



## First Documented Record of a Gull-billed Tern (*Sterna nilotica*) in Hawaii

Reginald E. David<sup>1</sup> and Peter V. Donaldson<sup>2</sup>

On 11 January 1988 we saw and photographed a Gull-billed Tern (*Sterna nilotica*) at the Honouliuli Unit of the Pearl Harbor National Wildlife Refuge (PHNWR) in the Ewa District of the island of Oahu, Hawaii. This sighting is the first documented record of the species in the Hawaiian Islands (Pyle 1983). The Gull-billed Tern is an almost cosmopolitan species; it is found in North and South America and from Australia across the East Indies, throughout Asia and Africa, and also in Europe. This species is generally separated into six subspecies, none of which are separable in the field (Harrison 1983). It is an uncommon tern in the United States, though it was once considerably more common (Terres 1980). Though placed in the genus *Sterna* by the A.O.U., many authors place it in the monotypic genus *Gelochelidon* (A.O.U. 1983). The populations in the northern Pacific are *S. n. vanrossemi*, which breeds from southern California to Ecuador, and *S. n. addenda*, which breeds from southern China to the Malay Archipelago (Harrison 1983). The only previous record of a Gull-billed Tern from an oceanic island in the tropical Pacific is of two individuals seen at Susupe on Saipan, Commonwealth of the Northern Marianas, on 15 November 1984 (T.K. Pratt, pers. comm.). The only other reference to a sighting of a Gull-billed Tern in the central Pacific was from the Trade Wind Zone Oceanography Pilot Study (King 1970). However, in reference to that published sighting, King wrote "I am unable to document my listing of this species from Hawaiian waters. I recommend it be deleted from the state list" (letter to R.L. Pyle, 27 May 1976). Photographs of this bird taken by R. David have been accessioned to the Hawaii Rare Bird Photographic File, maintained by the Hawaii Audubon Society and the B.P. Bishop Museum (HRBP Nos. 720-723). The Gull-billed Tern was not seen on Oahu after 11 January 1988, although several observers searched for it.

The authors went to the Honouliuli Unit of PHNWR in an attempt to photograph a Common Tern (*Sterna hirundo*) sighted there during the Audubon Society's Waipio Christmas Bird Count on 2 January 1988 (R.L. Pyle, pers. comm.). The Common Tern was seen at the same location by several other observers, including a sighting by P. Donaldson at 1630 hrs on 10 January 1988. The Honouliuli Unit is located along the shoreline of the West Lock of Pearl Harbor. The unit contains three diked freshwater

ponds, which are managed to provide habitat for four species of endangered waterbirds.

At 0830 hrs we were surprised by the arrival of a medium-sized, chunky, short-tailed, whitish tern, which more closely resembled a Sandwich Tern (*Sterna sandvicensis*) than the expected Common Tern. We identified this tern as an adult, winter-plumage Gull-billed Tern. We were aware that a Gull-billed Tern had not been recorded previously in Hawaii, so we carefully observed the bird, took notes, made sketches, and photographed the bird before leaving the refuge. We returned to the refuge at 1330 hrs and again at 1645 hrs; the Gull-billed Tern was there each time. We were able to observe the bird for a total of over 2 hrs under a variety of light conditions, including bright sunlight for much of the time. We used 8x40 and 10x40 binoculars to observe the tern in flight and a Questar scope to view it while perched. The bird flew as close as 10 m from us, and when it alighted we were able to approach to within 25 m. Photographs were taken with a 300-mm, f2.8 fluorite Canon lens on Kodachrome 64 film.

At a distance the bird appeared almost completely white; upon closer examination we noted that the dorsal surfaces were silvery gray. The outer primaries were dark brownish gray, forming a noticeable dark trailing edge to the wings, which appeared to be broader and heavier than those of either Common or Sandwich Terns. The head was predominately white, with a narrow blackish line just in front of the eye, widening to a broad patch behind the eye and fading to an indistinct gray band on the nape. At a distance, only the blackish patch behind the eye was noticeable. The eyes were dark and the bill was black and quite heavy, more reminiscent of a gull's bill than a tern's. The tail was pale, short, and barely forked, unlike the deeply forked tails of all other medium-sized terns. As seen from below, the outer seven dark primaries contrasted sharply with the rest of the almost totally white plumage. The feet and legs were black. When the bird alighted on a mud flat, the legs appeared to be quite long for a tern. Only two small gulls, Sabine's Gull (*Larus sabini*) and the Little Gull (*Larus minutus*), have forked rather than rounded tails. The dorsal surfaces of Sabine's Gulls are so distinctly marked in all plumages that confusion with an almost totally white bird is precluded. Little Gulls are much smaller than Gull-billed Terns. In all plumages they have dark underwings, small, fine bills, red



legs, and more extensive black on nape and head. The combined characters of a black, gull-like bill, blackish long legs, short, barely forked tail, and broader and more rounded wings than those of Sandwich Terns are diagnostic of a Gull-billed Tern (Harrison 1983, see Figs. 1-3).

