



Occurrence of the North American Coot (*Fulica americana americana*) in the Hawaiian Islands, with Comments on the Taxonomy of the Hawaiian Coot

H. Douglas Pratt

Recently (Pratt 1978) I suggested the possibility that American Coots from mainland North America (*Fulica americana americana*) might be regular, but until now largely overlooked, visitors to the Hawaiian Islands. Such birds would be readily distinguishable from the resident Hawaiian Coot (*F. americana alai*) by the size and shape of the frontal shield (a corneous extension backward from the bill onto the forehead). In mainland coots, (Fig. 1A) the frontal shield is usually a small maroon or dark brown callus sharply separated from the bill. This callus may swell and become bulbous at the peak of the breeding cycle (Gullian 1951), but during most of the year is so small that it is noticeable only at close range. The rest of the bill is white with a dark (actually deep maroon but appearing black at a distance) subterminal ring. Some individual variation occurs in both color and shape of the mainland coot's frontal shield, but these variations have not yet been adequately investigated. A few have white frontal shields. The vast majority of mainland birds fit the above description.

Hawaiian Coots exhibit large bulbous frontal shields that apparently do not vary seasonally. The shield is often high enough to be visible above the crown from the rear (Fig. 1B), a condition virtually never seen in the mainland form. The bill and shield of *alai* are color dimorphic with a white form, the shield of which varies from pale blue to white to cream, and a red form (Fig. 1C) with a blood-red shield accompanied by a dark ring near the bill tip. The two morphs were recognized by the Hawaiians, who gave them different names: 'alae-ke'oke'o for the white form, 'alae-awi for the red (Perkins 1903). The red morph resembles the North American coot in the coloration, but not in the shape of the bill and shield. Hawaiian coots of both morphs have a "hump" on the forehead in profile, whereas winter mainland coots virtually all have a smoothly rounded contour of the top of the head (Fig. 1). In *alai*, the white morph greatly outnumbers the red one, with less than 10% of the population exhibiting a red shield (Table 1). Specimens of the red morph are rare in museum collections as well. Two specimens obtained by Perkins (15/Ral/17/a/20 and 15/Ral/17/a/17) are now in the Zoological Museum of Cambridge University in England. I found only white morphs in collections at the B.P. Bishop Museum, Honolulu, and the American Museum of Natural History, New York, both of which have extensive holdings of Hawaiian birds. The National Museum of Natural History, Washington, D.C., houses the only specimen (USNM 565262) of the red morph I have been able to locate in the United States. It is a female that died in Hilo, Island of Hawaii, 16 January 1969. It looks like red morphs I have seen in the field and has the frontal shield unusually well preserved for a study skin.

Several recent sightings by many observers of possible mainland coots in the Hawaiian Islands prompted my search for previously overlooked specimens of the form from the islands. I found a coot specimen at the Bishop Museum (BBM 4645) that is the first unequivocal evidence of the occurrence of *Fulica americana americana* in Hawaii. The bird was taken at Kaalualu, in the Kau District, Island of Hawaii, by George C. Hewitt on 4 November 1919. The specimen was catalogued as *F. alai* but conforms in every feature of its bill and frontal shield to the mainland North American form. S.L. Olson and H. James (pers. comms.) independently discovered this specimen in the Bishop Museum, and concur that it is indeed the mainland form. No other coot specimen from the Hawaiian Islands in any of the above-mentioned museums even approaches the bill and shield configuration of *F. a. americana*. On the basis of this specimen, the mainland coot can be officially added to the list of Hawaiian birds (Pyle 1983a).

The existence of this specimen allows a greater degree of confidence in accepting the recent sightings of mainland coots in Hawaii as valid. Figure 1 shows photographs of several such birds present on Kauai in the winter of 1977. The supposed mainland coots can be easily distinguished by their distinctive profile from Hawaiian birds of both morphs. I saw several such coots in wetlands of Kauai that year, but failed to find any, despite searching for them, on brief visits to the islands in December 1978, March 1979, December 1979, September 1980, and March 1981-83 and 1985. For many years, the Division of Forestry and Wildlife (DOFAW) of the State of Hawaii has conducted semi-annual censuses of waterbirds in the main islands in January and August. In August 1980, DOFAW investigators began attempting to classify coots seen on the basis of frontal shield size and color during the summer census and extended the procedure to the winter count in January 1984. These data, from unpublished numbers, do not reflect actual coot numbers, because a large percentage of coots censused were not seen well enough to be classified with certainty. However, because those seen well were presumably a random sample, the data are useful in showing relative numbers. The winter censuses have not been conducted long enough to determine whether small-shielded, mainland-type coots are consistently more numerous in January than in August, as they were in 1984, the only year for which we at present have comparative data. Such a finding would be consistent with the hypothesis that the small-shielded birds are nonbreeding visitors from North America. These limited data could also be interpreted as showing occasional or irruptive, rather than annual, influxes of mainland birds (notice the apparent buildup and decline from

