



Nests of 'Amakihi near sea-level on Hawai'i Island

Allison Klein¹, Patrick Hart², Katie Stumpf, Erik Tweed, Carlie Henneman, Caleb Spiegel, Jaymi LeBrun, Katherine McClure, and Bethany Woodworth, Pacific Island Ecosystems Research Center, Biological Resources Division - U.S. Geological Survey

Introduction

The Hawai'i 'Amakihi (*Hemignathus virens virens*) is a generalist Hawaiian Honeycreeper (Fringillidae, subfamily Drepanidini) that, like all other Honeycreeper species, has undergone large historic declines in distribution and abundance. Potential causes of this decline include habitat destruction and the introduction of predators, competitors, and disease (Scott et al. 1986).

Introduced avian malaria (*Plasmodium relictum*), which is transmitted primarily by introduced *Culex quinquefasciatus* mosquitoes, limits most honeycreeper populations to elevations greater than approximately 1500 m (Warner 1968, van Riper et al. 1986). Recently, however, populations of 'Amakihi have been described near sea-level on the eastern side of Hawai'i island that exist at densities greater than many high elevation areas with comparable habitat (Woodworth et al., in prep). Preliminary distributional, morphological, and genetic evidence suggests that these populations may be functionally isolated from those at higher elevations. We initiated a nesting study at a low elevation (<40 m), coastal site on Hawai'i in order to 1) confirm that 'Amakihi nest in low elevation areas and 2) to determine if nesting behavior may be a mechanism by which high densities of 'Amakihi are achieved despite the presence of avian malaria. Here we provide the first description of the nesting biology and nests of Hawai'i 'Amakihi in coastal habitat on the island of Hawai'i.

Study Site and Methods

The study was conducted from February through June, 2003, within Malama Ki Forest Reserve (elevation 25-40m) on the southeastern slope of Kilauea volcano, island of Hawai'i. The study focused on an approximately 400x400m area that encompasses a banding station where 'Amakihi are captured monthly. The habitat is comprised primarily of small stunted (3-8m) 'ohi'a (*Metrosideros polymorpha*) trees on pahoehoe and 'a'a flows that are approximately 200 years old (Wolfe and Morris 1996). Less common trees included the native 'alahe'e (*Psidium odoratum*) and the introduced strawberry guava (*Psidium cattleianum*) and ironwood (*Casuarina equisetifolia*).

Nests were located by systematic searching within a study grid and by observation of breeding pairs (51 total days, 543 search hours, from 05:30 - 12:30). Because 'ohi'a trees in this area are relatively small and have sparse foliage, all trees could be easily scanned for nests from the ground with binoculars. Male 'Amakihi were usually located by male song. Females were much more difficult to find because they rarely called. When a pair of 'Amakihi was located, they were watched to determine if they were exhibiting nesting behavior. Nesting

behavior included fast foraging, wing quivering, courtship feeding, and nasal "cheep" calls between male and female (Lindsey et al. 1998, M. Kilpatrick pers. comm.). Nesting females from studies at middle elevations (app. 1000 m) have been commonly observed to make a "twittering" call, similar to a male song but faster and at a different pitch (M. Kilpatrick, pers. comm.). This "nesting call" was heard only twice during our entire study, and was associated with a nesting female both times.

Active nests were monitored every two to three days with binoculars or a spotting scope from a distance of 20-25 m. Monitoring visits typically lasted 30 - 90 minutes. A mirror pole and binoculars were used to determine the nest stage. Hatching date was established for three nests by direct observation and for one nest by aging nestlings through determination of feather tract development (van Riper 1987). Monitoring stopped when there was no activity at the nest for at least one hour over two or more consecutive days. A mirror pole was used to confirm that a previously active nest was empty.

After the conclusion of each nesting attempt, we revisited the nest to record nest site and habitat variables. We recorded nest-tree species and height, nest height, diameter at breast height in cm (DBH) of nest tree, nest placement within the tree, diameter of main supporting branch, nest dimensions (nest width and height, cup diameter and depth, average rim thickness, nest weight), and nest materials used.

Results

Nest Placement and Description.- All six of the active Amakihi nests we found were located in 'ohi'a trees. This species comprised 71.9% of all trees within the study area. The mean nest-tree DBH was 6.42 cm (range=3.82-10.19) which was similar to the over all mean dbh of 5.8 cm for trees throughout the study area (n = 871). The mean height of the nest-tree was 4.34 m (range=2.95-5.24), and the mean height of the nest was 3.84 m (range=2.40-4.80). The average diameter of the main supporting branch of the nest was 8.22 mm (range=6.72-11.28).