The tern displayed aggressive behavior towards the Black-necked Stilts (*Himantopus mexicanus knudseni*) on the pond. It repeatedly chased off any stilt that approached it and made several diving passes at other stilts as it flew around the pond looking for food. One of us (P. Donaldson) has observed similar aggression directed at Black-necked Stilts by Gull-billed Terns in Mississippi. Considering the aggressive behavior of the Gull-billed Tern, we thought it might have scared off the Common Tern that we had gone to Honouliuli to photograph. The Common Tern was seen repeatedly before the 11th, and again on the 12th, 13th, and 14th of January following the apparent departure of the Gull-billed Tern (A. Engilis, R. Pyle pers. comm.). It was not seen on the 11th, the day that the Gull-billed Tern was present. The tern was observed taking at least one small fish, which it snatched from the water while standing on a mud flat in one of the ponds. While in flight it appeared to be hawking for insects as it passed low over the vegetation bordering the north end of the main pond.

How did a Gull-billed Tern end up in the Hawaiian Islands? Since the bird was seen close to the large U.S. Naval Base at Pearl Harbor it may have traveled at least part of the way to Hawaii aboard a ship. It is no less likely that it reached Hawaii unassisted. At least seven other species of terns occur as vagrants in the Hawaiian Islands; Caspian Tern (*Sterna caspia*), Common Tern (*Sterna hirundo*), Artic Tern (*Sterna paradisaea*), Little Tern (*Sterna albifrons*), Least Tern (*Sterna antillarum*), Black Tern (*Chlidonias niger*) (Pyle 1988), and Great Crested Tern (*Sterna bergii*) (Pyle, David, Donaldson and Engilis pers. obs.). The weather in the Hawaiian Islands was quite unusual during the month before the Gull-billed Tern was seen, which may have played a part in the bird's occurrence. Between 11 and 20 December 1987, two low-pressure systems developed west of Kauai. During this period the east-northeasterly trade winds that usually blow over Hawaii were replaced by southwesterly winds, and a band of thick, layered clouds blanketed the islands, producing almost continuous rain. Rainfall on Oahu between 11 and 20 December 1987 ranged from 11.06 to 18.11 in. (281 to 460 mm). Between 30 December 1987 and 3 January 1988 another low-pressure system developed northeast of the island of Hawaii. This short-lived system produced localized but heavy rainfall and a brief period of strong trade winds. During the 24 hrs ending near sunrise on 1 January 1988, up to 22.89 in. (581 mm) of rain fell on Oahu (U.S. Dept of Commerce, NOAA, National Weather Service, Honolulu Weather Service Forecast Office, unpubl. data). None of the weather systems mentioned above would have been large enough to have blown a bird all the way from Asia or the Americas to the Hawaiian Islands. However, if the Gull-billed Tern was already in waters off the islands, it is easy to imagine how it might have

been affected by this weather. One possibility is that the bird was at sea near Oahu and took refuge on land when rain and wind made further travel or feeding difficult. Or, the bird could have been in Pearl Harbor, unobserved, and only moved to the refuge when a large influx of fresh water from the heavy rains changed conditions in the harbor. Two species of terns (Gull-billed and Common), both rare in Hawaii, and several unusual gulls (Ring-billed, Laughing, Bonaparte's and a possible Thayers [*Larus delawarensis*, *L. atricala*, *L. philadelphia*, and *L. thayeri*]) showed up during or immediately following the unusual weather (David and Donaldson pers. obs.).

#### ACKNOWLEDGMENTS

We thank R.L. Pyle for access to Warren B. King's letter, and T.K. Pratt for his unpublished data from Saipan. We are indebted to the reviewers, Phil Bruner, Sheila Conant, and Andy Engilis, Jr., for their comments and suggestions, which have greatly improved this paper.