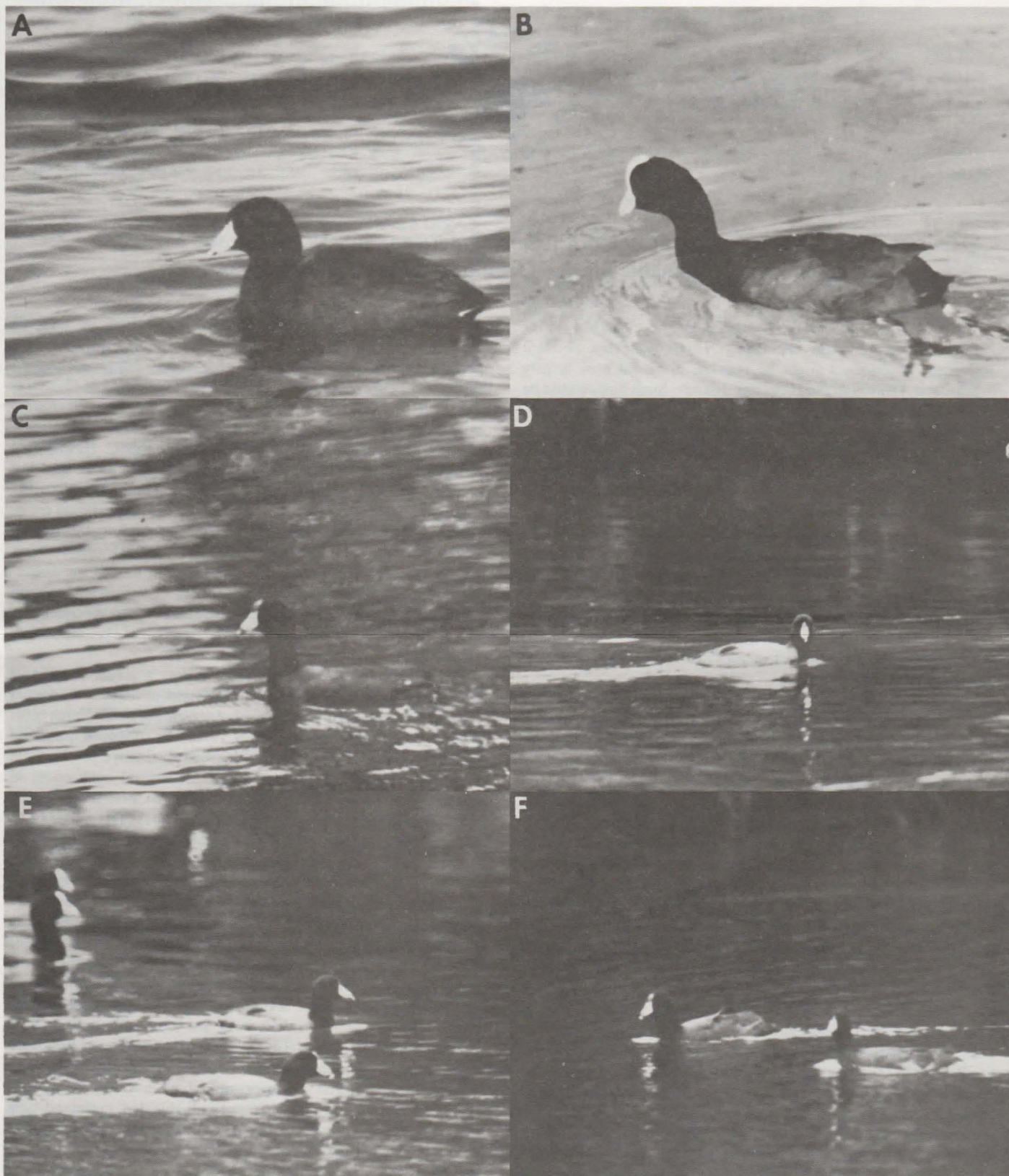


Figure 1. (A) Typical North American coot, Baton Rouge, La. (B) Typical Hawaiian Coot, white-shielded morph, Honolulu Zoo. Note that the frontal shield is high, bulbous, and visible from the rear over the top of the head. (C) Hawaiian Coot, red-shielded morph, Hanalei, Kauai, Spring 1977. Note that the shield is identical in shape to that of the white-shielded morph. (D) Probable mainland coot, Hanalei, Kauai, Spring 1977. (E-F) Same individual swimming with red-shielded Hawaiian Coots, Hanalei, Kauai, Spring 1977. All photographs by the author.

TABLE 1

Numbers and Kinds of Coots Recorded by State Censuses
in the Hawaiian Islands, 1980-85

Time of Census	<i>F. alai</i> , red morph	<i>F. alai</i> , white morph	<i>F. americana</i>
August 1980	35	464	0
August 1981	23	722	0
August 1982	9	429	4
August 1983	97	1530	13
January 1984	67	1799	35
August 1984	28	1000	11
January 1985	18	608	5

August 1983 through August 1984 reminiscent of the aforementioned situation on Kauai in 1977).

Hawaiian Coots are themselves apparently nomadic and irruptive (Ralph and Pyle 1977, unpublished DOFAW data). A coot specimen (USNM 503194) picked up dead on Tern Island, French Frigate Shoal, in 1965 and several coots seen and photographed (R.L. Pyle 1983b; P. Pyle 1984) in the Northwestern Hawaiian Islands in the summer of 1983 were all typical white-shielded *alai* and apparently wanderers from the main islands. Census data from the main islands have shown puzzling, wide fluctuations from year to year (Table 2). Various observers surmised in the past that such variations could result from large influxes of mainland birds in some years, but recent DOFAW data (Table 1) do not support this hypothesis. The largest number of small-shielded coots ever recorded (35 in January 1984) in the islands was hardly sufficient to account for the sometimes three-fold increases over previous years in censused coot populations. These apparent drastic fluctuations could result from as yet poorly understood irruptive movements in the resident coot population, from wide year-to-year variation in breeding success, or from undetermined problems in the censusing methods. Future DOFAW censuses should continue to differentiate between mainland coots and the endangered local form, particularly because the two may not be considered conspecific in the future (see below).