Nest dimensions were determined for four nests. Nests were statant, open, oval to cup-shaped, and saddled in upright forks of branches in the nest tree. The mean outer diameter of the nest was 80.2 mm (68.6 mm and 91.7 mm on the narrow and wide sides respectively). The mean height of the whole nest was 60.1 mm while the mean depth of the cup was 35.9 mm. The inner diameter averaged 48.6 mm (44.4 mm on the narrow side and 52.9 mm on the wide side). The mean rim thickness was 17.8 mm but the thinnest (4.1 mm) and the thickest (32.8 mm) sections were recorded for the same nest. The mean dry weight for 4 nests was 9.43 g (range=7.75-11.25). *continued on page 68*

The bulk of each nest was composed of coarse grasses (primarily introduced *Andropogon virginicus*) and native kauna'oa vine (*Cuscuta sandwichiana*) loosely woven around an occasional woody twig. The lining was assembled with very fine grasses and 'ohi'a rootlets. Clumps of moss were found sparingly on the outside of the nests but not as part of the lining. **Clutch size and fledging success.**—The incubation period for the one nest that was observed from the onset of laying through hatching was 13 days. This female laid one egg per day for three days. Of the four nests we observed during the incubation period, one contained four eggs, two contained three eggs, and one had two. However this latter nest was apparently abandoned before the female finished laying. Females incubated ($n = 2$ nests) for 135 out of 160 minutes (84%), and 271 out of 430 minutes (63%) of observation during the incubation period.

Three of the 4 nests that were known to survive to the hatchling stage contained two hatchlings. The fourth had at least two hatchlings, but possibly more (this was the nest with a 4 egg clutch). Females brooded their young an average of 51% of the time (range = 39%–100%, $n=715$ minutes at 4 nests). All six nests observed at Malama Ki failed before fledgling. Hatchlings were apparently depredated at 2, 7, 8, and 10 days old. The other two nests were abandoned during the laying or incubation stage, and the eggs were subsequently depredated.

Discussion

Our study confirmed that Hawai'i 'Amakihi nest near sea-level on the island of Hawai'i. Some physical characteristics of these nests varied in predictable ways from those of the well-studied high elevation populations. Collias (1964) and Drent (1975) suggested the physical characteristics of nests should differ along a gradient in temperature. Kern and van Riper (1984) provided quantitative evidence that the thermal conductance (insulation) of 'Amakihi nests diminished along an elevational gradient from 2600 m to 1600 m, and that this was due to differences in the nest walls, which were denser at higher elevations. Our low elevation nests were predictably much lighter (9.43g vs 16.9g), thinner (mean rim thickness = 16.7 mm vs 28.2 mm), narrower (mean outer diameter = 79.89 mm vs 112.3 mm), and lacked the thick lining of those reported by Kern and Van Riper (1984). Portions of some nests were so lightly woven that the female could be seen incubating through the side of the nest. Presumably, the warmer, less variable temperatures at low elevation allow these birds to build thinner, lighter nests. However, other physical characteristics of the nests such as inner diameter (49.38 mm vs 50.90) and height (55.87 mm vs

57.00 mm) were similar between elevations. Interestingly, the depth of the cup was greater at low elevation (36.51 mm vs 25.7 mm). Of course, these comparisons would benefit from a larger sample size of low elevation nests.

All six nests that we monitored failed to fledge young (failure rate = 100%), and the four that reached the hatchling stage were all depredated. In contrast, Van Riper (1987) reported a 64.9% fledging success rate of hatchling 'Amakihi from high elevation forests on Mauna Kea. Potential egg and nestling predators in low elevation Hawaiian forests include mice (*Mus musculus*), rats (*Rattus rattus*), cats (*Felis silvestris*), mongooses (*Herpestes javanicus*), Barn Owls (*Tyto alba*), 'Io (*Buteo solitarius*), and Common Mynas (*Acridotheres tristis*). Although the number of nests in this study was low, our results indicate that nest predation may be a major limiting factor for 'Amakihi at low elevations on Hawai'i. We plan to address this question by locating and monitoring a greater number of nests in future breeding seasons.

¹Current address: 3937 Noble Ave N., Robbinsdale, Minnesota, MN 55422

²Author to whom correspondence should be sent. Patrick_J_Hart@usgs.gov

Acknowledgements

Financial support was provided by NSFDEB 0083944 (Biocomplexity of Introduced Avian Diseases in Hawaii) to D. Duffy et al. (UH). Additional support was provided by the Pacific Island Ecosystems Research Center - U.S. Geological Survey, and the Pacific Cooperative Studies Unit, University of Hawaii. We thank Hawaii Division of Forestry and Wildlife for permission to conduct research on state land.