#### LITERATURE CITED

- American Ornithologists' Union. 1983. Check-list of North American birds. 6th edition. American Ornithologists' Union. Washington, D.C.
- Harrison, P. 1983. Seabirds: An identification guide. Houghton Mifflin Co., Boston, Massachusetts.
- King, W.B. 1970. The Trade Wind Zone Oceanography Pilot Study. Part VII: Observations of sea birds March 1964 to June 1965. U.S. Dept. Interior, Bureau of Sport Fisheries and Wildlife. Spec. Sci. Rept. Fisheries No. 586.
- Pyle, R.L. 1983. Checklist of the birds of Hawaii. 'Elepaio 44:47-58.
- Pyle, R.L. 1988. Checklist of the birds of Hawaii. 'Elepaio 48:95-106.
- Terres, J.K. 1980. The Audubon Society encyclopedia of North American birds. Alfred Knopf, New York.

<sup>1</sup>Reginald E. David  
P.O. Box 1371  
Kailua-Kona, HI, 96745

<sup>2</sup>Peter V. Donaldson  
2375 Ahakapu Street  
Pearl City, HI 96782



Figure 1. Gull-billed Tern, Honouliuli, 11 January 1988. Note the distinctive large, black bill (HRBP No. 720).

Photo by R. David





Figure 2. Note the dark primaries and the short, barely forked tail (HRBP No. 722).

Photo by R. David

## NATIVE SONS AND DAUGHTERS. HAWAIIAN GOOSE.

Wildlife artist Daniel Van Zyle of Honolulu, has been commissioned by HAS to produce a limited edition of fifty multicolored stone lithographs celebrating the 50th anniversary of HAS.

The fifty collector's prints will premiere at the opening reception of the HAS 50th Anniversary Wildlife Art and Photo Exposition hosted by Pacific Island Arts Gallery in Haleiwa, June 17, 1989.

When Bruce Eilerts asked me to coordinate this year's art exhibition, I was especially excited to learn that 1989 would mark the fifty years of Audubon Society in Hawaii. Here was an opportunity to participate in a project where my talents would be used by Audubon to expand their interests.

This year I hope to add a new dimension to the show by enjoining the private sector, that is an art gallery, with the resources of the Audubon Society, to bring about the appreciation for and to expose the talents of wildlife artists and photographers here in Hawaii.

The first thing on the agenda was to let everyone know about the show. That's why you found our "Call for Entries" in the April issue of *'Elepaio*. It outlines the details about the Exposition and enables you, our members to jump on the bandwagon and participate. The call for entries has also been distributed to art guilds and private art or photo related businesses, there are still some distribution points not covered. If you would like to help please call Lynne at 528-1432.

Being an artist more than a promotions man, my pet part of this whole project, the part that excites me most, is the opportunity that HAS has given me to produce a commemorative issue of a stone lithograph.

Dating back to the 1700's stone lithography was the first form of reproduction that allowed artists, themselves, to draw and produce their own art. Prior to that, an artist drew his image and it was turned over to another craftsman to copy onto a steel plate or woodblock. It must have been like handing over your only child for someone else to raise.

Simply put, stone lithography involved a thick slab of limestone, a series of greasy crayons, drawing the image in

reverse, some chemicals, greasy ink, paper and a hand printing press.

After I draw the reverse image directly on the stone, the work surface of the stone is treated with chemicals, wetted all over with water and a roller charged with a greasy ink is passed over the surface. The lines of the drawings retain the ink, but the dampened parts of the stone reject it. Paper is laid on the stone and hand rolled under pressure, through a press. The impression has been made. For each color laid down on the paper, the process is repeated. After the edition is printed, and all the documentations have been made, the artist defaces the image, one more print is pulled and the image ground off the stone. Never to be repeated.

That in its simplest terms is stone lithography, without that invention it is doubtful whether many of the finest biological illustrations of the nineteenth century would exist.

In any case, "Native Sons and Daughters" does exist. If you would like to reserve a print or require more information on this edition of fifty, signed and numbered, multicolored lithograph, commemorating fifty years of Audubon in Hawaii, please contact Sue Callahan at Pacific Island Arts Gallery, 637-7880. Proceeds will benefit the Hawaii Audubon Society.

While the artist part of me was struggling with what image I could portray on this important assignment, my wife Roslyn and I decided to spend New Year's Eve weekend in Haleakala. It was while we were in the crater that everything came together...as is often the case.

That time of the year is a beautiful, abundant, lush time for all living things in the crater, and coincides with the hatching cycle for the Nene. The pukiawe, kukae nene, all the berries and plants were in their finest stages. I remember seeing a pair of Nene with their week old goslings. Just the one. It said something to me, it said still endangered, even through great strides have been taken in these fifty years that Audubon has been in Hawaii.

