDGMENTS

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LITERATURE CITED

- Bellrose, F.C. 1958. The orientation of dispersed waterfowl in migration. Wilson Bull. 70:20-40.
- Berger, A.J. 1981. Hawaiian birdlife. 2nd ed. Univ. Press Hawaii, Honolulu. 260 pp.
- Griffin, D.R. 1955. Bird migration. Pp. 154–197. In: A Wolfson (ed). Recent studies in avian biology. Univ. Illinois Press, Urbana.
- Hansen, H.A., and U.C. Nelson. 1957. Brant of the Bering Sea migration and mortality. Trans. N. Amer. Wildl. Conf. 22:237-254.
- Joint Typhoon Warning Center. 1979. Typhoon Abby. Pp. 84–87. In: Annual typhoon report. U.S. Naval Oceanography Command Ctr., Guam, Mariana Islands.
- Kramer, G.W., L.R. Rauen, and S.W. Harris. 1979. Populations, hunting mortality and habitat use of Black Brant at San Quintin Bay, Baja California, Mexico. Pp. 242–254. *In:* R.L. Jarvis and J.C. Bartonek (eds.). Management and biology of Pacific Flyway geese. Oregon State Univ. Book Stores, Inc., Corvallis.
- Lee, F.B., L.J. Schnoonover, J.A. Cooper, M.A. Johnson, and C.H. Schroeder. 1976. Restoration of the giant Canada goose in North Dakota. North Dakota Outdoors Magazine 38:2–7.
- Martin, J.L., R.L. LeDonne, F.B. Lee, P.A. Lehenbauer, P.F. Springer, and D.E. Timm. Aleutian Canada Goose recovery plan. U.S. Fish Wildl. Serv. (1011 E. Tudor Rd., Anchorage, AK). 42 pp.
- National Oceanic and Atmospheric Administration. 1979. Local climatological data, monthly summary — November, Kwajalein Island, Pacific. Asheville, NC. 2 pp.
- Nelson, U.C., and H.A. Hansen, 1959. The cackling goose its migration and management. Trans. N. Amer. Wildl. Conf. 24:174–186.

- Pyle, P., and J. Engbring. 1985. Checklist of the birds of Micronesia. 'Elepaio 46:57-68.
- Pyle, R.L. 1981. Hawaii bird observations, August 1979 through July 1980. 'Elepaio 41:72–79.
- Woolington, D.F., P.F. Springer, and D.R. Yparraguirre. 1979. Migration and wintering distribution of Aleutian Canada Geese. pp. 299-309. *In:* R.L. Jarvis and J.C. Bartonek (eds.). Management and biology of Pacific Flyaway geese. Oregon State Univ. Book Stores, Inc., Corvallis.

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Figure 1. Captive-reared Aleutian Canada Goose observed on Roi-Namur Island on 6 December 1979. Photo by W.L. Schipper

THE SKINKS OF PO'IPŪ, KAUA'I

There have been important changes in the distribution and abundance of lizards of the family Scincidae in Hawai'i: McKeown (1978: Hawaiian Reptiles and Amphibians, Oriental Publishing, Honolulu) recorded surviving populations of the Moth Skink only on O'ahu and the Big Island, and of the Emos Skink only on Kaua'i. In a typescript stored at the Bernice P. Bishop Museum (BBM), B. N. Brattstrom (ca. 1969) records the Moth Skink from Kaua'i, but without precise locality or specimen citation.

On 25 July, 1980, M. Walsh collected a Moth Skink at Po'ipū, Kaua'i: BBM 6982. Subsequently, S. McKeown visited the area and obtained two more: BBM 8304 and 8414. In April, 1985, all four species of Hawaiian skinks were living in the Po'ipū area. Voucher specimens have been deposited at the Museum of Comparative Zoology, Harvard University.