Literature Cited

- Collias, N.E. 1964. The evolution of nests and nest-building in birds. *Am. Zool.* 4:175-190.
- Drent, R. 1975. Incubation, p. 333-420. *In* Avian biology, Vol. V. (D.S. Farner and J.R. King, eds.). Academic Press, New York.
- Kern, M. D., and C. Van Riper, III. 1984. Altitudinal variations in nests of the Hawaiian honey-creeper *Hemignathus virens virens*. *Condor* 86:443-454.
- Lindsey, G.D., E.A. VanderWerf, H. Baker, and P.E. Baker. 1998. Hawai'i (*Hemignathus virens*), Kaua'i (*Hemignathus kauaiensis*), O'ahu (*Hemignathus chloris*), and Greater 'Amakihi (*Hemignathus sagittirostris*). *In* The Birds of North America, No. 360 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Scott, J. M., S. Mountspring, F. L. Ramsey, and C. B. Kepler. 1986. Forest bird communities of the Hawaiian Islands: Their dynamics, ecology, and conservation. *Studies in Avian Biology* 9. Cooper Ornithological Society, Allen Press, Inc., Lawrence, KS.
- Van Riper III, C., S.G. van Riper, M.L. Goff, and M. Laird. 1986. The epizootology and ecological significance of malaria in Hawaiian land birds. *Ecological Monographs* 56:327-344.
- Van Riper, C., III. 1987. Breeding ecology of the Hawaii common Amakihi. *Condor* 89:85-102.
- Warner, R. E. 1968. The role of introduced diseases in the extinction of the endemic Hawaiian avifauna. *Condor* 70:101-120.
- Wolfe, E.W. and J. Morris. 1996. Geologic map of the island of Hawaii. U.S.G.S. U.S. Department of Interior.
- Woodworth, B. L., C. T. Atkinson, D. LaPointe, P. Hart, E. Tweed, C. Henneman, C. Spiegel, D. Lease, A. Gregor, K. Kozar, M. Samuel, and D. Duffy. In prep. Persistence of native birds at low elevations on Hawaii presents a new paradigm for studying vector-borne avian disease.

'ELEPAIO

ISSN 0013-6069

Managing Editor: Linda Shapin
Scientific Editor: Ron Walker

850 Richards Street, Suite 505
Honolulu, HI 96813

Tel: (808) 528-1432 Fax: (808) 537-5294

E-mail: hiaudsoc@pixi.com Website: www.hawaiiadubon.com

The 'Elepaio is printed on recycled paper and published nine times per year: February, March, April, May, June/July, August/September, October, November, and December/January

Birding on Maui and Online

By HAS member Satoko K. Lincoln

As the lively shorebird season in Honolulu had ended, my husband and I longed for Hawai'i's endemic forest birds. Previously, we had found Manuka Park, a green oasis in the middle of the dry lava flow in the south of the Big Island, where we learned that a birding hike need not be strenuous to be rewarding. The birds' symphony among the tall, graceful 'Ohi'a trees was so delightful that it alone made the trip worthwhile. This time, we chose Maui's Hosmer Grove in Haleakala National Park for a weekend trip.

On May 9, 2003, as we drove on Rt. 377 to Maui's Upcountry, blooming Jacaranda trees greeted us at every turn, carpeting the road with cool-purple blossoms. Our B&B, a former ranch on 3,000-foot elevation, overlooked central and west Maui. The cool mountain air was a nice change from the hot spells in Honolulu. The birdlife on the property was almost entirely dominated by the Myna, with some Japanese White Eyes, Northern Cardinals, Northern Mockingbirds, and Gray Francolin families with their young (about one-quarter of adult body length). The last two species were interesting to us, as we seldom see them in Honolulu. The Francolins were shy and liked to hide, but we inadvertently flushed them out a couple of times while strolling on the property. The Mockingbirds sang loudly from treetops, and one of them was curious enough to come within a few feet of me as I sat on the lanai of our cottage reading *Enjoying Birds and Other Wildlife in Hawai'i* by H. Douglas Pratt. When the long cool-gray tail feathers opened, the bird looked like an elegant lady's fan. They imitated the Myna, however, as if the latter did not make enough noise by themselves. The Northern Mockingbird and the Northern Cardinal are the state bird of twelve states (five and seven, respectively), which speaks to their great popularity. They were saved from over-capture only by timely intervention, such as the Migratory Bird Act of 1918. Their population in Hawai'i is thought to be descendants of released cage birds. It is sadly ironic that they, as many others, gained a new habitat at the expense of Hawai'i's endemic birds.