But I wanted in the long run, to make an even stronger statement, a positive statement, one that gives hope and encouragement. So, the single gosling turned into three and a family unit emerged.

After working long hours on "Native Sons and Daughters", I know I have made the right decision. The name says it all. Pride and hope. Pride of the work that's been done to bring these unique symbols of Hawaii out of the shadow of extinction and hope for a bright future. I'm proud of our efforts, it's been well worth the work.

Daniel Van Zyle

## HAS JUNE PROGRAM

Lorin Gill of Moanalua Gardens Foundation will speak on "What Makes Hawaii Special" on Monday, June 19 at 7:30 PM at the B.P. Bishop Museum's Atherton Halau. The talk will cover insular evolution in the Hawaiian Islands. Mr. Gill is best known for his work in environmental education in Hawaii.





*Final drawing. "Native Sons and Daughters. Hawaiian Goose." stone lithograph.*

**50th ANNIVERSARY COLLECTOR  
AVAILABLE THROUGH PACIFIC  
FOR MORE INFORMATION, CALL  
AT 637-7880.**





PRINT BY DANIEL VAN ZYLE  
ISLAND ARTS GALLERY  
SUE CALLAHAN



# GREENPRINT

VOL. I, NO. 1

AUDUBON HAWAII CONSERVATION NEWS

APRIL 1989



- **GOAL** • Increase existing efforts to implement a statewide forest watershed management program that will protect, preserve and enhance Hawaii's native forest ecosystems in perpetuity.

- **GOAL** • Increase public awareness of alien species and their impacts and reduce their negative effects on the Hawaiian environment.

- **GOAL** • Assist state and federal agencies to secure and enhance major wetland habitat areas, in particular Kawainui marsh, Waipio peninsula wetlands, Kealia pond and the Mana wetlands.

*In January of this year, the Audubon Society hatched a new idea. The New York-based National Audubon Society and the local 50-year old Hawaii Audubon Society began a partnership aimed at mobilizing the Hawaiian public around an exciting program of island conservation.*

*Using seed money from the MacArthur Foundation of Chicago, Audubon has nurtured its fledgling Hawaii State Office through the spring. The board of directors of the Hawaii Audubon Society and Hawaii State Office staff have collaborated closely to plot a new course for the Society. Audubon of Hawaii is now poised to leave the nest and announce the three major goals of its Conservation Campaign.*

## NATURAL FOREST PRESERVATION

Perhaps no other habitat type in Hawaii has elicited as many conservation efforts and public concerns as Hawaii's native forests. Those lush, primeval areas like the haunting Hakalau forest on the slopes of Mauna Kea have compelled public and private sectors to conservation action. Through cooperative efforts, the Hakalau forest is now a National Wildlife Refuge, administered by the U.S. Fish & Wildlife Service.

Yet the historical losses of native forests and their attributes — their birdlife, insects, plants — have been so extensive that much more needs to be accomplished before the forests are restored. The Audubon Society's Conservation Campaign goal is critical not only to preserve the forest for native plants and animals, but also to preserve it for ourselves. Humans benefit in a most important way from the native forests — they give us clean, abundant water.

How is forest preservation and water consumption connected? How can individual citizens of Hawaii protect the water supply and water quality of the present and the future? These are two of the issues that will be explored in future issues of GREENPRINT.

For fifty years, the Hawaii Audubon Society's motto has been "For the protection of Hawaii's native wildlife". Audubon's new Conservation Campaign will continue to further the spirit and purpose of that goal, which is inextricably linked to native forest protection. Working cooperatively with other groups, the Audubon Society will strive to protect endangered native Hawaiian wildlife through legislation or by advocating protective private and government programs.

Of current concern is the plight of the Hawaiian crow, or 'Alala. Found only on the state leased and private lands of the McCandless Ranch in Central Kona, the 'Alala is thought to number less than ten individuals in the wild. Experts agree that captive rearing to increase the number of crows is the only way the 'Alala can step back from the brink of extinction. Yet the state of Hawaii and the U.S. Fish & Wildlife Service continue to debate

## ALIEN SPECIES CONTROL

Some of Hawaii's worst conservation "headaches" are due to the deliberate or accidental introduction of non-native or "alien" birds, mammals, plants, and insects. Alien species sometimes become established in the wild, and can be serious pests to agriculture, as well as threats to the native flora and fauna of the islands.

