



‘ELEPAIO

Journal of the
Hawaii Audubon Society
For the Protection of
Hawai‘i’s Native Wildlife

VOLUME 83, NUMBER 1

JANUARY / FEBRUARY 2023

Hawaii Audubon Society Program Updates

FREEMAN SEABIRD PRESERVE UPDATE

Volunteer Opportunity - Habitat Restoration

In November and early December, Wedge-tailed Shearwater adult birds and chicks leave the Freeman Seabird Preserve (FSP) to forage at sea for several months before returning late March to nest. While the birds are absent from the preserve, volunteers are needed for habitat restoration. FSP is generally closed to public visitation to protect sensitive nesting habitat. Reservations may be arranged for individuals and work groups that would like to help restore Hawaiian coastal vegetation and seabird nesting habitat.



Volunteers are getting busy restoring FSP January through March, photo credit Susan Scott.

Activities include removal of invasive plants, trash, and debris as well as maintenance of native plants and artificial landscape: in a collaboration with Hawaii Audubon Society (HAS), Hawai‘i Pacific University (HPU), Oikonos, Windward Community College, and ceramic artist Nathan Lynch, 15 nests were designed, hand-built, fired, deployed at the preserve in 2018, and need regular maintenance. Please bring drinking water, sun and rain protection, shoes, gloves, and weeding tools if you have them.

We will provide gloves and tools. RSVP: email Alice Roberts at mermaidshi@aol.com in advance to participate; former volunteers, please update us about any changes. Let us know your age if you are under 18 years.

Workshop for Educators

On October 29, Oikonos, HPU, and Hawaii Audubon held a workshop for educators about the new lesson package: *Way of the Wedgie - Survival Lessons from a Seabird Preserve*. In partnership with ‘Iolani School and their STEMplus program, the workshop included an exclusive tour of the seabird colony followed by an orientation at ‘Iolani School about how to implement these lessons in the classroom.

Find more information about birds and plants on the preserve, lesson plans to download, and much more on the new website: <https://freemanseabirdpreserve.org/>



This new educational sign designed by Hester Graphics will complement our other seasonal signs (also see ‘Elepaio 82:4, 82:5, and 82:6). The 5 signs will be displayed at the FSP gate according to season.

MANU-O-KŪ UPDATE

By HAS Vice President Rich Downs

Terns, Trees and Trimming

There are some things in life that just seem to go together. Soup and sandwich. Fireworks and the Fourth of July. Autumn and pumpkin spice. Add White Terns and trees to that list of items that just naturally go together, at least here on O‘ahu. The relationship between trees and White Terns is not as close everywhere these all-white elegant little seabirds are found, but more and more of the trees that comprise the urban tree canopy of the greater Honolulu area are being used for nesting by Honolulu’s official bird.

Elsewhere, White Terns (also referred to as manu-o-kū in Hawai‘i) are observed nesting on a variety of objects, including rock ledges, air conditioner covers, utility poles, even on shoes left unattended on a porch. But based on my past six years of observing White Terns breeding on O‘ahu, 99% of eggs laid here are laid in trees. There have been a few notable exceptions, including the pair that took to laying eggs on a metal railing on a lanai at the state art museum in downtown Honolulu several years ago.

Terns have a wide variety of trees to choose from here in Honolulu and they’ve been documented nesting in over 60 species of them. Terns are unique among seabirds by not building nests. Instead, they carefully select spots in trees that will help them keep their egg from falling while it’s being incubated. We’re still learning the criteria they use in making their selection of a nesting spot here on O‘ahu, but being located in a tree is clearly one of them.

Tree trimming and White Tern breeding success also seem to go together. Though they breed in a wide variety of trees, one trait the vast majority of those they use have in common is that they are pruned regularly. Trimming is an important part of maintaining trees and is done for the health of the tree as well as for public safety. But it turns out that proper trimming typically results in a more open crown and more potential nesting spots for manu-o-kū. An open crown, free of vegetation clutter, provides easier access to nest sites in

the tree for adult terns. It also is a much safer environment for chicks to practice flying from branch to branch, with less risk of their wings becoming entangled in leaves or twigs and then ending up on the ground.

Also, tree species the terns prefer to use for breeding, when trimmed, naturally form “cups” from scar tissue that grows at the wound site. These cups serve the terns well as naturally occurring nests to which they return to breed year after year.

Terns are also known to abandon nesting spots in trees where they have successfully fledged chicks if the trees become overgrown. Loss of nesting spots because a tree becomes overgrown forces terns to find new places to breed with unknown new risks for successfully fledging their chicks.



White Tern chick in a well-trimmed tree on UH Mānoa campus, photo credit Susanne Spiessberger.