The following morning, we drove to Hosmer Grove on Haleakala Crater Road through fog, finally rising above it near 7,000 feet elevation. At the "Nene Crossing" sign near the Park entrance a Red-necked Pheasant darted across the road. An imposter! Where were the Nene? Their nesting season was just about over, and they would be seen in this area in a couple of months, the Park ranger at the Information Center later told us. Soon afterwards, we spotted a Pueo slowly skimming the slopes above the road, giving us a good look at its big head and short neck. Our birding in Hosmer Grove began in the parking area, when I heard close by the distinctive, almost electronic-sounding calls of the 'I'iwi. Two 'I'iwi were feeding in a small tree



'I'iwi

photo by T. Dove

near the covered structure, then buzzed by my ear to a Mamane tree uphill. As it turned out, we had more 'I'iwi sightings than 'Apapane sightings in Hosmer Grove, contrary to our expectation. Inside the forest, I was thrilled to see, for the first time, a juvenile 'I'iwi, exactly the shape of an adult but duller in color over all, with splashes of orange on the neck and head, and a juvenile 'Apapane, dark brown with cocked-up tail, each accompanied by an adult. In a shady clearing near the Eucalyptus trees, a richly green-and-yellow 'Amakihi pecked at a decayed tree stump, splashing dirt and making rustling noises, pulled out a long earthworm, quickly swallowed it, and just as quickly flew away. At the lookout, another 'Amakihi, less colorful and smaller than the first, foraged in a beautiful tree that appears to be Haleakala Sandalwood. Sitting on the bench for a

while here, we saw the 'I'iwi, the 'Apapane, and the 'Amakihi at least a dozen times each in the 'Ohi'a tree by the railing, but photographing these small, fast-moving birds was extremely challenging. When an 'I'iwi finally paused long enough on a branch and started to scratch its head and preen, the expression of pleasure on the face of this spectacular bird was so distracting that I forgot all about taking pictures. During lunch we saw a bright yellow Maui 'Alauahio hopping and looking just beyond the fence at the bottom of the picnic ground, then disappearing in the shady forest farther away. We also saw a family of three House Finches (looking much more scruffy than those found in urban areas) and one or two Red-crested Cardinals and Japanese White Eyes.

The next day was Mother's Day, and many more people came to Hosmer Grove than the day before. While it was good that they enjoyed picnicking and hiking in a place as special as this, it was alarming that two families ignored the sign and took their big dogs on the forest trail. We left Hosmer Grove after taking some pictures, glad to have done our birding the day before, and still amazed at how closely we saw some of the endemic birds here. Descending the fog-free Mt. Haleakala, we had spectacular views of central and west Maui, and we could hear the 'I'iwi and 'Apapane calling in the groves that dot the mountain slopes. We then stopped in Kula Botanical Garden (3,300 feet elevation). Instead of the expected Red-billed Leiothrix, we saw one or two 'Apapane foraging in a pink hibiscus tree. From this general area we had several sightings of the Pueo hovering overhead.

On the last day, we left the cool Upcountry and headed for Kealia Pond National Wildlife Refuge at sea level. The Hawaiian Stilts had begun nesting, but we were allowed to walk along some of the ponds. The cheerful ranger at the Refuge headquar

continued on page 70

Birding on Maui and Online *continued from page 69*

ters said that the Hawaiian Coot chicks, now three weeks old and still cute, sometimes hopped over the border from their nest to a pond near by, and that if we were lucky we might see them. We saw the family with two of the chicks, which peeped softly. Hawaiian Stilts were graceful when standing in the ponds but called loudly when flying all over the area chasing each other around. The flying duck was probably a Mallard. Cattle Egrets were here and in many other places on lower altitudes of Maui. Back at the Refuge information office, we picked up several posters. The most recent one commemorates the "National Wildlife Refuge System, 1903-2003: 100 Years of Wildlife Conservation," with a photograph of President Theodore Roosevelt, the great man who started the NWRS. The others celebrate the International Migratory Bird Day for various years. These posters have beautiful artwork on the front and useful information, such as maps showing NWRS locations and bird migration routes, on the back. We enjoy the art and refer to the information often, as news of migratory birds comes in from all over the U.S. We thanked the Kealia ranger and headed to Ka'anapali. While lingering at our lunch table, we spotted a pod (two adults and a calf) of breaching, tail-flapping Humpback Whales in the distance towards Moloka'i. Grateful for this unexpected grand finale to our trip already highlighted by the other species, we headed back home.