There are various ways in which an alien plant or animal can cause damage; sometimes, a single alien type may be damaging in several ways.

- Alien species may use nutrients or space which would otherwise be used by native species. For example, plants which are innocently introduced in a backyard garden may



become monitors upon their escape into the wild. The banana poka vine was introduced as an ornamental plant on the Big Island. Now escaped from the garden and into the native forest not only on Hawai'i but also on Kauai and Maui, banana poka smothers other plants under its overwhelming growth. It can topple even the tallest and oldest *koa* tree.

- Introduced animals and plants can bring new disease to native species. Mosquitoes, an introduced insect have spread diseases which had not been present in Hawai'i before. Because native Hawaiian species evolved under isolation, they are particularly susceptible to new diseases. Researchers believe that disease may be one of the reasons for the continuing decline of native forest birds in certain areas, in spite of the fact that suitable habitat exists.

- Since their introduction to the islands cloven-hooved animals called "ungulates" — pigs, sheep, goats, deer — have had a tremendous impact on Hawai'i's native ecosystems.

Prior to the arrival of Captain Cook, early Polynesians brought pigs with them which were held in high regard both culturally and as food. Pigs became established in the wild (feral) and began to destroy native plants on all the main Hawaiian islands by their browsing and uprooting of plants. In the last 200 years, goats, sheep, cattle, and deer have made their way into forests and now contribute additional damage to native ecosystems.

Methods for controlling damage by ungulates vary, and the Audubon Society will be working to ensure that adequate funding and manpower exists within the state and federal government agencies to carry them out. Depending on the location and the species targeted for control, control measures include: constructing and maintaining fences while systematically removing animals within the enclosed area; paying hunters to remove animals; and setting and monitoring snares or traps.

- Introduced animals can not only destroy habitat and food for native animals but sometimes prey on the animals themselves. The mongoose is a classic example. Deliberately introduced to Hawai'i in 1883 to control rodents — the mongoose has seriously reduced native bird populations ever since. The eggs and young of ground nesting birds like the endangered *Ae'o* or black-necked stilt and seabirds are especially vulnerable, not only to predation from mongoose, but also from feral cats, dogs, and three introduced species of rats.

- Serious agricultural damage has been inflicted by the *bilbil*, an aggressive bird from India and southeast Asia whose numbers have exploded in the last fifteen years. A wide variety of commercially grown produce and flowers — bananas, papayas, anthuriums, dendrobium orchids — are at risk. A public information campaign is being waged by state and federal agencies who seek to inform local residents about the dangers of transporting this bird to the neighbor islands from O'ahu, the only island where it is currently well-established.

The Audubon Society's Conservation Campaign will focus the energy of its volunteer leaders and staff on projects that will inform people about WHY certain animals and plants are pests, WHERE they occur in Hawai'i, and HOW their spread or introduction can be stopped. Informative articles will appear in GREENPRINT, giving in-depth information on pest species, and suggestions for how you, as a concerned island resident, can help.

As an important first action, scientists from the leadership of the Hawai'i Audubon Society are reviewing the list of alien birds that are permitted entry into the state. The state Department of Agriculture is revising the list and the regulations governing alien bird importation.

breed the crow. The situation today is especially critical, because the nine captive crows at the state's facility are too inbred to be expected to reproduce most successfully. More wild crows must be brought into captivity, a move opposed by the ranch. To date, neither the state or the federal government has taken any effective actions to remedy the situation. Leaders of the Audubon Society are seeking creative ways to break the political logjam that threatens the *'Alalala* with extinction.

The *'Alalala* is one of several Hawaiian forest birds on the precipice. Four other species found in the forests of central Kona on the Big Island are listed as either threatened or endangered by the state and federal governments: the *'Akiapola'au*, the Hawai'i Creeper, the *'Akepa*, and the *I'o* (Hawaiian hawk). Scientists believe that many of the factors that led to the desperate situation facing the *'Alalala* are in play for these species as well. Disease, competition from non-native species, and most importantly, loss of native forest habitat are thought to be important elements in the decline of native birds. What will their fate be if the *'Alalala* cannot be saved? Through the Conservation Campaign efforts of volunteers and staff, the Audubon Society hopes to avert similar disasters for the forest birds in Hawai'i's natural heritage.