TABLE 2

Numbers of Coots Censused in the Main Hawaiian Islands
by DOFAW Personnel, 1977-1985

Year	Winter	Summer
1977	2330	1618
1978	1241	915
1979	422	1915
1980	1753	1000
1981	1243	997
1982	785	1213
1983	1425 ¹	4466
1984	2823	2298
1985	1537 ¹	

¹Island of Niihau not included.

Taxonomy

The Hawaiian Coot was considered a separate species until Bryan and Greenway (1944) listed it, without any supporting data, as a subspecies of the American Coot. Virtually all subsequent authors have followed suit, but none has ever presented any reason for allying the Hawaiian form more closely with *Fulica americana* than with other members of the *F. atra* superspecies, which comprises *atra*, *cristata*, *americana*, *caribaea*, *ardesiaca*, and *leucoptera* (Mayr and Short 1970; Fjeldsa 1982, 1983). These semispecies differ among themselves mainly in the shape and color of the bill and frontal shield and in the amount of white in the plumage. Most of them are, like the Hawaiian form, dimorphic in shield color. Insufficient data on the nature of such polymorphism and on the possible zones of sympatry (as between *americana* and *caribaea*) have led to considerable taxonomic controversy.

Gill (1964) considered *caribaea* and *ardesiaca* to be subspecies of *F. americana*. Mayr and Short (1970) and Ripley (1977) agreed with respect to *ardesiaca* but not *caribaea*. Fjeldsa (1982, 1983), however, presented data that show *F. ardesiaca*, the Andean Coot, to be a valid, dimorphic species that differs from *F. americana* in the shape, but not always the color, of the frontal shield. Its shield is high and bulbous as in the Hawaiian form, and its white and red morphs resemble those of *alai*. The Colombian form of American Coot, *F. americana columbiana*, is very similar to the nominate in both color and shape of the frontal shield (Fjeldsa 1983).

The systematic position of *caribaea* is less well researched and is highly controversial (Payne and Master 1983). Despite some reported evidence of sympatry of *americana* and *caribaea* (Bond 1976), many observers believe the two represent unevenly distributed morphs of a single species. Numerous coots that resemble *caribaea* in frontal shield morphology have been reported recently in North America (Clark 1985). Observers in California consider white-shielded coots to be relatively easy to find in low numbers (D. Roberson, pers. comm.), although I have found none among the thousands of coots I have seen in Louisiana. Considerably more data are needed before the degree of variation in shield color and shape in *americana* can be adequately documented. Until such data are available, the relationship between *americana* and *caribaea* will remain obscure.

The outcome of studies of the *americana/caribaea* complex should not, however, affect the taxonomic treatment of *alai*. In my opinion, the Hawaiian Coot should be accorded full species status as long as other components of the *F. atra* superspecies are so recognized. Because, like other New World forms, it has white undertail coverts, *F. alai* is probably closer to those species than to *F. atra* of the Old World, but classification of the Hawaiian form as a subspecies of *americana* has no more basis than considering it a form of *ardesiaca*. Indeed *F. alai* is more similar to the larger Andean Coot in color than it is to the similar-sized American or Caribbean forms. This observation need not mean that the Hawaiian form is more closely related to the Andean one, only that *alai* deserves equal standing within the complex. *Fulica (atra)* would thus include as component semispecies *atra*, *cristata*, *americana*, *ardesiaca*, *leucoptera*, *alai*, and possibly *caribaea*. This treatment is followed by Pratt *et al.* (1987).

ACKNOWLEDGEMENTS

I thank L.F. Baptista, T. Burr, J.V. Remsen, D. Roberson, R.J. Shallenberger, and C.F. Zeilemaker for their suggestions and shared observations. I also thank R.B. Clapp (Smithsonian),

J. Farrand (American Museum), and A.C. Zeigler and Robert L. Pyle (B.P. Bishop Museum) for assistance with their collections, and Marie Morin for providing copies of unpublished DOFAW census data. S.L. Olson shared information on the location and identity of coot specimens outside the United States.

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Editor's note: The following correspondence was received from MSSRS. King and Pyle. It relates to the February 1987 lead article on Micronesian birds.

16 July 1986

Dear Mr. Pyle & Engbring:

RE: "Checklist of the Birds of Micronesia"

I'm upset that you chose to question my record of Bristle-thighed Curlew (King, 1962) in print without first seeking documentation. There seemed at the time no need to use space to provide documentation for a bird which was not that unusual. And indeed it is recorded at several of the island groups, as well as the Marianas.

It is, of course, an easy bird to identify. I observed it in flight several times at fairly close range. It was with Whimbrels for comparison. The salient feature, of course, was the entirely dark lower back (no white wedge), contrasting with the paler rusty white rump, the juncture cut straight across (in the manner of a Wood Sandpiper).

I expect you'll publish a reconsideration.

Ben King
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16 December 1986

Dear Mr. King:

This responds to a letter you sent to the 'Elepaio last summer about your Bristle-thighed Curlew sighting in Guam. Please forgive our delay in responding. The letter just got to me today.