When one of my 'I'iwi photographs from Hosmer Grove was enlarged on the computer screen at home, it revealed a band on the bird's right leg. I asked an ornithologist if this through-the-camera sighting was of any interest. He said that sighting of a single aluminum band like this need not be reported unless the information on the band was recovered, and that complete recovery almost always meant a dead bird. Wanting to know more about bird banding, however, I followed his suggestion to visit the Bird Banding Laboratory website. I clicked on "How many birds are banded?" and found that, between 1914 and 2002, a total of 57 million birds were banded and 3 million (about 5%) were recovered. For non-game birds, between 1955 and 2002, the numbers were 689,019 bandings and 8,057 recov-

Annual Membership Meeting and Program Meeting December 15th

Nick Kalodimos, a geography graduate student at UH Manoa, whose research interest is in spatial ecology of Hawaiian non-native bird species will give us a presentation entitled: **A Survey of Oahu's Free-Living Parrots**

Christmas Bird Count Coordinator and Board member Arlene Buchholz is also planning to give a short summary of the Hawai'i Christmas Bird Count 2003/2004 dates and sectors before Nick's talk at 7:30pm.

This meeting is also HAS's Annual Membership Meeting at which the election results will be announced and the 2004 officers and directors introduced.

Program meetings are held at Henry Hall Room 109 on the Chaminade University campus, 3140 Wai'ala'e Avenue, Kaimuki. Meetings are from 7:30 to 9:30pm. Refreshments will be served, and HAS publications, T-shirts, and other items will be available for purchase.

eries (just over 1%). Then, down the list, I found the numbers for the 'I'iwi: 7,493 bandings and only 1 recovery (a little over 0.01%), a low rate, indeed. Intrigued by the low number, I looked wider on the Internet for banded 'I'iwi and found an article by Steven G. Fancy and C. John Ralph in *The Birds of North America* (1998). This expensive, authoritative multi-volume reference contains summaries of research results for each bird species in the U.S. and Canada. It is usually found only in institutional libraries, such as the University of Hawai'i. This article, however, is deemed public property, because the authors are government employees, so we can download it free in PDF format. Another, even more recent, downloadable article with much material on the 'I'iwi, as well as other birds on Maui, is "Temporal Variation in Bird Counts within a Hawaiian Rainforest" by John C. Simon et al., published in *The Condor* 104:469-481 (2002). In conclusion, although I found nothing about the specific banded 'I'iwi in my photograph, the research was rewarding for what I learned about bird banding and about the 'I'iwi in general. And, at the end of the day, I am happy to have a live bird.

Selected links:

Online guide to birds: www.birds.cornell.edu/publications/living_bird/ for information on the Northern Mockingbird and the Northern Cardinal.

Bird Banding Laboratory: www.pwrc.usgs.gov/bbl/

"'I'iwi" by Steven G. Fancy and C. John Ralph: www.srs.fs.usda.gov/pubs/viewpub.jsp?index=3484

The Birds of North America: www.birdsofna.org/

"Temporal Variation in Bird Counts within a Hawaiian Rainforest" by John C. Simon et al., in *The Condor* 104:469-481 (2002): www.pwrc.usgs.gov/prodabs/ab04020902/5913%20Simon.pdf

Kolea Watch III – Spring 2004

by Wally Johnson

Kolea Watch III is being planned for spring 2004. In collaboration with the Hawai'i Nature Center & the U.S. Fish and Wildlife Service, Dr. Wally Johnson (Montana State University) and colleagues will attach temporary radio transmitters to Kolea and then monitor their migration. Similar research over the past two spring seasons produced important new information about the destinations of Hawai'i's plovers in Alaska. A paper detailing these findings is currently being reviewed for publication in a major ornithological journal (*Wilson Bulletin*). The manuscript includes acknowledgments to Hawaii Audubon Society and Kolea Watch donors for their invaluable support of the project.

If you want to help the investigators with their continuing studies, please consider an "adopt-a-plover" donation. Each transmitter costs \$135, but assistance in any amount will be most welcome. Anyone buying a transmitter will have "adopted" the bird that carries it to Alaska, and will be informed if/when/where "their" bird is found. Or, maybe you would consider helping to fund aerial monitoring in Alaska. The costs there are about \$100 per hour of flight time, and the average survey takes about 5 hours. Donations for Kolea Watch can be sent to: Hawaii Audubon Society, 850 Richards Street, Honolulu, HI, 96813-4709. Checks should be made payable to Hawaii Audubon Society and earmarked "Kolea Fund."