Hawaiian skinks present many interesting problems. It is standard opinion that all were introduced by man, but the Kaua'i Emos Skink (Emoia cf. cyanura) is very different from its relatives elsewhere. Often called "azuretailed," the Kaua'i form has a somber, coppertarnish greenish tail and is often melanistic. This species seems to have been extirpated throughout the archipelago except for Kaua'i. It is fairly common around Po'ipu. The Snakeeyed Skink, Cryptoblepharus boutoni, is also common along rocky stretches of this coast. A seemingly certain recent introduction from Australia, the Metallic Skink, Lygosoma (Lampropholis) cf. delicata, is today the most abundant diurnal reptile in Hawai'i; it is very common at Po'ipū. Its scientific name poses a mare's nest of problems. Although native to Australia, it seems to have been named first in Hawai'i as L. hawaiiensis. This name may ultimately be the one officially employed, but whether at species or subspecies level remains enigmatic.

The skinks of Hawai'i deserve far more attention than they have received to date. Some may prove to be endemic natives; at least the Moth and Emos Skinks seem to be genuinely rare and possibly "endangered" here. This would be of little concern if they were introduced exotics abundant in their countries of origin, but that may well not be the case.

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THE BLACK FRANCOLIN: AN EFFECTIVE MOUSER?

Black Francolins (Francolinus francolimus) on Molokai have been reported to feed on House Mice (Mus musculus) on several occasions by the local townspeople. I was fortunate enough to witness this phenomenon while traveling through the Kamiloloa Game Management Area in April 1985. At that particular time mice were abundant and easily seen running among clumps of grass in the Kiawe (Prosopis) belt.

Black Francolins are common in this area, and it came as no surprise to me to see an adult male running on the road ahead of my vehicle. However, as he turned towards the grass for cover I noticed something hanging from his mouth. A pair of binoculars confirmed the motionless object to be a partially eaten mouse. With some maneuvering around the available cover, I watched the francolin tear and swallow small chunks of the mouse while holding the carcass with one foot.

Some of the local game bird hunters attribute high Black Francolin numbers to years when House Mice are abundant. How important mice are to Black Francolins and whether there is any positive correlation between the abundance of the two species is unknown. However it is known that the Black Francolin's diet in other states may contain a large percentage (>50%) of animal matter (Palermo, R. J., and G. L. Doster. 1970. Proc. 24th Ann. Conf. Southeastern Assoc. Game and Fish Comm. pp 206-212).

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Drawing by Ronald Walker

RECENT OBSERVATIONS MARCH - JUNE 1986

This article is excerpted from Bob Pyle's record of bird observations for the Hawaiian Islands. Refer to future issues of <u>American</u> Birds for a full account.

ABBREVIATIONS - H.=Hawaii Is.; K.=Kauai Is., M.=Maui Is.; O.=Oahu Is.; ESFP=Endangered Species Facility at Pohakuloa, H.; HRBF=Hawaii Rare Bird Documentary Photograph File; HVNP= Hawaii Volcanoes National Park, H.; JCNWR= James Campbell Nat. Wildlife Refuge, O.

SEABIRDS - Laysan Albatrosses, which visited Kauai and Oahu in record numbers this winter, had departed by late spring, the last sighting on O. being a single bird flying over Dillingham Field on May 25 (FS).

A Hawaiian (Dark-rumped) Petrel seen flying near the 7000 ft. level on Mauna Kea at the ESFP on Apr. 20 (FD) offers some hope that the species may still nest on the mountain. A Newell Shearwater was heard calling overhead at Mountainview on Apr. 24 (SM); this species may be another rare breeder for the Big Island. On Kauai, in an unusual spring "fall out" of Newell Shearwater, 23 carcasses of adults were found along a quarter-mile stretch of highway near Anahola, K. (DM). The first record of a Flesh-footed Shearwater for the Hawaiian Is. was one photographed by RD (HRBF, nos. 474, 475) on Apr. 5; it was feeding with a flock of Wedge-tailed Shearwaters off Kaiwi Pt., H.

An increasing number of sightings of Redtailed Tropicbirds have been reported from Kauai and Oahu in recent years. To the growing list may be added a pair in Waimea Canyon, K. (CC, Apr. 11); 3 during the Sierra Club trip to Ulupau Head, O. on May 4; and a pair at Koko Crater, O. in April (TKP).

An immature Laughing Gull visited Tern Is., French Frigate Shoals on May 20-23 (PB).

