HAWAII AUDUBON SOCIETY

'ELEPAIO

Journal of the Hawaii Audubon Society

For the Protection of Hawaii's Native Wildlife

VOLUME 55, NUMBER 6 AUGUST/SEPTEMBER 1995

Forest Bird Distribution and Abundance West of the Alaka'i Wilderness Preserve, Kaua'i, Summer 1994

by Michael Walther[1]

Abstract

I conducted forest bird surveys during the summer of 1994 in the area west of the Alaka'i Wilderness Preserve on the Island of Kaua'i. In the study area, the 'Apapane and 'Elepaio were found consistently and had widespread populations. The 'Amakihi, 'I'iwi and 'Ani'ani'au were uncommon and restricted to the wetter high elevation forests. The 'Akepa was very rare and the 'Akikiki was not observed.

Methods

The study area consists of approximately 100 kilometers squared and contains wet mixed koa and ohia forests and non-native forests. Elevations range from 1,240 meters to 440 meters. Between 1 and 21 July, 1994, I established six transects to provide an updated benchmark on the distribution and abundance of forest birds. The transects were located on the Awa'awapuhi, Nu'alolo, Miloli'i, Ha'ele'ele, Pohakumano, and Halemanu-Koke'e Trails. Stations were located at 150 meter intervals. I conducted eight minute counts at each station and recorded all the birds I visually detected. Distance from each observation was estimated to the nearest meter. A total of 190 stations were established. Each of these was sampled three times, amounting to 76 total hours of observation. In addition to the transects I conducted 15 supplementary, non-systematic surveys along other established trails in and around Koke'e State Park with an additional 35 hours of observation. I combined the results of both the transect counts and supplemental surveys to provide the most complete assessment of forest bird populations west of the Alaka'i Preserve.

Results

Table 1 (see page 36) provides the results of my observations for both native and non-native forest bird species. The 'Apapane was very common and had the most widespread distribution. This species was observed feeding on non-native forest plants such as eucalyptus, blackberry, banana poka, and lantana blossoms, and could be found as low as 700 meters on the dry southwestern slopes of Kaua'i.

The 'Elepaio was also common, especially in Koke'e State Park and at the higher elevations on the Awa'awapuhi, Nu'alolo, and Miloli'i Trails, but the lowest elevation for 'Elepaio detection was 900 meters.

The 'Amakihi was the third most common native forest bird in the study area, but was not detected on the drier southwestern slopes. It was found only above 800 meters in the wetter forests and at the bottom of the Awa'awapuhi Trail.

The 'I'iwi was uncommon during the survey. Only small scattered groups were found along the Pu'uka Ohelo and Berry Flats Trails in Koke'e State Park and at the top of the Nu'alolo Trail. The 'I'iwi was absent from all stations below 1,000 meters.

The 'Ani'ani'au was a very uncommon bird during the survey. It was found at a few locations along the Ditch Trail and at the top of the Awa'awapuhi Trail. It was not observed below 1,100 meters or in the dry southwestern section of the study area.

The 'Akepa was seen on only 3 occasions. All of these sightings were above 1,200 meters. The 'Akikiki was not observed west of the Alaka'i Wilderness Preserve.

Discussion

Only 44 of 595 (7.3%) total forest birds seen during the survey were found below 1,000 meters. These consisted of 37 'Apapane, 4 'Elepaio, and 3 'Amakihi. There are several extensive plantations of non-native pine, eucalyptus, and silk oak in the southwestern section of the study area below 800 meters. I surveyed these areas and found them devoid of native forest birds. These areas supported meager populations of the Northern Cardinal, Spotted Dove, and the ubiquitous Japanese White-eye.

Two hurricanes and the combined effects of predation, disease, competition, loss of native forest, and invasive vegetation have apparently caused most of the native forest bird species to diminish at the lower elevations. Only the 'Apapane and, to a lesser extent, the 'Elepaio have managed to adapt to the rapidly changing conditions. The absence of the other five native forest bird species below 1,000 meters could represent a seasonal shift to higher elevations during the summer when I conducted the survey, or it could also be explained by the restriction of food availability resulting from hurricane damage or expansion of the presence of avian malaria to higher elevations.