Our decision to list your record as hypothetical in our checklist was a last minute one, and was based on the following two considerations: First, although Bristle-thighed Curlew is not difficult to separate from Whimbrel (if the observer is familiar with both species), there has been some confusion in recent years about its identification in Guam. In 1980 when John was conducting the USFWS Guam Forest Bird Survey, the biologist there believed that about half the wintering curlews were bristle-thighs, the other half Whimbrels. This was based on

the widespread misidentification of Whimbrels with buffy-tinged rump patches as bristle-thigheds. Although we have corrected them, there still seems to be some uncertainty. Second, Bristle-thighed Curlew should not be considered a regular species as far west as Guam. The only published, N. Hemisphere records west of Pohnpei that I know of are: a record from the Bonin Islands; a specimen from Saipan (listed in Baker) that is, perhaps, questionable as to origin; your record on Guam; Fisher's questionable records from Yap; and two recent records from Moen, Truk. Thus, Guam appears to fall about 1000 miles west of the species' normal migratory range. Given these two considerations and the fact that no details of your observation were published (one of our reviewers was Roger Clapp, who refuses to accept such records), we decided to list it as hypothetical.

One of our main reasons for publishing the checklist was to focus more attention on the status of migratory species in Micronesia, and to generate responses such as yours about both old and new records. We are presently filing all updated information in preparation for a future edition of the checklist, and are recommending that information on new sightings etc. be published in 'Elepaio. In this case, we will "officially" include Bristle-thighed Curlew on Guam in the next edition and cite the extra information you have given us.

Sorry we did not have time to contact you before going to press, and thanks for the additional information.

Sincerely,
Peter Pyle

RECENT OBSERVATIONS

AUGUST - NOVEMBER, 1986

(Editors' note: This article is excerpted from Bob Pyle's record of bird observations for the Hawaiian Islands. Refer to future issues of American Birds for a full account.)

ABBREVIATIONS: FFS = French Frigate Shoals; H = Hawaii Is.; K = Kauai Is.; M = Maui Is.; O = Oahu Is.; JCNWR = James Campbell NWR on Oahu; KMCAS = Kaneohe Marine Corps Air Station on Oahu; HRBP = Hawaii Rare Bird Documentary Photograph File.

SEABIRDS - This year again, Dark-rumped Petrel fledglings were picked up and released

at Lanai City, Lanai (1 bird; 8 Nov. *fide* TP) and Kauai (7 birds, TT). The size of petrel populations on these mongoose-free islands is unknown. On Maui, where a well-studied colony nests in Haleakala Crater, grounded fledglings are seldom turned in by the public; none were reported to us this year. An unusual petrel brought to a shearwater aid station on Kauai proved to be a SOLANDER PETREL, the first record of this species for Hawaii (TT). Found on 25 Nov. near Kipu Kai in south-central Kauai, the bird was turned in by the manager of Kipu Kai Ranch. The bird was banded and taken for recovery to Sealife Park. Photographs and extensive measurements were taken, and its identification as a Solander Petrel rather than a dark Herald or Kermadec Petrel was agreed upon by TP, PP, and RLP. A few faded and worn feathers scattered among otherwise fresh plumage indicated that the bird was at least one year old. Numbers of Newell Shearwaters turned into aid stations on Kauai were down this year from recent years, despite the dark moon occurring near the projected peak fledging time and thus "optimal" conditions for shearwater fall-out. A preliminary count of just over 1000 birds was reported (TT). Unusual records of procellariids include solitary Flesh-footed Shearwaters sighted 10 mi. off Kailua Kona on 12 Oct. and several other dates this fall and an injured Leach Storm-Petrel that died soon after being found in an open hangar on Sand Is., Midway Atoll, 28 Nov. (KM).

Two White-tailed Tropicbirds were an unusual sighting at Kaupo Gap on Haleakala, M, 3 Sept. (PC). Masked Boobies, a species seldom occurring in the main islands, were reported from South Point, H (a juv., Oct., *fide* RD) and 10 mi. off Kailua Kona, H, 12 Oct. (RD). An immature Lesser Frigatebird was sighted at Tern Is., FFS on 5 Aug. (JS).

During fall and winter in recent years, Laughing Gulls have been reported regularly in Hawaii. Single birds seen this season were at Tern Is. 4-15 Aug. (RV); Keahole Pt., H, 13 Nov. (CT, RD) and Kealia Pond, M, 30 Nov. (PP). Ring-billed Gulls were also reported: 2 at Kii Unit, JCNWR, 6 Nov. (PD) and 3 at Kealia Pond, M, 30 Nov. (PP). Least and/or Little Terns turned up again at Pearl and Hermes Reef (2 adults, 1 imm., 12 and 23 Aug., SC); one was seen at Waiawa Unit, PHNWR, O, 24 Sept.-13 Nov. (SB, PD, RLP).

FRESH WATER BIRDS - Last winter's Great Blue Heron at Kakahaia NWR, Molokai was still there on 9 Oct. (DW, SB). High counts of Cattle Egrets include 180 flying over Kalae, Molokai in Aug. (CS) and 700 coming to roost at Kanaha Pond, M, 30 Sept. (RLP).

Fulvous Whistling-Ducks continue to breed at Kii Unit, JCNWR where 6 adults with 3 young were counted 26 Sept. (PD, RLP); a single bird was again seen at Kakahaia NWR, Molokai (Oct.-Nov., DW, SB). Observations of Brant included one returning to Aimakapa Pond, H (RD), one offshore of Makaha, O, 27 Nov. (DC), and one at Tern Is., FFS 5 Dec. (RV). The small Canada Goose at Amorient Aquafarm, O was still there through Nov. (BE, DA *et al.*).