SHOREBIRDS - KM reported several noteworthy waders from Laysan Is. this spring (Mar. 20 - Apr. 22): a carefully identified (ASIATIC) WHIMBREL, six dowitchers, four Dunlin, two Barred-tailed Godwits, and a probable Red (or possible Red-necked) Phalarope in winter plumage (Mar. 11 only).

FRESHWATER BIRDS - A Great Blue Heron at Kii Ponds, JCNWR in mid-April (JK) could have been the same individual seen on (in sequence) Hawaii, Maui, and Molokai during this last winter. A Cattle Egret was seen on Nihoa Is. on May 17 (*fide* KM). The "ring-necked" Canada Goose in the flock wintering at Amorient Ponds, O. has been identified from photographs as the endangered Aleutian race by P. Springer of the Aleutian Canada Goose Recovery Team. The flock stayed into May, but 5 of the 6 had departed before June 6. The one remaining, apparently a Taverner (AE, RLP), may have been the same bird that over-summered there in '85.

An unusual nesting location for Hawaiian Gallinules (Common Moorhen) was a small marshy oasis along the north shore of Pearl Harbor near the Waiau power plant. Here, an adult gallinule was observed tending three young in mid-April (WG).

GAMEBIRDS AND RAPTORS - A Black Francolin was heard calling high on the S. slope of the mountains of E. Molokai, May 25(LP), and an Erckel Francolin was seen along Palehua Trail in the Waianae Mts. O. during the HAS field trip, Apr. 13. Both were at unusually high elevations in those portions of the birds' ranges.

Students at a school in Manoa, O. were provided a rare and exciting lesson in wildlife when, in April, a Barn Owl roosted in a tree on campus.

NATIVE FOREST BIRDS - 'Elepaio bred this spring at Thurston Lava Tube, HVNP (MK).

'Oma'o generally avoid open mamane/naio woodland. Thus, FD was surprised and delighted to hear one of these thrushes call near his house at ESFP on May 3. The bird fed for 40 min. in a naio tree.

The alarmingly few sightings of wild 'Alala (Hawaiian Crow) over the past few years have led biologists to believe that a major crash in their population has recently taken place. These fears were largely confirmed by this year's annual survey for 'Alala, conducted in mid-March. The survey, involving 84 persondays afield by state and federal biologists, was the most extensive survey since 1978. Surprisingly, for the first time on these surveys, no 'Alala were seen, though two birds were heard on Hualalai and 4-5 were heard on the central slopes of Mauna Loa. Some hopeful evidence of possible breeding was suggested by the persistence of a pair in one locality giving typical female nest-site calls and male territorial calls (SM). Three months later, on June 5, three sightings of an 'Alala were recorded in a half-hour period in an area of the central Kona forest above Honaunau which had not been covered on the survey. A second bird was also heard in this area (FD, et al.).

The captive group of nine 'Alala, roughly comparable to the estimated numbers in the

wild, has produced young successfully only once since 1977. The current breeding season, not yet over, produced no new members among the captive flock, although for the first time all four pairs built nests, and two produced a clutch of eggs each, which, sadly, failed to develop. Until this year, the sex of the ninth captive crow was unknown; the crow's behavior now identifies it as a female - good news for the breeding program.

The 'Alala's plight is grim and getting grimmer. Habitat for the 'Alala still remains but is being steadily reduced by logging and other disturbing activities. Despite this urgent crisis, obtaining agreement among state, federal, private, and landowner groups on a plan to establish and protect an appropriate habitat preserve has thus far proven frustratingly unachievable.

The outstanding event this spring was the discovery and intensive study of two nestings by a pair of the critically endangered Po'ouli at upper Hanawi, M. (CK, ME, AE). Nest-building was discovered March 5 by the USFWS survey party and was closely monitored at intervals thereafter by FWS and volunteer biologists. The first nesting proceeded well and a nestling was being reared when several days of torrential rains forced the adults to abandon the nest and drove out the observers. Soon afterwards, a pair, presumably the same one, began nesting nearby. This time the weather held, and of the two young one successfully fledged May 31. This rare and fortunate opportunity provided much needed, entirely new information about the Po'ouli, including sexual and age differences in plumages, song and other vocalizations, nesting behavior, and a description of the nest. Ironically, more is now known about the breeding biology of this rare bird (population probably less than 100 individuals in a total range of 1000 acres), than any other native forest bird on Maui!