Acknowledgments

I would like to thank Tom Telfer of the Hawaii Division of Forestry and Wildlife for his help in the design and implementation of this survey and for editorial help with this report. To Marsha Erickson, Kate Reinard, and Thorne Clarke of the Koke'e Natural History Museum for their kindness and hospitality. To my family, especially my brother Mark, for their generosity and encouragement.

Literature Cited

U.S. Fish and Wildlife Service. 1983. Kauai Forest Birds Recovery Plan. Portland, Oregon. 69 pp.

Scott, J.M., S. Mountainspring, F.L. Ramsey, and C.B. Kepler. 1986. Forest bird communities of the Hawaiian Islands, their dynamics, ecology and conservation. Studies in Avian Biology No.9.

[1]*Department of Environmental Studies, University of California, Santa Barbara, CA 93106*

Table 1. Relative Abundance Of Forest Birds West Of Alaka'i Wilderness Preserve, Kaua'i, Summer 1994

Species	Totals From Transects	%	Totals From Incidental Surveys	%	Total For All Surveys	%
'Apapane	176	66.92	144	43.37	320	53.78
'Elepaio	42	15.96	69	20.78	111	18.65
'Amakihi	32	12.16	72	21.68	104	17.47
'I'iwi	4	1.52	25	7.53	29	4.87
'Ani'ani'au	7	2.66	21	6.32	28	4.70
'Akepa	2	0.76	1	0.30	3	0.50
'Akikiki	0	0.00	0	0.00	0	0.00
Total Native Birds	263	21.78	332	40.78	595	29.44
Japanese White-eye	571	60.48	319	66.18	890	62.41
Nutmeg Mannikin	43	4.55	68	14.10	111	7.78
Spotted Dove	86	9.11	19	3.94	105	7.36
Myna	60	6.35	27	5.60	87	6.10
House Finch	45	4.76	26	5.39	71	4.97
Northern Cardinal	46	4.87	22	4.56	68	4.76
Hwa-Mei	46	4.87	0	0.00	46	2.27
Zebra Dove	17	1.80	0	0.00	17	1.19
White-rumped Shama	15	1.58	1	0.20	16	1.12
Mockingbird	13	1.37	0	0.00	13	0.91
Greater Necklaced Laughing Thrush	2	0.21	0	0.00	2	0.14
Total Non-Native Birds	944	78.21	482	59.21	1,426	70.55
Total All Birds	1,207		814		2,021	

Nominating Committee Seeks Candidates

Janice McCain will chair the Nominating Committee for the 1996 elections. Other committee members are Emily Gardner and David Hill.

Members are invited to submit nominations for first vice president, corresponding secretary, treasurer, and seven directors. Most are two year terms.

Nominations should be sent to the Nominating Committee, Hawaii Audubon Society, 1088 Bishop Street, Suite 808, Honolulu, HI 96813 by 31 August. For more information call Janice McCain, 239-1135 (H), 254-2866 (W).

Birders Network

HAS has a list of birders who are interested in informal trips with other members, allowing members to find others to go along with them on their outings—for the sake of safety, to share information on good spots, or simply to increase the fun. If you are interested in putting your name on the list, which would be circulated to all those on the list, call or write HAS.

Bullfrog Predation on an Endangered Common Moorhen Chick at Hanalei National Wildlife Refuge, Kaua'i

by Kathleen J.F. Viernes[1]

On the morning of 22 December, 1994, while collecting sick toads at Hanalei NWR, Rose Fitzgerald, a taro farmer operating on the refuge, approached me in the field reporting what she thought was a frog eating a chick. She led me to the east bank of taro patch number 14a where I saw a large bullfrog (*Rana catesbeina*) with the legs and tail of a downy black chick protruding from its mouth. The image was one of a frog that had captured prey too large to swallow completely. As I approached the frog it leaped into a shallow flooded taro patch and I pursued it, momentarily pinning it down in a few inches of water. At that moment the frog released the chick. The frog escaped but I managed to retrieve what turned out to be a dead Common Moorhen (Hawaiian Moorhen) chick (*Gallinula chloropus sandvicensis*) from the muddy water. The taro farmer and another staff biologist, Cris Dippel, were present during the event.