#### WETLAND PROTECTION & MANAGEMENT

Natural wetlands and agricultural wetlands developed by the ancient Hawaiians once provided extensive habitat for waterbirds. In the last two hundred years land use changes in Hawai'i have reduced those habitats and their dependent waterbird populations. Predator and invasive vegetation have done further damage.

Four waterbirds found only in Hawai'i are endangered species. The Hawaiian duck or *Koloa*, Hawaiian coot or *'Alae ke'o ke'o*, Hawaiian gallinule or *'Alae 'ula* and Hawaiian stilt or *Ae'o* are all dependent on wetland habitat. Protection and management of major wetland habitat areas is proposed in the U.S. Fish and Wildlife Service-approved plans designed to recover these waterbirds.

The 750-acre Kawaiuni marsh on windward Oahu gets heavy use by waterbirds. Most of the main marsh is covered with dense vegetation which contributes to threats from flooding, although open water areas exist near the center of the marsh. Expansion of existing open areas and creation of additional open water areas will benefit waterbirds and should increase the flood storage capacity of the marsh. The Hawai'i Audubon Society supports transfer of marsh management from the City and County of Honolulu to the State Department of Land and Natural Resources to achieve habitat enhancement in central O'ahu.

There are two major wetlands on the Waipio peninsula. One is owned by the U.S. Navy and leased by Waipahu Sugar Company and used for settling ponds. Puohala marsh is jointly owned by the City and County of Honolulu and the state. The Navy lands may eventually be incorporated into the existing Pearl Harbor National Wildlife Refuge if sugar production ends and the settling ponds go out of use. The Audubon Society supports assumption of Puohala marsh by the state because that would allow private assistance for habitat enhancement.

The highest concentration of breeding Hawaiian stilts in the state is supported by Kealia pond, an important 500-acre wetland on Maui. The Audubon Society supports addition of this area to the Hawaiian Wetlands National Wildlife Refuge Complex. Active wetland development will be necessary to insure the quality of the stilt nesting habitat and to monitor adjacent land uses.

The Mana Wetlands on Kauai are leased by Kekaha Sugar Company as a water source for sugar cane cultivation. Ground water levels are kept low by massive pumping resulting in about 200 acres of habitat remaining from a 2,000 acre wetland. Should cane cultivation cease rising water levels could restore this wetland habitat. The Audubon Society encourages the development of a state water contingency plan that would restore these areas to wetland habitat.



Above, a *painiu* grows in Alakai Swamp and *mamane* blooms in a native forest, below.

photographs courtesy of Bruce Elliott





## First Documented Record of a Flesh-footed Shearwater (*Puffinus carneipes*) Within Sight of the Hawaiian Islands

Reginald E. David

On 5 April 1986, while aboard the research vessel *Black Whale*, I saw and photographed a Flesh-footed Shearwater (*Puffinus carneipes*) approximately three miles (4.8 km) off Kailua-Kona, Island of Hawaii (19°37'N, 156°06'W). Flesh-footed Shearwaters are considered very uncommon visitors to Hawaiian waters (Pyle 1988). The only previous documented observations of this species close to the Hawaiian Islands were made during the Smithsonian Institution's Pacific Ocean Biological Survey Program. One specimen was collected on 15 September 1964 approximately 120 miles (194 km) south of Laysan (23°00'N, 171°52'W). Another was sighted on 22 April 1965 approximately 111 miles (179 km) south of Kaula Rock (20°07'N, 161°40'W) (W. King, letter to R.L. Pyle). During monthly cruises in 1964 and 1965 south and east of Hawaii, seven Flesh-footed Shearwaters were sighted; all were 600 miles or more (968 km) offshore. Others might have been overlooked during those cruises (King 1970).

On 5 April 1986, Dan McSweeney, Susan David, and I were photographing whale flukes for an ongoing whale identification project conducted under the auspices of the West Coast Whale Research Foundation. By 1030 hrs we had seen 34 Wedge-tailed Shearwaters (*Puffinus pacificus*) and six Sooty Terns (*Sterna fuscata*). At 1045 hrs we came upon a raft of eight Wedge-tailed Shearwaters sitting on the water. Among them was an all-dark shearwater; we approached to within 5 m before it took flight.