HAS Annual Awards Dinner 2003

by Wendy Johnson, President

Hawaii Audubon Society members, friends and distinguished guests gathered October 20th at the Hawai'i Imin Conference Center on the University of Hawai'i Manoa campus for the Society's tenth Annual Awards Dinner. Eight notable individuals and groups were recognized for their contributions to environmental education and the protection of Hawai'i's wildlife and habitats. Tracey Goltz, Facilities Manager at Keauhou Bird Conservation Center on the island of Hawai'i, presented a fascinating program with unique visuals depicting captive propagation research and techniques for Hawai'i's endangered native forest birds. The appreciative audience learned new information about the care of eggs and chicks and the many vital steps in the process of reintroduction to the wild. Over the past ten years, more than 300 native forest bird chicks have been successfully hatched at KBCC, and this program provides a real basis for optimism regarding the recovery of the many beautiful endangered birds which are found nowhere else on earth.

The following Annual Awards for 2003 were presented with great appreciation from the Hawaii Audubon Society Board of Directors:

***President's Award:** Mayor Jeremy Harris was recognized for his sincere and persistent dedication to environmental protection and education in Hawai'i. His notable contributions include, but are not limited to, hosting the Mayor's Pacific Environmental Summit, leadership in the creation of the award winning Hanauma Bay Education Center, initiating recycling programs, Vision projects, Ocean Fest, and the Keiki Tree Project.



***Charles Dunn Lifetime Achievement Award:** Mike Ord was recognized for his pivotal role in the publication of Hawai'i's Birds which has become an invaluable asset to its readers and to the Hawaii Audubon Society over the years. Countless individuals have also benefited from Mr. Ord's continuing interest in sharing his knowledge and enjoyment of birding in Hawai'i.



***Conservation Award:** Dave Smith, Wildlife Manager for the Hawai'i State Department of Land and Natural Resources, was recognized for his achievements which have served to enhance the protection of wildlife and habitats in Hawai'i. His recent efforts at Hamakua Marsh Wetland Preserve in Kailua have provided critically needed habitat for Hawai'i's endangered native

waterbirds. The Hamakua site is a fine model for future work in the area and provides enjoyment and educational opportunities for the community.

***Program Award:** Tom Dove, birder and amateur photographer, was recognized for his generous contribution of dozens of extraordinary bird photographs for the use of the Society in educational publications and materials, and for our website. These striking images constitute a significant asset to the Hawaii Audubon Society, its members, and the general public, both now and in the future. Dr. Dove's enthusiastic fascination with the birds of Hawai'i is communicated through his fine photographs.

***Corporate Conservation Award:** Hawaii Metal Recycling Company was recognized for its important, ongoing contribution to the protection of wildlife and habitats in the Northwest Hawaiian Islands. HMR is responsible for the recycling (for energy conversion) of abandoned drift and gill net materials collected along protected reefs there. Mr. James Banigan, President of HMR, accepted the award on behalf of the company and reiterated his commitment to the success of the marine debris removal program.

***Government Partnership Award:** The O'ahu Invasive Species Committee was recognized as a unique and powerful partnership of governmental and nongovernmental agencies working in cooperation for the purpose of protecting Hawai'i's unique ecosystems. Ryan Smith, Project Coordinator for the OISC, accepted the award on behalf of all the partners who work to prevent the introduction of invasive flora and fauna and to eradicate existing populations in the wild.

***Environmental Education Award:** Rick Barboza and Matt Schirman, owners the native plant nursery Hui Ku Maoli Ola, were recognized for their unique ability to share their passion and knowledge every chance they get, with people of all ages. Mr. Barboza and Mr. Schirman work tirelessly to communicate the importance of native plants and their role in Hawai'i's ecosystems. Their contagious enthusiasm and love for the 'aina constitute a valuable educational resource for Hawai'i.

***Environmental Journalism Award:** Gary Sprinkle, KITV News Anchor, was recognized for his many fine news stories and programs on a wide variety of environmental subjects. This coverage consistently serves to raise public awareness about the need to protect Hawai'i's native wildlife and habitats. Mr. Sprinkle's reporting is enhanced by compelling film footage presented in an enjoyable, accessible format.