How long the frog had been sitting there with the chick in its mouth was not determined, but when retrieved, the chick's body was cold and beginning to stiffen. I estimated the frog to be about 15 cm (6 inches) from nose to tail. The chick measured 19 cm (about 7.5 inches) from the tip of the bill to the base of its tail, and the bill length was 2.5 cm (about 1 inch).

Bullfrogs on the Mainland have been documented in the literature as being opportunistic predators on a wide variety of vertebrates including snakes, frogs, fish, lizards, and nestling birds (Schwalbe and Rosen, 1988). We have long suspected that bullfrog predation of endangered Hawaiian waterbirds was occurring at Hanalei NWR, but this was the first time it had been documented by refuge staff. Taro farmers have verbally relayed stories to me of seeing frogs chase endangered waterbird chicks. In one instance, a farmer reported chasing a frog after hearing chick distress cries while he was working in his patch. The farmer said when he chased the frog it released a small fuzzy black chick that swam away. None of the incidents were reported to refuge staff at the time they occurred and the farmers could not recall the dates.

The impact of bullfrog predation on fledging success of the four endangered waterbird

Chick remains. Photo © Kathleen Viernes, USFWS.

species on the refuge is unknown, but all are considered vulnerable. The four endangered species on the refuge are the Black-necked Stilt (Hawaiian Stilt) (*Himantopus mexicanus knudseni*), Hawaiian Duck or Koloa (*Anas wyvilliana*), Hawaiian Coot (*Fulica alai*), and Common Moorhen (*Gallinula chlorupus sandvicensis*).

Fledging success for Black-necked Stilts on the refuge has been noticeably poor. In 1994 at least 44 stilt chicks were believed to have hatched in taro and pond areas of the refuge with only one known to have fledged. Fledging success for the other three endangered waterbird species has been much more difficult to assess due to their secretive habits.

Bullfrog counts have not been conducted on the refuge, but incidental observation of frogs around taro and pond areas suggest an increasing frog population, especially around large impoundments that were created in 1989. There are numerous potential threats to chick survival on the refuge. Cat, dog, and owl predation on endangered species has been documented. Other potential limiting factors not yet documented could include disease, parasites, food quality and supply, and other predators including Cattle Egrets and Black-crowned Night-Herons.

Past predator control programs have focused on controlling cats and dogs on the refuge. In an effort to help determine, and hopefully reduce the impact of bullfrog predation on waterbird chick survival, bullfrog control measures were initiated in March 1995. It is hoped that by reducing the bullfrog population in selected wildlife impoundments, endangered waterbird chick survival rates may improve in those areas. If chick survival rates do increase following bullfrog removal this could provide valuable information about the impacts this small, surreptitious predator may have on Hawaii's endangered waterbirds.

Literature Cited

Schwalbe, C.R., and P.C. Rosen. 1988. Preliminary Report on Effect of Bullfrogs on Wetland Herpetofaunas in Southeastern Arizona. Paper presented at the Symposium, The Management of Amphibians, Reptiles, and Small Mammals in North America, p. 166-173, July 18-22, 1988, Flagstaff, Arizona.

[1] *USFWS, Kauai NWR Complex, P.O. Box 87, Kilauea, HI 96754*

Hakalau Expands

by Andy Cowell

The Hakalau Forest National Wildlife Refuge on the Island of Hawai'i has nearly doubled in size with two recent additions. The Conservation Fund, a non-profit organization, financed the acquisition of the 500-acre Pua Akala Ranch in April 1995. This is a high-elevation area at the upper boundary of the refuge with good potential for restoration once livestock are removed. A second parcel of just over 15,715 acres was purchased in September 1994 with funds from the Land and Water Conservation Fund. This fund, whose income derives from off-shore oil and gas leases owned by the U.S. government, receives $900 million dollars a year, which according to the legislation establishing the fund, must be spent on acquisition of new conservation lands. Unfortunately, in recent years, Congress has diverted large amounts of the available money for other uses, and has typically appropriated only about $200 million per year for conservation funding.