Unusual sightings of drepaniids include: a male Palila heard and seen well Mar. 27 at ESFP (FD) (this species has historically been absent from the Pohakuloa flats); 9 'Amakihi in a flowering silk oak tree on Round Top above urban Honolulu, on June 1 (AE); and a Hawaii Creeper heard and seen May 22 at 5500 ft. along Mauna Loa strip road in HVNP (SM), where the species has been absent for the past few decades.

ALIEN SONGBIRDS - Observers joining the HAS field trip to Haiku Valley, O. on Mar. 9 heard many Japanese Bush-Warblers (*Uguisu*) and saw a few. On the same trip, Melodious Laughing-thrushes were heard singing. This species, now scarce on Oahu, also turned up during the HAS field trip along Aiea Trail, O. on May 10. This laughing-thrush can be found at Hoomaluhia Park by any birder with enough patience.

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H-3 BATTLE SWITCHES TO THE HOUSE

Apparently thwarted by Sen. Stafford, Chairman of the Senate Environment and Public Works Committee, freeway proponents made some gains in June-hopefully short term-when they convinced Rep. James Howard, Chairman, Committee on Public Works and Transportation to pass similar environmental exemption legislation out of his committee. A floor fight on this may ensue soon. A possible point in our favor is that Howard expects Hawaii's congressional delegation to lead this fight. With the possible resignation of Rep. Heftel from congress to run for governor, remaining Rep. Akaka may have more than his hands full convincing a majority of the House that this is a worthy cause. Concurrently, a legal battle is shaping up between the Office of Hawaiian Affairs and the State Dept. of Transportation about the latter's lack of protection of the archaeological sites at Luluku which lie directly in the path of the proposed freeway. Also, the city administration is mustering its forces to have the freeway withdrawn from the general plan and substitute freeway funds for helping to alleviate other pressing transportation needs on O'ahu. Letters are needed to Rep. Howard to let him know of your strong opposition to exempting H-3 from environmental laws, a precedent for any federally-sponsored freeway.

Editor's note: The HAS Conservation Committee has written to both Rep. Howard and Sen. Stafford expressing the Society's opposition to H-3, addressing specifics of the pertinent legislation, and pointing out the apparent violation of NEPA (see H-3 article by W. C. Gagne and S. L. Montgomery in this issue). 158

SON OF TRI-FLY SURFACES IN CENTRAL AMERICA

The US Dept. of Agriculture is proposing to spend \$250-300 million over a decade, primarily with foreign currency funds, including \$65 million for pesticide and chemical use, to try to eradicate the Medfly in Central America. This pest is firmly established in upwards of $350,000 \text{ km}^2$, of which 25% would receive aerial applications of malathion. It would appear that the USDA will not wait for the results of the species-specific genetic engineering research that they are helping sponsor here in Hawaii. Instead, the agency is instigating a program similiar to that which was recently halted here last year.

DEVIOUS DINGELL DAWDLES ON KEY LEGISLATION

Powerful Rep. John Dingell has tried diligently to stall passage of all-important bills on Superfund and Acid Rain. There appears to be a clear majority to pass both issues through the House, but Dingell chairs an important conference committee in which he is trying to bottle up these measures, apparently to favor industrial concerns. There will need to be increased pressure on him and the rest of the House to break this logjam. Sierra Club has started an "Acid Rain Action" bulletin to help activists keep abreast of breaking developments, especially in building an ever-larger list of co-sponsors for H.R. 4567, the Acid Rain Deposition Act. The National Academy of Sciences recently released the results of a two-year study into the environmental effects of acid rain. Their study clearly established a link between emissions of sulphur dioxide and nitrogen oxides and the acidification of air, soil and water. Even President Reagan admits now that acid rain is a major problem.

GRAND CANYON AIR CRASH SPURS OVERFLIGHT LEGISLATION

Sometimes tragedy seems to be the only thing that moves legislators. The crash in June that took 25 lives brought enormous media and congressional attention to the issue of overflights in our national parks. There was considerable media attention on proposals to ban most overflights. The House Interior subcommittee marked up a bill cosponsored by Reps. Heftel and Akaka to study the overflight issue in 10 national parks, including Hawaii Volcanoes and Haleakala National Parks, with amendments to set immediate controls at Grand Canyon.