The bird was marginally larger and darker than the accompanying Wedge-tailed Shearwaters. From above it showed dark brown, almost black primaries, forming dark wedges at the wingtips. The eyes were dark and the bill was bone colored with a distinctive black tip and culmen. When the bird took flight its ventral surfaces proved to be a uniform brown, unlike the usual pale morph Wedge-tailed Shearwaters that we see in Hawaii. It had pink legs and feet, unlike the locally uncommon dark phase Wedge-tailed Shearwaters, which have gray-blue legs and feet. This latter feature, coupled with the black-tipped, horn-colored bill, is diagnostic of Flesh-footed Shearwaters (Harrison 1983). Photographs of this bird have been deposited in the Hawaii Rare Bird Photographic File maintained by the Hawaii Audubon Society and the B.P. Bishop Museum (HRBP Nos. 474-478).

The Flesh-footed Shearwater and the closely allied Pink-footed Shearwater (*Puffinus creatopus*) constitute a superspecies and are considered by some authors to be conspecific (A.O.U. 1983). The two main breeding populations migrate to different regions. One population breeds on islands off the northeast coast of New Zealand and Lord Howe Island, southeast of Australia. These birds migrate to the North Pacific, where they have been recovered as far

north as Japan and sighted off the west coast of North America from California to as far north as the southern Bering Sea. The other populations breeds on the islands off the southwest coast of Australia and on St. Paul Island in the Indian Ocean. These birds migrate west across the Indian Ocean to the Seychelles and Mascarenes and into the Arabian Sea. They have been seen as far west as South Africa (A.O.U. 1983, Blakers et al. 1984, Falla et al. 1982, Harrison 1983).



Figure 1. Flesh-footed Shearwater. Note the pale, dark-tipped bill (HRBP No. 474).

Photo by R. David

Flesh-footed Shearwaters breed at the start of the Austral summer in November and December and fledge their young in April and May. One would normally expect that birds would be heading north to their nonbreeding grounds in April and May and moving south in September and October. Of the seven birds reported south and east of Hawaii by King, four were seen in October 1964, one in December 1964, and two in April 1965, most accompanied by Sooty Shearwaters (*Puffinus griseus*). Three of the four October birds were heading south, and both of the April birds were heading north (King 1970).

Since our initial sighting and identification of this species, we have looked for it more assiduously and have seen individuals on three subsequent occasions, all in the vicinity of our first sighting: on 20 April 1986 two birds were seen heading north; on 10 October 1986 one bird was seen and photographed heading south (HRBP nos. 728-729); and on 20 November 1987 two birds were seen heading south.

### ACKNOWLEDGMENTS

I would like to thank Capt. Dan McSweeney and the West Coast Whale Research Foundation for boat transportation and for accommodating our bird-chasing digressions, R.L. Pyle for access to Warren B. King's letter and for suggestions and comments on a preliminary draft, P. Pyle for confirming the identification from our slides of the first sighting, and Sheila Conant, Craig Harrison, and one anonymous reviewer for their many suggestions for improving this paper.



## LITERATURE CITED

- American Ornithologists' Union. 1983. Check-list of North American birds. 6th edition. American Ornithologists' Union, Washington, D.C.
- Blakers, M., S.J.J.F. Davies, and P.N. Reilly. 1984. The atlas of Australian birds. Melbourne University Press. Carlton, Victoria.
- Falla, R.A., R.B. Sibson, and E.G. Turbott. 1982. The new guide to the birds of New Zealand. Collins, Auckland.
- Harrison, P. 1983. Seabirds: An identification guide. Houghton Mifflin Co., Boston, Massachusetts.
- King, W.B. 1970. The Trade Wind Zone Oceanography Pilot Study. Part VII: Observations of sea birds March 1964 to June 1965. U.S. Dept. Interior, Bureau of Sport Fisheries and Wildlife. Spec. Sci. Rept., Fisheries No. 586.
- Pyle, R.L. 1988. Checklist of the birds of Hawaii. 'Elepaio 48:95-106.

Reginald E. David  
P.O. Box 1371  
Kailua-Kona, HI 96745



Figure 2. Note the overall shape and the dark primaries showing as dark wedges (HRBP No. 728).

Photo by R. David

## PIHEA TRAIL, KAUAI FIELD TRIP REPORT

Bruce Eilerts conducted a short field trip along Pihea Trail at Kokee, Kauai on March 19, 1989. There were fifteen participants that braved the cloud covered, misty ridges above Kalalau Valley in search of Kauai forest birds.

Winona Sears and Marsha Erickson, HAS Kauai representatives, shared their knowledge of the area's beautiful flora and fauna. Native forest birds sighted included 'Apapane, 'Anianiau, Kaua'i 'Amakihi, Kaua'i 'Elepaio, 'Tiwi, and Pueo. Lesser Golden-Plovers were common along the trail and introduced birds such as Melodious Laughing-thrush, White-rumped Shama, Japanese White-eye, Spotted Doves, and Erckel Francolin were also encountered. This field trip was the first in several years to be conducted on an outer island. HAS hopes to conduct more outer island trips in the near future.