Status of O'ahu 'Elepaio Requires Further Study

On 12 June, 1995, the U. S. Fish and Wildlife Service (USFWS) announced that the status of the O'ahu 'Elepaio, which occurs only in forests on O'ahu, warrants further study to determine if it should be listed as a threatened or endangered species under the Federal Endangered Species Act.

In March, 1994, the USFWS received a petition from Vaughn Sherwood of Honolulu requesting listing of the O'ahu 'Elepaio as an endangered or threatened species with critical habitat. While the recent determination does not place the O'ahu 'Elepaio on the endangered species list, it does require the USFWS to conduct a status review to determine whether listing is warranted.

The O'ahu 'Elepaio, a small active flycatcher, has a rusty brown back, black throat, and white chin and underside. The majority of the birds are found in the Ko'olau Mountains, with the remaining birds in the Waianae Mountains. The range of this bird has declined 84 percent since 1940. The current number of sightings has dropped 82 percent since 1960. The current population, estimated at only 200 to 500 birds, is threatened by habitat loss, predation, and diseases.

For more information on the O'ahu 'Elepaio see *'Elepaio:*55:17-18.

The public is invited to submit data, information, and comments on the status of the O'ahu 'Elepaio to Robert P. Smith, Ecoregion Manager, Pacific Islands Ecoregion, U. S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 6307, P. O. Box 50167, Honolulu, HI 96850.

Source: USFWS

The Hakalau Refuge has some of the best remaining forest bird habitat in the islands, with well-developed 'ohi'a lehua and koa montane forest. In addition to more common birds such as 'Apapane, 'Amakihi, 'I'iwi, 'Elepaio, and Oma'o, it has substantial populations of Hawai'i 'Akepa, Hawaii Creeper, Akiapola'au, 'Io, and Pueo. It also hosts a number of rare plants, including the only known populations of two lobeliads, *Clermontia lindseyana* and *Cyanea shipmannii*. A number of volunteer koa-reforestation efforts are on-going at the site. The recent acquisitions bring the refuge up to 32,733 acres.

In Memorium: Winona Sears

by Robert Pyle

Winona Sears, long-time member and supporter of Hawaii Audubon Society on Kaua'i passed away 28 March, 1995, at her home in Wailua at the age of 81. She was an active conservationist, an effective organizer, and an ardent field birder. She and her husband David were leading informants and gracious hosts for Auduboners and other outdoor enthusiasts from Hawaii and elsewhere. Winona was Hawaii Audubon's representative on Kaua'i, officially for a few years and unofficially for many years.

She and David moved to Kaua'i in 1968 from California, where they had been actively involved in Audubon and other community activities. On Kaua'i, David was a community doctor and Winona taught science at Kapa'a High School until her retirement. Soon after arrival, she recognized the opportunity for Christmas Bird Counts on Kaua'i, where none had been held regularly. Enlisting the help of others in the community, the Sears experimented with trial counts in 1969 and 1970. In 1971 they inaugurated three official counts, centered in Waimea, Lihue, and Kapa'a. Winona organized, led, and compiled the Lihue count through Christmas of 1992, and over the years saw to it that the other counts had leaders and compilers as needed. No other Hawaiian Island has had more than two counts, and the three on Kaua'i would not have persisted without Winona's enthusiastic organizing and community enlistment skills.

Audubon and birds were only a small part of Winona's community interests and activities. She was a trustee and past president of Hui O Laka, the group that oversees and governs the Koke'e Natural History Museum. She was active in the Girl Scouts, charter member and past president of the League of Women Voters on Kaua'i, and a founding member of the Waioli Mission House Museum and Grove Farm Homestead Museum. She was very active in the volunteer group that worked to support Kilauea Lighthouse and the educational programs of the Kilauea Point National Wildlife Refuge. She was also a volunteer member with Na Lima Kikua at the National Tropical Botanical Garden in Lawai.