Wayne C. Gagne

H-3 IMPACTED BY WILDLIFE RESOURCES

National Environmental Policy Act (NEPA) Violation

Incredible as it may seem at this late juncture in the H-3 controversy, and in spite of the claims of freeway proponents to have examined all of the environmental impacts along the proposed freeway corridor, that portion of the corridor in Haiku Valley has not yet even been biologically surveyed. This is a NEPA violation. Hawai'i has the dubious distinction of being the nation's "endangered species capital." Half of this nation's endangered birds, for example, are endemic to the Hawaiian Islands. Hundreds of Hawaiian plants and other animals are currently under review for possible addition to the federal list of "Endangered and Threatened Species." A federally endangered bird, the O'ahu Creeper as well as an unknown number of federally endangered little agate snails (Achatinella species) have distributions which overlap other portions of the proposed corridor. The endangered snails still occur directly above the proposed tunnel portals from Haiku to North Halawa Valleys. So, it would be probable that a thorough biological survey of Haiku Valley would uncover them, or even other proposed endangered or threatened species. Most of the back wall of Haiku Valley is a series of precipitous valleys, gullies and cliff faces where such native species (especially plants and invertebrates) could easily escape notice unless specifically sought.

Destruction of Conservation-Zoned Lands

The central portion of the proposed freeway corridor in the Ko'olau Mountains bisects State conservation-districted lands subzoned "P" for preservation. This is the highest protective category accorded State lands. Among other aspects, such subzoned lands usually harbor the finest remaining habitat for native flora and fauna. Such is the case for this area on O'ahu. This corridor is the habitat of the federally endangered O'ahu Creeper, a bird of the honeycreeper tribe, and was (and still may be) the habitat of several species of little agate tree snails mentioned above. Freeway construction would directly destroy such habitats and very probably introduce a number of disturbance-adapted weeds to further degrade adjacent habitat.

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North Halawa Valley Wildlife

The proposed freeway would largely destroy the valley floor and the stream which flows through it. The environmental impact statements which purported to cover wildlife there were deficient in the extreme. The so-called stream survey was based on a casual dipnet survey made in 1961, and which then had nothing to do with a freeway alignment. A subsequent botanical survey of the valley was not much better in that numerous plants were only determined to the generic level. Thus, it is still not possible to say whether or not endangered or threatened species, or plant species under federal review for potential listing as endangered or threatened exist there. Although the State and Federal agencies have "legally" nullified these concerns in this valley, this serves to illustrate yet another environmental impact or cost of this ill-conceived and wasteful project. Legally-determined "prudent and feasible" alternatives exist which would not impinge upon this part of our living heritage.

W. C. Gagne & S. L. Montgomery



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JUNE 1986 PROGRAM

The speaker at Hawaii Audubon's June meeting was Dr. Sam Gon, whose illustrated talk was on "Happy Face Spiders: More Than Pretty Faces." Dr. Gon, who received his Ph. D. from the University of California at Davis, conducts entomological research at the Bishop Museum and the University of Hawaii. He has spent four years studying Happy Face Spiders. Although their scientific name is actually *Theridion grallator*, (meaning "little beast on stilts"), Bill Mull named them "Happy-Face" because their color patterns look like smiling faces.

Because the spiders are more easily studied in the field, rather than in labs, Dr. Gon chose two sites on Maui and two on Hawaii. Avoiding the rain, they are found on the undersides of leaves, where they build their web scaffolds. They prefer bald or lightly furred leaves, preferably those which don't move or vibrate too much. They feed on things smaller than themselves, determining the presence of prey by movement of the leaf, rather than that of the web. In fern forests, they collect spores on top of the leaves.

The spiders are remarkable for the amazing variability in their colors and patterns. The significance of the coloring remains unknown. For one thing, light does not reach the undersides of the leaves well, so the bright colors don't show well. Although yellow, black and red Happy Face colors can be warning colors for poisons, the colors are not known to be identifiable by the spiders' predators. Gon has never seen birds attack Happy Face Spiders, but large predaceous flies capture and eat small young spiders. In return, however, mature female spiders, hunting and feeding at night, will capture and eat flies.