Five banded Nene from a captive flock at Kipu Kai, K turned up 11 km. distant at Ahukini Landing Nov. 3 (TT). After a newspaper story solicited observations from the public, sightings of free-flying Nene were reported from 5 other localities in s.e. Kauai. These are the first "wild" Nene recorded from Kauai.

Unusual locality records for Koloa were one at Kanaha Pond, M, 9 Nov. (RD) and 28 Nov. (PP) and at Paukai Pond, KMCAS, O 1 Dec. (PP). (Koloa are not breeding residents on Maui.) Rarer migrant ducks reported this fall were: 2 Garganey at Kanaha Pond, M, 10 Nov. (RD); 1 male and 2 female Blue-winged Teal at Aimakapa Pond, H, through fall (RD); 1 female Ring-necked Duck at Aimakapa from 25 Oct. onward (RD,PP); 4 Ring-neckeds at Kahuku, O, 23 Sept. (PD); and 1 female Greater Scaup and 3 male Lesser Scaup at Aimakapa from 25 Oct. onward (RD,PP).

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Robert L. Pyle

CONTINUED NEXT MONTH

KOA FOR WILDLIFE; KOA FOR WOOD

Hawaii's first Koa Forest Conference was held in Hilo December 17-19, 1986 with several Hawaii Audubon members as participants. Sponsored by the Forestry Committee of the Resource Conservation and Development Council of the US Department of Agriculture, the conference focused on recovery of existing koa (*Acacia koa*) forests and reforestation in the

former koa belt on the Island of Hawaii. This is the first concerted effort by any local coalition to address the decline of Hawaii's koa forests.

Agreement reached

Participants representing a broad spectrum of interests included conservationists, land owners, land managers, foresters, commercial loggers, marketing specialists, woodworkers, federal and state wildlife officers and county officials. Before the conference ended, these diverse interests reached remarkable agreement on promoting the naturally diversified koa forest for native wildlife habitat and, on different suitable lands, promoting industrial koa plantations for timber.

Decline of koa forests

As the premier native Hawaiian hardwood, the market for koa lumber continues, but the resource is getting scarce. Koa forests have been disappearing for over 100 years as they have been grazed, logged and converted to cattle ranches. There has been no regeneration to replace lost forests. Remnant forests that still exist provide essential habitats for endangered species and other native birds, plants and invertebrates. What forest areas remain cannot be logged without having an adverse impact on endangered wildlife associated with koa.

Two goals defined

With this knowledge in hand, two clear-cut objectives emerged during the course of the conference: first, conservation of existing koa forests as native wildlife habitats; second, boosting industrial koa forestry on former koa lands in both public and private ownership.

Value of native forests

Federal forester Eugene Conrad spoke of the continuing loss of native forests and the impossibility of recreating a genuine native Hawaiian forest from scratch. State wildlife biologist Ronald Walker emphasized that healthy and extensive forests of koa and 'ohi'a-koa are vital to survival of endangered forest birds and other wildlife.

Koa regeneration projects

Retired federal forester Roger Skolmen and land manager William Rosehill described the koa regeneration projects on Bishop Estate lands at Keauhou Ranch in Ka'u and at Honaunau Forest in South Kona. Starting in 1977, 50-acre plots (later, 100-acre plots)

were fenced to keep out cattle. Then remnant old koa, 'ohi'a and other vegetation were bulldozed to scarify surface soil and thus stimulate koa seed stored in the soil to germinate. Additional koa seedlings were planted in those areas where there was insufficient natural germination. Five hundred acres at Keauhou had been treated in this manner by the end of 1986. An additional 100 acres will be planted of koa in 1987. Beyond that, another 1,000 acres is fenced and planned for koa plantations in future years. The project demonstrates that koa can be grown successfully in a plantation setting.

Long-term investment

It takes 60 to 80 years for koa to reach maturity for commercial logging. For about the first 20 years cattle must be excluded from plantations. It may be possible to grow other commercial forest products, such as maile and hapu'u, in koa plantations for cash crops. Unexpectedly, Roger Skolmen seriously questioned the economic feasibility for the land owner of growing commercial koa because of high initial planting costs and the long length of time before the investment can be recovered.

Portable saw mill

On the second day delegates toured Keauhou Ranch sites of the koa regeneration project at about 5,400 feet elevation. Logger Edward Winkler demonstrated a koa salvage operation currently underway, using a portable saw mill to rough-cut boards from koa previously logged and abandoned or bulldozed in the planting program. Later, on a newly bulldozed plot awaiting koa germination, a number of koa seedlings were planted by delegates. On another site where koa had been logged some years earlier, a colony of the endangered *Vicia menziesii*, the endemic Hawaiian vetch, flourished in an old log jam.

Endangered Vicia habitat

The upper section of Keauhou and adjacent Kilauea Forest are the only locations where the endangered *Vicia* is known to occur now. Dr. Wayne C. Gagne, accompanied by Mae E. Mull, rediscovered *Vicia menziesii* in Kilauea Forest at 5,200 feet elevation on February 8, 1974 after botanists had considered it extinct. A highly desirable conservation measure would be to set aside a section of essential *Vicia* habitat at Keauhou for native species recovery. If such an area with remnant old koa were fenced to exclude cattle and pigs, there would soon be natural regenera-

tion of *Vicia*, koa, 'ohi'a, hapu'u, olapa and other native trees and shrubs, providing needed habitat for three endangered honey-creepers found at Keauhou and Kilauea Forest: 'Akiapola'au, 'Akepa and Hawaii Creeper.