Hawaii Audubon Society has been fortunate indeed to have had the active support of Winona Sears for a quarter century as its focal point on Kaua'i. During her final months Winona had been writing a script and assembling photos and cost information for an educational video about Alaka'i Swamp. The Koke'e Museum will be completing this project as a final memorial to Winona Sears.

Birding in Hawaii

A two-page guide listing areas on O'ahu where interesting birds may be found and where access is not a problem is now available. Written by Peter Donaldson, it offers important information for birders unfamiliar with Hawai'i. The guide is not designed to give detailed directions or information on bird identification.

Also available is a guide to birding in the Hawaiian Islands which highlights birding spots on several islands.

For a free copy, send a self-addressed stamped envelope to O'ahu Birding Guide, Hawaii Audubon Society, 1088 Bishop Street, Suite 808, Honolulu, HI 96813, indicating which two page guide you want.

Research Grants

The Hawaii Audubon Society makes grants for research in Hawaiian or Pacific natural history. Awards generally do not exceed $500 and are oriented toward small-scale projects within Hawaii. Special consideration will be given to those applicants studying dryland forests and aeolian systems on Hawai'i. The deadlines for receipt of grant applications are 1 April and 1 October.

For an application form send a self-addressed stamped envelope to Grants, Hawaii Audubon Society, 1088 Bishop Street, Suite 808, Honolulu, HI 96813. For more information, call Phil Bruner, (808) 293-3820 (W).

Hawaii Audubon Society

1088 Bishop Street, Suite 808
Honolulu, Hawaii 96813
Telephone and FAX (808) 528-1432

'ELEPAIO

ISSN 0013-6069
Managing Editor:
Lynne Matusow 531-4260

Distribution:
Christi Moore, Robert Pyle, Alice Zacherle

The *'Elepaio* is printed on recycled paper.

Moving?

Please allow four weeks for processing address changes. Because our records are kept in order by zip code, we need both old and new addresses.

T-shirts for Sale

The Hawaii Audubon Society has a stock of T-shirts designed to spread the Audubon message. Not only are they attractive personal apparel, but they make excellent presents as well.

T-shirts bearing the Society's 'Elepaio logo are available in blue spruce and mountain rose with a black design. We also have a few in ash (gray). In addition, the "hot" Kolea (Pacific Golden Plover) T-shirts are also available. This T-shirt is white with a three-color design of the Kolea and native hibiscus. Proceeds from the Kolea T-shirt go to help HAS fund research on shorebirds in Hawai'i and elsewhere in the Pacific region.

T-shirts are $12 each, plus $2.00 per shirt for postage. They are available in medium, large, and extra large adult sizes only. When ordering T-shirts, be sure to list size and first, second, and third choice of color. To order T-shirts send your check, payable to the Hawaii Audubon Society, to Yvonne Izu, 1957 Alai Place, Wahiawa, HI 96786. Don't forget to add $2.00 per shirt for postage. Insufficient postage will delay your order until the proper amount is remitted. T-shirts are not available at the HAS office.

HAS Dues for 1995

All amounts are in U.S. dollars.
Includes delivery of *'Elepaio.*

Regular Member	
Delivery to U.S. zip code addresses	
Via bulk mail	**$ 10.00**
(Not forwardable to new address)	
Via first class mail	**16.00**
(Hawaii residents: there is no significant time difference between bulk and first class mail to addresses within the state of Hawaii.)	
Junior Member (18 and under)	**5.00**
Contributing Member	**30.00**
Sustaining Member	**100.00**
Life Member (one-time payment)	**250.00**
(three annual payments)	**100.00, 100.00, 50.00**
Benefactor (one-time payment)	**500.00**
Patron (one-time payment)	**1,000.00**
Delivery to non-U.S. addresses:	
Mexico (airmail only)	**16.00**
Canada (airmail only)	**17.00**
All other countries (surface mail)	**18.00**
All other countries (airmail)	**28.00**
Introductory dues for National and Hawaii Societies:	**20.00**
(Includes delivery of *'Elepaio* and *Audubon Magazine* as bulk or 2nd class mail to U.S. zip codes. Renewal. $30 annually.)	