Happy Face courtship and reproduction are interesting. Males wave their forelegs, vibrating leaf and web. Scent is left on the female's leaf, which locates it for the male. Male cohabits with female for several days and stays on female's web to guard it, but does not use lethal weapons in contest with other males. Instead, the males lock legs and dangle upside down.

The males disappear after mating. Females, which outlive the males, protect eggs and spiderlings, and can also move the eggs. Fewer eggs and hatchlings allow females to be more protective than if they had large broods. The spiderlings cohabit for several months with the mother, then find habitats on the undersides of leaves. Elongation of legs serves for adaptation to living on undersides of leaves. However, species from elsewhere have short stubby legs.

Dr. Gon's talk was illustrated with fascinating slides, close-up views of various patterns and colors, and shots of Happy Face behavior. A question and answer period followed his demonstration.

Betty L. Johnson

BISHOP MUSEUM SHOWS RARE PLANT PHOTOS

The first of several new major exhibits scheduled this year at Bishop Museum opens July 25.

"Hawaiian Ecosystems: A Living Hertiage" shows the unique natural heritage of Hawaii through more than 100 color photographs of rarely seen island plants in their native ecosystems.

The exhibition also includes plant specimens from Bishop Museum's Herbarium Pacificum. The presentation of "Hawaiian Ecosystems" at Bishop Museum is co-sponsored by the Pacific Tropical Botanical Garden of Kauai.

This is the first time this exhibit has been outside of Los Angeles, where the exhibit's photographer, Dr. Robert Gustafson, is a botanist and collections manager at the Natural History Museum of Los Angeles County.

"Hawaiian Ecosystems: A Living Heritage," in the Kahili Room of Bishop Museum, is open 9 a.m. to 5 p.m. Monday through Saturday and the first Sunday of each month. Access to the Kahili Room is included in the Museum's admission fee. Members of the Bishop Museum Association are admitted free.

The exhibit also includes mural photography taken by David Minor, free lance photographer.



William Adams, Summit, NJ; John Burch, Bremerton, WA; Philip Carroll, Honolulu, HI; Florence Chun, Honolulu, HI; Nancy Cota, Kurtistown, HI; Doug De La Fontaine, Mililani, HI; Colin Denney, Honolulu, HI; Prudence Denney, Portland, OR; Charles Gillian, Hilo, HI; John G. Hanagan, Birmingham, MI; Barbara Heil, Honolulu, HI; Clyde T. Imada, Honolulu, HI; Judy Jordan, Kilauea, HI; Pauline Kaneta, Honolulu, HI; Dorothy Kierstead, Dalton, MA; Nancy MacDonald, Portland, OR; Burt Monroe, Anchorage, KY; Dolores Morrella, Lahaina, HI; Philip Napier, Adelphi, MD; James Nerison, Sandy, OR; Ruth P. Nichols, Birmingham, AL; Robert P. Russell, Alexandria, VA; Katherine C. Smith, Kula, HI; Constance Stroud, Mill Valley, CA; Wesley Teraoka, Honolulu, HI; Theodore Tobish, Anchorage, AK; Richard Wirtz, Wailuku, HI; Frank Witebsky, Bethesda, MD

AUDUBON WILDLIFE REPORT 1986 AVAILABLE

The Audubon Wildlife Report 1986, second in an annual series, features the U.S. Forest Service in a lead chapter that could stand alone as a complete book. A comprehensive guide to wildlife management, the 1,000-page book continues the 1985 volume's in-depth coverage of such topics as marine mammal and endangered species management, wetlands protection, and migratory bird conservation. Information on federal agencies, including the Bureau of Land Management and the National Park Service, is updated and expanded.

The 1986 edition includes new chapters on the federal role in international wildlife conservation and marine fisheries management and an analysis of a subject new to the Audubon Wildlife Report, state wildlife management. Twenty-three chapters are devoted to individual species such as the whooping crane, lynx, wolf, loggerhead shrike, common loon, and Knowlton cactus.

To order, write to Audubon Wildlife Report, National Audubon Society, 950 Third Avenue, New York, NY 10022. The 1985 volume is still available.