Five action panels

Following the field trip, the participants got down to work to thrash out exactly what actions were needed to get a Koa Forest Program established and moving. Five areas of concern were identified. Each delegate chose an area to work on. The panel for an area came up with a list of actions and presented them to the whole conference for on-the-spot refinement. The five panels and chairpersons are: 1) Conservation, Mae Mull (Hawaii Audubon Society); 2) Legislative and Legal, Wayne Gagne (Education Department, Bishop Museum); 3) Land Use Planning, James Jacobi (botanist, US Fish and Wildlife Service and Jerry Williams (US Soil Conservation Service); 4) Koa Industry, Peter Simmons (koa marketing specialist); 5) Incentives to Promote Koa Reforestation, Kimo Vincent (manager, Bishop Estate).

Consensus on Koa Forest Program

On the final day, state legislators from the Big Island listened to presentations by panel chairpersons on the agreed-upon needs for establishing the Koa Forest Program and suggested ways the legislature could help get the koa program started. The delegates reached a consensus on thirty needed actions:

Conservation

- 1) Definition and designation of native areas to be protected for recovery of native forests.
- 2) Continuation of Kilauea Forest Reserve (adjacent to Keauhou Ranch and owned by Bishop Estate) in the Conservation District, Protective Subzone land use.
- 3) Protection of native natural areas to maintain diversity of species and to curtail encroachment of non-native species, especially feral pigs.
- 4) Clear separation of conservation areas from industrial forestry areas.
- 5) Biological surveys conducted prior to designation of industrial forestry areas in order to determine boundaries.
- 6) The above actions can be achieved through negotiation by concerned parties.

Legislative and Legal

- 1) Ensure guaranteed harvesting of industrial forests.
- 2) Provide a legal definition of industrial forests for State land use laws.

3) Review tax laws to uncover existing disincentives for koa reforestation and replace them with incentives for native species silviculture.

4) Require licensing of sawmill operations.

5) Ensure Protective Subzone (Conservation) designation for Kilauea Forest Reserve.

6) Require Attorney General's office to review constitutionality of Conservation District zoning for privately-owned lands.

7) Establish a minimum insurance liability and workman's compensation for timber workers.

8) Seek a legislative mandate for koa reforestation of appropriate State-owned lands.

9) Designate Acacia koa as Hawaii's State Tree.

Land Use Planning

1) The legitimacy of different land uses is recognized. These uses include:

- a) Wood products industry
- b) Preservation of natural ecosystems
- c) Livestock industry
- d) Recreation
- e) Watershed

2) Recommendation: That an updated statewide plan designate and locate the minimum areas needed to sustain the above land uses as it relates to koa within one year.

Koa Industry

Methods of implementing a koa reforestation and harvesting project:

1) Determine availability of koa resources for logging.

2) Investigate and overcome workman's compensation insurance obstacles.

3) Create a Koa Industry Council with a cooperative structure.

4) Promote forestry education, sound silviculture practices and enlightened harvesting techniques to land owners, sawmill operators and the general public.

5) Define clearly industrial forest areas on land use planning maps.

Incentives to Promote Koa Reforestation

1) Provide tax relief and tax credits to land owners to encourage commitment to koa planting programs.

2) Offer income tax exemption at the time of reforestation of land parcels.

3) Cost Sharing: For government, Forestry Incentives Program Act, remove existing maximum limits imposed on cost sharing and acreage. For the community, initiate a "penny-a-tree" program.

4) Provide compensation to landowners for parcels left in non-profit native forests.

5) Give assurance to landowners that industrial forests can be harvested when mature.

6) Publicize current incentives for tree farming offered by federal and State governments.

7) Promote koa wood and reforestation through the Hawaii Visitors Bureau.

Koa coalition formed

This conference was noteworthy because for the first time widely divergent interests who had crossed swords in the past came together with a shared high regard for Acacia koa, "monarch" of the native forest. They asked questions, exchanged views, listened and then cooperatively arrived at a joint program for both the protection of koa forest ecosystems and the advancement of industrial koa forestry on other suitable lands. In early January a Koa Steering Committee representing a spectrum of interests was organized with Peter Simmons as chairman. The committee is working up draft legislation to get the Koa Forest Program moving in the 1987 State Legislature.

Mae E. Mull

Island of Hawaii Representative

SCIENTISTS AND THE MEDIA

One of the biggest challenges facing scientists is to obtain media coverage for those issues that are progressing slowly, decade by decade, said Dr. Paul R. Ehrlich, well-known Stanford University biologist, environmentalist and author.

Ehrlich told a group of about 75 journalists and scientists at the all-day news media symposium at the Bishop Museum, Nov. 15, that "In general, we are not trained to perceive things that go along on a time scale." Consequently, the media, and, in particular, the broadcast media, devote the majority of news coverage to events happening today, he said. Even though the current stories may have less impact on peoples' lives and futures, Ehrlich said, these are the ones that are likely to get media coverage because the system (media) operates to report controversial, explosive world situations.