Field Trips for 2004

At this printing, no field trips have been scheduled for 2004. For updated information, please check the HAS office answering machine (528-1432) and our website, www.hawaiiudubon.com.

Great Holiday Gifts -- HAS Products and Publications

May be purchased by mail, on our website www.hawaii.audubon.com via PayPal, or in person at our office to avoid mailing costs.

Hawaii's Birds by the Hawaii Audubon Society, 5th edition, 1997. Over 150 color photographs and illustrations. \$12.95 per copy (\$9.95 plus \$3.00 postage and handling).

ON SALE! Voices of Hawaii's Birds by Douglas Pratt and the Hawaii Audubon Society, 1995. Two 60 minute tapes of songs of more than 100 species of birds found in Hawai'i. Includes a booklet. \$8.00 (\$5.00 plus \$3.00 postage and handling).

Hawaii's Rare & Endangered Birds Notecards with artwork by renowned Island artist Patrick Ching. Eight greeting cards with envelopes. \$9.50 per box (7.00 plus 2.50 postage and handling).

Treasures of O'ahu Map A fun and informative self-guided tour of O'ahu including hiking, birding, and ancient cultural sites. \$5.00 (\$4.00 plus \$1.00 postage and handling).

The Edge of Forever The Society's 60th Anniversary Commemorative Poster by Richard Pettit. Now only \$10.00 (\$5.00 plus \$5.00 postage, mailing tube, and handling).

NEW! HAS 2004 one-page calendar featuring a lovely Tropicbird photo by T. Dove. \$4.00 (\$3.00 plus \$1.00 postage and handling).

***Elepaio logo patch** \$3.75 (\$3.00 plus \$.75 postage/handling).



Checklist of the Birds of Hawai'i—2002 by R.L. Pyle. Lists all taxa naturally occurring in Hawai'i and introduced species that have established viable populations. \$3.50 (\$3.00 plus \$.50 postage and handling).

Checklist of the Birds of the Mariana Islands by James D. Reichel and Philip O. Glass, 1991. Lists all taxa naturally occurring in the Marianas and introduced species that have established viable populations. \$3.00 (\$2.00 plus \$1.00 postage/handling).

Checklist of the Birds of Micronesia by P. Pyle and J. Engbring, 1985. Lists all taxa naturally occurring in Micronesia and introduced species that have established viable populations. \$3.00 (\$2.00 plus \$1.00 postage and handling).

Field Card of the Birds of Hawai'i by R. L. Pyle and R. David, 1996. A pocket-sized field card listing bird taxa found in Hawai'i. \$.50 each. Call for postage price.

Hawaii Audubon Society logo t-shirts in white, natural, Pacific blue, jade, and gray, in sizes from S to XXL. Tank tops in white and grey, S to XL, same price. \$18.00 (\$15.00 plus \$3.00 postage and handling).

Birding for Beginners Class Feb. 19 - March 6, 2004

Birdwatching is an enjoyable pastime for people of all ages. Discover Hawai'i's birds and the joy of birdwatching. This fun and interactive course is designed for beginners as well as experienced birdwatchers that want to learn more about Hawai'i's birds and meet others who share their passion.

Three class sessions will cover an overview of Hawai'i's birds, bird behavior and biology and the basics of birdwatching including purchase of field equipment, field guides and computer software packages to learn more or for record keeping. Three field sessions will be conducted at different sites (TBA) to see where Hawai'i's birds live, learn basic bird behavior through first-hand observation, and help aspiring birdwatchers develop their field observation and identification skills. Some hiking may be involved.

Take this course and find out why so many people are fascinated with birds. Limited to 20 participants. Requires own transportation to field sites.

Thursdays classroom 7:00-8:30 pm and
Saturdays, fieldtrip 8:00 a.m.-12 noon
\$80 (*Hawaii's Birds*, recommended text)

Limited enrollment, pre-registration is required: In-person registration at Windward Community College, Continuing Education in Hale Kuhina, Room 102 or use your VISA or MasterCard to register by phone. Call 235-7433 or 235-7400 or visit our website for more information; <http://ocet.wcc.hawaii.edu> Special arrangements for the disabled may be made if requested in advance.

February Program Meeting— February 16th

Wildlife biologist Sharon Reilly will speak on Ducks Unlimited's conservation projects in Hawai'i. Through its newest conservation initiative, Wetlands Hawai'i, Ducks Unlimited is working in cooperation with a number of public and private groups to restore, protect, and manage Hawai'i's wetlands. Partners include Ducks Unlimited, the U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Department of Defense, Hawai'i Division of Forestry and Wildlife, and the Bernice P. Bishop Museum.