WELCOME THE NATURALIST REVIEW

The Audubon Naturalist Society of the Central Atlantic States, a nonprofit conservation and nature education organization headquartered in Chevy Chase, Maryland, announces the publication of the <u>Naturalist Review</u>, a quarterly review of natural history books. The



Naturalist Review will feature reviews of current books of interest to the environmental and conservation community, the amateur and serious naturalist, and the ordinary nature lover. From birding and wildflower identification guides to treatises on environmental policy, the <u>Naturalist Review</u> will survey current publishers' offerings. In addition, the <u>Naturalist Review</u> will contain feature articles on authors and nature classics.

Reviewers are selected for their professional or experiential expertise.

A yearly subscription to the <u>Naturalist</u> <u>Review</u> is available by writing to the Audubon Naturalist Society, Naturalist Review Office, 8940 Jones Mill Road, Chevy Chase, MD 20815.

AUGUST PROGRAM DIVING WITH MARINE MAMMALS - SLIDES LAST OF THE RIGHT WHALES - FILM

Dr. Richardo Mandojana will present a lecture on "Diving with Marine Mammals," that includes slides of Right and Sperm Whales, Dusky Dolphins and fur seals in many parts of the world including Hawaii, Sri Lanka and Patagonia. After the slide show Dr. Mandojana will show an Emmy Award-winning documentary film called "The Last of the Right Whales." The film, which was co-produced by Dr. Mandojana with Stan Waterman, depicts the coastal fauna of the Peninsula Valdes off the coast of Northern Patagonia in Argentina. The rare Southern Right Whales (Eubalaena australis) visit this area to breed and calve, and their antics are featured in the film. The film also explores the lives of the jackass penguin, southern sea lions and southern elephant seals in the Punta Tombo area. Please note the change in meeting place: MANOA LIBRARY, Monday, August 18 at 7:30 pm.

AUGUST 1986 FIELD TRIP

Saturday, August 23rd Honolulu Zoo Peter Luscomb 261-3645 (evenings)

Join Peter, Curator of Birds at the zoo, for a behind-the-scenes tour of the Honolulu Zoo. Peter will start the day by touring the major exhibits, then looking at the breeding programs. The tour will culminate in a sneak preview of the zoo's new Master Plan. Meet Peter at the main zoo entrance at 7:00 a.m.

FREE ICE CREAM

Will again be served to those volunteers who help with the typing, proof-reading, or paste-up of next month's '*Elepaio* at Thane Pratt's house, 954 Spencer St., on 16 Aug. and 23 Aug. Phone 524-8464 for more information. Authors of articles, notices, etc. are reminded that these must be received by 15 August.

Many thanks to Karen Asherman, Sheila Conant, Karen and Charlie Falkenmayer, David McCauley, and Joel Simasko.

ELEPAIO

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(MANUSCRIPTS of articles and newsletter items may be sent to the Managing Editor at 954 Spencer St., Honolulu, HI 96822. Articles not subject to peer review MUST be received by the 15th of each month to be considered for publication in the next month's issue.

IF NOT A MEMBER, PLEASE JOIN US

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

LOCAL MEMBERSHIP

All Local Memberships and Subscriptions are for a calendar year January through December.

CALENDAR OF EVENTS Aug. 4 (Mon.) Board Meeting at Bishop Museum at 7:30 PM. Call Allen Allison at work, 848-4145. Aug. 18 (Mon.) General Meeting at MANOA LIBRARY at 7:30 PM. Program: Marine Mammals. Aug. 23 (Sat.) Field Trip to Honolulu Zoo. See page 161 for details. Aug. 23 (Sat.) 'Elepaio paste-up at Thane Pratt's house (524-8464) at 1:00 PM. CALENDAR OF EVENTS Aug. 4 (Mon.) Board Meeting at Bishop Museum at 7:30 PM. Call Allen Allison at work, 848-4145. Aug. 18 (Mon.) General Meeting at MANOA LIBRARY at 7:30 PM. Program: Marine Mammals. Aug. 23 (Sat.) Field Trip to Honolulu Zoo. See page 161 for details. Aug. 23 (Sat.) 'Elepaio paste-up at Thane Pratt's house (524-8464) at 1:00 PM.

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