On the other hand, scientific stories that discuss national or environmental trends that do not have immediate impact, are usually considered "fillers for slow news days," Ehrlich said.

Ehrlich said that this pattern is self-reinforcing in that people have learned to expect news coverage to be the dramatic, today occurrences.

Some of the topics he mentioned that should be covered in greater detail are: the destruction and dispersion of capital; the pollution of water and air; the overbuilding in the environment and its hazards; the nuclear arms build-up; the soil erosion which will effect the capacity to grow food; and the planet and climate changes.

All of these problems are, "The real news that is going on gradually, happening decade by decade," Ehrlich said.

Ehrlich had several suggestions for the scientists to become more successful in obtaining journalistic coverage for their work. And he discussed methods for more effective communication, once the interview is obtained.

For example, Ehrlich explained that one problem that scientists must overcome is their tendency to communicate in a boring, detached style. Because scientists are trained to be unbiased in their data collection and report writing, he said, they have difficulty breaking this pattern when dealing with the media.

"The press wants the conclusions," Ehrlich said. The conclusions, which are the news, should be the first points emphasized in an interview situation, this approach fits well with the pyramid style of writing, he said.

Thus, scientists must get more comfortable with stating their judgments when dealing with the general public, Ehrlich said. This approach contrasts with their training, in which they have been taught to carefully state conclusions, always with a discussion of the margin of error to consider.

Another factor that scientists should be concerned with is that of simplifying their explanations given to the media, Ehrlich said. Without sacrificing accuracy, a simple, conversational approach works best, especially for the broadcast media, he said.

Ehrlich also cautioned against lots of pauses (dead air) in broadcast interviews. And he told the scientists to avoid controversial statements at the end of an interview. They may get cut if time runs out and then there is the danger of having one's statements distorted, he explained.

Scientists must realize that they will not have the right to edit a media presentation or article, Ehrlich said. Scientists should make every attempt to correct content errors, he said; however, the stylistic, pre-

sentational choices are always the journalists' and their editor's domain.

Open communication, an invitation for follow-up calls to clarify quotes and a final recap of one's main points at the end of an interview, all will help to avoid the content errors, he said.

Ehrlich believes that scientists must become more responsible and active in creating scientific literacy in the community. The scientist is best equipped to explain to the public the role and limitations of science, because schools do not seem to be teaching people how to think about long-range problems, he said.

Scientists also have to become more involved in human welfare issues, Ehrlich said. They should be more flexible and willing to do applied versus basic research, he said, even though this willingness may contradict their scientific training. Applied as compared to basic research means that scientists would have more emphasis on projects directly related to human dilemmas, rather than on research that is in search of abstractions or "truth" and not necessarily tied to practical problems, he explained.

In conclusion, Ehrlich also encouraged journalists to become more science literate and to cover, without intimidation, the crucial, scientific topics of our time.

Melanie Weisman
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Honolulu, HI 96816

JANUARY 1987 MEETING

In baseball parlance, January's program was a double header of blockbuster proportions, featuring David Boynton and Steven Montgomery, both addressing the subject of seabirds.

Boynton, introduced by Peter Luscomb as a teacher at Waimea High School, spoke on the ancient Hawaiian use of seabirds for navigation, fishing, food, feathers, and bones. Montgomery's presentation was the seabird colony at Kilauea Point Lighthouse on Kauai.

Boynton began his program with 10 minutes of beautiful slides of surf, shore, big surf (North Shore), and many seabirds such as Red-tailed and White-tailed Tropicbirds, Frigatebirds, Brown Boobies, White Terns, and others. Included were spectacular shots of clouds, sunsets, and mountains. Inter-

face of sky and ocean, said Boynton, provides habitat for seabirds. Taped music accompanied the slides. Kauai's Kilauea Point and Lighthouse provide nesting sites in shoreline cliffs for Red-tailed and White-tailed Tropicbirds; theirs is a spectacular courtship display during which they fly backward. While Frigatebirds do not nest here, they pursue Red-footed Boobies returning from fishing, forcing them to drop their prey. Wedge-tailed and Newell Shearwaters, nesting in large numbers, burrow into the cliffs to lay their eggs and raise chicks. As many as 1500 fledglings are picked up yearly by people who turn them over to the fire department; the birds are later released. Fledglings, confused by street and city lights, head away from instead of toward the sea. Some albatross are also sited here. Frequently confused with boobies, they are much larger. Their nests and fledglings, and those of shearwaters, have been preyed upon by wild dogs, who kill the young birds but do not eat them.

Band-rumped Storm-Petrels are about the size of a small dove. An occasional owl flies around the lighthouse and eats petrels. Tattlers, golden-plovers, and other shorebirds abound. Polynesians, noticing that plovers took off to the north, concluded that islands (Hawaii) existed over the Pacific. Navigators found birds their best friends: boobies are farthest away from land, while noddies are close in, indicating land is near. However, shearwaters and albatross are too far out to indicate nearby land. While early Hawaiians did not eat eggs, they found the chicks of boobies and others edible. Many finds of bird bones show excessive hunting by Hawaiians wiped out some birds, like Bonin Petrels. Many circling birds indicate that schools of fish (ahi, aku, mahi mahi, marlin) are just below the surface. Bigger birds mean bigger fish.

Bird bones were shaped for tools, and feather uses included fly chasers, kahili, and decoration.