Mahalo Donors

The Hawaii Audubon Society thanks the following members and friends for their generous donations: Julie Balbach, John Burch, Hampton and Meredith Carson, Larry Hirai, Darcy Hu, Andrea Lippa, Matt Medeiros, Nanea Parks, Marlys St. Cyr, and Stewart Wiggers.

Notice to Authors

'Elepaio invites submission of original scientific articles of between 1,500 and 3,000 words on the natural history of Hawaii and the Pacific. Such articles are subject to peer review.

Scientific articles should be typewritten and double-spaced. Four copies must be submitted. In addition, authors whose articles are accepted for publication will be asked to submit the article on a 3.5 inch computer diskette, with a clear indication of the word processing program used. We do all layouts directly on the computer. For that reason, authors are asked to adhere to the following guidelines: only one space after periods; no indentations, except for paragraphs and tables; no underlines, if on a diskette underlines should be shown as italics; no bold face type; use upper and lower case, nothing is to be in all capital letters; Hawaiian glottals should be used; capitalization for all bird species should follow American Ornithologists' Union nomenclature; dates should be shown as date, month, year; and the address of all authors should be included.

Photographs/illustrations may be either color or black-and-white prints, 3.5 by 5 inches or larger. They should be clearly labelled as to subject and photographer/artist. Cropping lines (if needed) should be indicated. The originals of figures, maps, graphs, etc. should be clean and clear, with lettering large enough to remain legible after reduction to fit journal format. Submit three good-quality xerographic copies along with each original illustration.

Manuscripts should be sent to *'Elepaio*, Hawaii Audubon Society, 1088 Bishop Street, Suite 808, Honolulu, HI 96813.

Calendar of Events

First Wednesday of Every Month
Monthly meeting of the Education Committee, 7:00 p.m., at the Coffee Line, 1820 University Avenue (in the YWCA). To join or for more information call Emily Gardner, 734-3921 (H). The Committee is actively seeking new members to work on next season's Paradise Pursuits program. All are welcome.

Monday, August 14
HAS Board meeting. Time and place to be announced.

Monday, August 21
General meeting, 7:30 p.m. Paki Conference Room, Bishop Museum. William Devick from the Hawaii State Division of Aquatic Resources will give an illustrated talk about freshwater stream ecosystems. He will also discuss two stream controversies, Waihole Ditch on O'ahu and Makaleha Springs Stream on Kaua'i. Refreshments will be served.

Saturday, August 26
Field trip to the 5,000-acre Kahana Valley State Park, located in the wettest valley on O'ahu. In addition to viewing the birds that inhabit the park, we will visit archaeological and military sites. Bring bathing suits as we will picnic by a prime swimming hole. Prawns and opae may be viewed by snorkel and mask or caught by dipnets. Meet at the State Library on Punchbowl Street at 8:00 a.m. or at the Kahana Valley State Park Office at 9:00 a.m. We should finish by 2:00 p.m. For more information call Linda Paul at 262-6859 (H). Suggested donation: $2.00.

Monday, September 11
HAS Board meeting. Time and place to be announced.

Saturday, September 16
Half day hike to Wa'ahila trail to see native plants and birds. Bring water, snacks, binoculars, sunscreen, and hiking shoes. Meet at the State Library on Punchbowl Street at 7:30 a.m. or at Wa'ahila State Park at 8:30 a.m. For more information call Linda Paul, 262-6859 (H). Suggested donation: $2.00.

Table of Contents

Thursday, September 21
Awards Dinner, 6:00 p.m., Waioli Tea Room. See insert for details. Paid reservations must be made by Wednesday, September 6.

HAWAII AUDUBON SOCIETY • 1088 BISHOP STREET, SUITE 808 • HONOLULU, HAWAII 96813

Non-Profit Organization
U.S. Postage
PAID
Honolulu, Hawaii
Permit Number 1156

'ELEPAIO