## NWF FELLOWSHIPS

The National Wildlife Federation is now accepting applications for environmental conservation fellowships for 1989-1990. Fellowships are for graduate students with advanced study in fields relating to wildlife, natural resource management, and protection of environmental quality. All research supported by the program must relate directly to specific and continuing activities of the Federation and its affiliates, as outlined in application materials. For applications, write to: President, National Wildlife Federation, 1400 Sixteenth Street N.W., Washington D.C. 20036-2266, Attention: Environmental Conservation Fellowships. Applications must be postmarked before July 15, 1989.

## PLOVER WATCH

*In the last issue, the address for Phil Bruner was left out. In this reprint the full address is included.*

Pacific Golden-Plovers (*Pluvialis fulva*) have been banded on Oahu, Hawaii and near Nome, Alaska. Each bird wears a United States Fish and Wildlife Service band on one leg (some birds also have a single color band on that leg, and one or more color bands on the other leg. If there is more than one color band, combinations are 2 of the same color, 2 different colors, 3 of 2 colors, or 3 of 3 colors. Observers are asked to note the colors and the exact sequence of all bands on the bird. It is important that we know which leg carries the particular color(s) and, where used together, whether the color band is above or below the metal band. In an effort to improve knowledge of trans-Pacific migration routes and the locations of breeding grounds, premigrants in Hawaii will be color-marked in April 1989. Observers in Alaska and northeastern USSR should be alert to possible sightings of plovers with yellow dye applied to white areas of breeding plumage. Please send observations with as much information as possible to OSCAR JOHNSON, Department of Biology, Moorhead State University, Moorhead, MN 56560, phone (218) 236-2360

## BEQUESTS

A bequest to Hawaii Audubon Society is an excellent way to help in our conservation efforts. George Munro, tireless and enthusiastic field ornithologist and naturalist provided for a fund to be used exclusively for the protection of native dry forests. Today, the George C. Munro fund provides monies for research projects on dry forest.

Although an attorney should be consulted in the drafting of your will, a model clause for bequests is set forth below.

"I hereby, give, devise and bequeath to the Hawaii Audubon Society, Honolulu, Hawaii, the sum of \_\_\_\_\_ dollars (or set forth a description of the property), to be used for the general purpose of said organization."

For more information and assistance, contact Hawaii Audubon Society, 212 Merchant Street, Suite 320, Honolulu, Hawaii 96813.



**MAILING ADDRESS CHANGE**

Please note that HAS mailing address is changed to:  
212 Merchant Street, Room 320, Honolulu, Hawaii, 96813. Mail will no longer be received at HAS PO box.

**TABLE OF CONTENTS**

First documented record of a Gull-billed Tern (*Sterna nilotica*) in Hawaii. Reginald E. David and Peter V. Donaldson.....33

First documented record of a Flesh-footed Shearwater (*Puffinus carneipes*) within sight of the Hawaiian Islands. Reginald E. David.....37

**CALENDAR OF EVENTS**

June 12 (Mon.) Board Meeting at HAS office at 7:00 PM  
Call Bruce Eilerts for details, 599-4795

June 17 (Sat.) HAS 50th Anniversary Celebration at Pacific Island Arts Gallery.

June 19 (Mon.) General Meeting at Atherton Halau, Bishop Museum at 7:30 PM.  
Program: What Makes Hawaii Special by Lorin Gill.

**HOOMALUHIA BIRD WALKS**

Learn the common birds of Kaneohe on a bird walk at Hoomaluhia. Walks are scheduled for Saturday, August 19 and Sunday August 20 from 7:00 to 9:00 AM. Participants must wear comfortable, sturdy walking shoes, bring their own binoculars and mosquito repellent. Walks start from the Hoomoluhia Visitor Center. RESERVATIONS ARE REQUIRED. For reservations and more information call 235-6636.

**HAWAII AUDUBON SOCIETY**  
212 MERCHANT STREET, ROOM 320  
HONOLULU, HAWAII 96813

Non-Profit Organization  
U.S. POSTAGE  
**PAID**  
Honolulu, Hawaii  
Permit No. 1156

F50  
NOV89  
MARTHA D MC DANIEL  
45142 MIKIHILINA ST  
KANEHOE HI 96744