Steve Montgomery began his presentation with a 10-minute film on New Zealand and seabirds by Mr. and Mrs. Wright, who were permitted to enter the Royal Albatross sanctuary at Taiaroa Head near Dunedin to film the birds. Albatross, which roam the world, are large birds, 32 to 52 in. in length, 10 ft. wing spans, and weigh 10 pounds or more. They are said to mate for life, and both parents incubate and care for the chicks, feeding them by regurgitation. The female lays one egg, 13-19 oz. every 2 years. The Royal Albatross is white with black on

the wings; males have bigger and heavier bills than females.

Albatross have suffered from predation by dogs and people. In Hawaii, current efforts are being made to buy land and expand the refuge for them at Kilauea, Kauai; whales and schools of propoise also pass this area. \$900,000 has been established by Senator Inouye toward this refuge. Montgomery concluded with some excellent slides on the albatross of Kilauea Point.

Betty L. Johnson

MARCH: FOCUS ON WILDLIFE

Governor John Waihee has declared March to be Hawaiian Wildlife Awareness Month.

March 15th through 21st is also National Wildlife Week, and entries in the Oahu Public Schools' 4th Grade Wildlife Poster Art Contest will be on exhibit at various locations around the island. From March 9th through 15th the Honolulu District entries will be on display at Kahala Mall. From March 16th through 22nd Leeward District entries will be exhibited at the Pearl City Regional Library, Central District entries will be shown at the Wahiawa Library, and those from the Windward District can be seen at Windward Mall. The contest is sponsored by The Wildlife Society, the Sportsman's Council of Hawaii, the Veterans of Foreign Wars, the Nuuanu and Mililani branches of First Federal Savings and Loan, and Security Equipment, Inc.

WHITE TERN PROJECT NEEDS HELP

Author Dorothy Miles is looking for someone to assist her with her book on the White Terns of Oahu ('Elepaio, October 1986). The person should be a good organizer of both text and slides and should know how to operate an IBM-PC computer with Worstar. Salary is negotiable. Interested individuals can reach Ms. Miles at 926-1797.

HAS WILDLIFE ART EXHIBIT

The Hawaii Audubon Society's Hawaiian Wildlife Photo/Art Exhibit is currently on display at the Hoomaluhia Botanic Garden in Kaneohe. The exhibition of works by HAS members will run through the month of March.

MARCH FIELD TRIP

This month's field trip will be a hike to the Makapuu Lighthouse near Sea Life Park on Sunday, March 15th. The trail starts at the lookout above Makapuu Beach overlooking Manana (Rabbit) Island, and continues along the sea cliffs and over a ridge to the lighthouse. Participants should be on the lookout for Humpback Whales, porpoises, Green Sea Turtles, seabirds, and a good variety of native coastal plants. Hopefully the day will be clear so that everyone can have a clear view of Molokai, Lanai and Maui. Manana Island will be just off shore, so be sure to bring a spotting scope if you have one. Although the hike is not very difficult be aware that there will be a few steep spots along the trail. Bring binoculars, sunscreen, cameras, and lunch. Meet at 7:30 AM in front of the State Library on Punchbowl Street. Call Bruce or Robin Eilerts, at 941-5974 for further information.

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, 1022 Prospect St. on Saturday March 21, at 1:00PM. Phone 524-8464 for more information. Authors of articles, notices, etc. must submit these by 15 March to be included in the April issue.

Many thanks to Sheila Conant, Rob Fleischer, and David McCauley for helping with the preparation of this issue.

MAHALO TO 'ELEPAIO DONORS

'Elepaio would like to thank those of you who have generously contributed to the 'Elepaio Computer Fund. Our gratitude to Mae Mull, Mrs. Maurice King, Karen E. Galley (Kerrville, TX), Carl Nielson, Maile Kjargaard, Sheila Conant, John Thomas O'Brien, A. Binion Amerson (Dallas, TX), Dorothy Miles, Maude L. Nielson, Dr. M. D. F. Udvardy (Sacramento, CA), Unoyo Kojima, and Thane Pratt.

These contributions, together with funds allocated by the Hawaii Audubon Society, have us well on the way toward purchasing a Mac-Intosh Apple computer, a Laserwriter printer and necessary software for 'Elepaio use. Readers wishing to help out should send contributions to the 'Elepaio Computer Fund, c/o Hawaii Audubon Society, P. O. Box 22832, Honolulu, HI 96822.

'ELEPAIO

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(NOTICE TO CONTRIBUTORS: The 'Elepaio invites authors to submit scientific articles on natural history of Hawaii and the Pacific. Scientific articles are subject to peer review. The 'Elepaio also serves as a newsletter to inform members of conservation issues, Society events, and other subjects of interest to members. Manuscripts of articles and newsletter items may be sent to Thane Pratt at 1022 Prospect St., Apt. 1103, 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.)

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

CALENDAR OF EVENTS

- Mar. 9 (Mon.) Board Meeting at Bishop Museum at 7:00 PM. Call Phil Bruner, 293-3820 (wk).
- Mar. 15 (Sun.) Field trip to Makapuu Lighthouse. Meet at State Library on Punchbowl St. at 7:30 AM. Announcement on page 35.
- Mar. 16 (Mon.) General Meeting at McCulley-Moiliili Library at 7:30 PM. Allen Allison will speak on Flora and Fauna of New Guinea.
- Mar. 21 (Sat.) 'Elepaio paste-up at Thane Pratt's house at 1:00 PM. Call 524-8464.

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