Projects in Hawai'i include: using satellite technology to map existing wetlands; in Pearl Harbor working to restore a tidal marsh for Hawaiian stilts; on Kaua'i, working with the Fish and Wildlife Service to restore wetlands and provide lands for taro growers on Hanalei National Wildlife Refuge. One of their biggest efforts is helping with restoration and management planning on the new Kealia National Wildlife Refuge on Maui.

Program meetings are held at Henry Hall Room 109 on the Chaminade University campus, 3140 Wai'alea Avenue, Kaimuki. Meetings are from 7:30 to 9:30pm. Refreshments are served, and HAS products and publications are available for purchase.

Christmas Bird Count 2003-2004

The Christmas Bird Count is a coast-to-coast annual bird census. Volunteers count every bird and bird species over one calendar day. Birds are indicators of the overall health of the environment. Christmas bird count data in any given area can provide valuable insight into the long-term health of bird populations and the environment.

Join our Christmas Bird Counts during the official count period from December 14, 2003 to January 5, 2004. If you want to do something good for birds and meet other "bird people," contact one of the coordinators to sign up. There is a \$5.00 charge per person to support compiling and publication of the nationwide results.

<u>Island</u>	<u>Date</u>	<u>Coordinator</u>	<u>phone/email</u>
Kaua'i			
Waimea	12/27	Michelle Ho'okano Koke'e Natural History Museum	808-335-9975 or kokee@aloha.net
Kapa'a	12/14	Kathy Batha	808-828-0762 or kathy_batha@rl.fws.gov
O'ahu			
Honolulu	12/21	Eric VanderWerf	808-377-7114 or ewerf@hawaii.rr.com
Waipi'o	12/14	David Bremer	808-623-7613 or bremerd001@hawaii.rr.com
Maui			
Pu'u O Kaka'e (East Maui)	12/14	Lance Tanino	808-280-4195 or lancemanu@hotmail.com
'Iao Valley (West Maui)	01/03	same as above	same as above
Moloka'i			
Kalaupapa	12/18	Arleone Dibben-Young	808 553-5992 or nene@aloha.net
Kualapu'u	12/19	same as above	same as above
Hawai'i Island			
Keauhou Ranch* (Volcano)	12/21	Nick Shima	808-967-7396 x239 or nick_shema@usgs.gov
Kona	01/03	Reggie David	808-326-4616 or rdavid@kona.net

*another count may take place at Hawaii Volcanoes National Park - contact Nick for more information.

2004 Membership in Hawaii Audubon Society

Regular US Member (via bulk mail, not forwardable)	\$ 15.00	Mexico	\$ 21.00
First Class Mail	\$ 21.00	Canada	\$ 22.00
Junior Members (18 and under)	\$ 10.00	All other countries	\$ 28.00
Supporting Member	\$100.00		

Donations are tax deductible and gratefully accepted.

Name _____

Address _____

City, State _____

Country, Zip _____

Phone _____ Email _____

Membership \$ _____ + Donation \$ _____ = Total \$ _____

New Membership

Renewal

Please make checks payable to Hawaii Audubon Society.



HAWAII AUDUBON SOCIETY
 850 RICHARDS STREET, SUITE 505
 HONOLULU, HAWAII 96813-4709

Nonprofit Organization
 U.S. Postage
PAID
 Honolulu, Hawaii
 Permit Number 1156

ADDRESS SERVICE REQUESTED

Calendar of Events

January 24 HAS Board meeting

Open to all members. This Board meeting will take place at our annual Board retreat on the weekend of January 24 - 25. Board meetings usually take place on the third Monday of odd months, at 6:30pm at the HAS office. Conservation and Education Committees meet at 5:45pm before Board meetings.

December 14, 2003 through January 5, 2004, Christmas Bird Count See page 73.

December 15, Monday, Program Meeting

(Nick Kalodimos on O'ahu's Free-living Parrots) and **Annual Membership Meeting** at Chaminade University. See page 70.

February 16, Monday, Program Meeting

(Sharon Reilly of Ducks Unlimited). See page 72.

Table of Contents

Nests of 'Amakihi Near Sea-level on Hawai'i Island	67
Birding on Maui and Online	69
Annual Membership Meeting and Program Meeting	70
Kolea Watch III - Spring 2004	70
Annual Awards Dinner	71
HAS Products and Publications	72
February Program Meeting	72
Birding for Beginners Class	72
Christmas Bird Count 2003-2004	73
2004 Membership Application	73