Years of monitoring these birds on O‘ahu by the Hui Manu-o-Kū is helping us to better understand the relationship between the White Terns, the trees they breed in, and tree management practices that promote breeding success. Analysis of over 5,000 White Tern breeding events strongly suggests that trimming trees improves the breeding habitat for White Terns. And it seems pretty clear that tern-sensitive trimming is contributing to the steady increase in the number of terns breeding on O‘ahu. Growth in the tern population has been accompanied by a steady increase in the number of trees they use. From just over 800 in 2016, the number of

trees known to be used by the terns for breeding has increased to over 1,900 today.

So, given that tree trimming is good for the terns, wouldn't it be best if trimming were scheduled when they're not using trees for breeding? Ideally yes, but another important finding based on monitoring the population the terns on O'ahu is that eggs are now being laid here every month of the year. More eggs are laid during the winter and spring, but there is now no time during the year when eggs are not being laid on O'ahu. Scheduling trimming for the 1,900-plus trees known to be used for breeding activity to avoid the possibility of trimming a tree with an egg or a chick is no longer feasible.

If trimmers are going to be able to continue to maintain the kind of breeding habitat the terns enjoy here, they're going to have to be able to do it when there are terns nesting in the trees. Fortunately, the terns are extremely tolerant of human activity and the noise we generate. This makes it possible for tree trimmers to safely work around them, including in trees where they are breeding.

In 2019, the Aloha Arborist Association, in partnership with the Hui Manu-o-Kū and several government agencies and public organizations with an interest in the White Terns, published guidelines for the arborist community outlining best practices for trimming trees with nesting terns (https://www.whiteterns.org/uploads/8/6/3/2/86323044/mok_tree_care_guidelines_190622.pdf). Following these guidelines, tree care professionals are now able to maintain our trees while minimizing risk to our terns.

The more we study Honolulu's Manu-o-Kū the more important the relationship between the White Terns, the trees they breed in and tree management practices becomes. Living where we do, we're fortunate to be able to share this space with them.

Learning to do what needs to be done to maintain the trees in our urban environment while minimizing risk to the terns is one important way for the remarkable story of the White Terns of O'ahu to continue to be a story of terns and people not just living but thriving together.

Even though the difference between spring, summer, fall, and winter is in general not very noticeable in Hawai'i, birdwatchers know exactly how to distinguish different seasons. Wedgies at FSP for example follow five seasons (see our educational signs; Jan – Feb is pictured on page 1). As for the Kōlea Count citizen science project (<https://www.koleacount.org>), we distinguish between four seasons, and the end of November marks the end of the Arrival Season, which began July 1.

The first official kōlea of the 2022/23 Kōlea Count Season was spotted in Mililani on Independence Day. Since then, many more found their way back from Alaska, with August showing the highest number of counts; details will be published at a later point.



Group of kōlea at Dillingham Air Field, Mokolē'ia, O'ahu, photo credit Susan Scott.

Starting December 1 until March 31, you can participate in in the next season: either join a "Big Count" for large areas such as campuses, golf courses, parks, and/or carry out a "Little Count" for small areas such as backyards or schoolyards.

Annual Meeting and Members Dinner 2022

Thank you all for coming to our Annual Dinner at Sea Life Park on November 6 and for making it such a successful evening! More than 100 guests enjoyed an ono "Taste of Hawai'i" buffet and listened to Oscar (Wally) Johnson, PhD, give a captivating presentation about his kōlea research.

As the leading expert on Pacific Golden-Plovers (kōlea), Wally talked among other things about how his own research started with color banding thousands of kōlea.



Wally's presentations are always drawing a big crowd, photo credit Rich Downs and Susanne Spiessberger.

He discussed conclusions that can be drawn from banding, such as on territoriality, site-fidelity, longevity, nesting, re-nesting, and annual survival. Emerging technologies enabled equipping the birds with small, lightweight VHF (very high frequency) radio tags, geolocators, and, most recently, GPS tags, revealing more and more fascinating details about these migrating shorebirds' behavior.

For his lifelong dedication and groundbreaking work on kōlea, Wally Johnson was presented the Hawaii Audubon Society Lifetime Achievement Award 2022 - congratulations!

If you could not join us, you can watch recordings of the event on YouTube:

Treasurer's Report: <https://youtu.be/SbnQIdPa2kg>

President's Report: <https://youtu.be/xXcDfM5YyYE>

Wally Johnson's Kōlea Talk: <https://youtu.be/sKfzNCj751c>

We were also delighted to welcome Lukanicole Zavas, outreach manager for the multiagency *Birds, Not Mosquitoes* partnership.

This initiative is racing against time to save endangered Hawaiian birds from avian malaria and extinction. The principal is to use the common, naturally-occurring *Wolbachia* bacteria as a "birth control" to suppress mosquito populations in Hawai'i. For more information go to <https://www.birdsnotmosquitoes.org>



"Birds, Not Mosquitoes" Outreach Manager Lukanicole Zavas at the HAS Annual Dinner, photo credit Rich Downs.

BIG ISLAND PARTNERS

A warm welcome to Nicole and Mike Carion of Kailua-Kona who recently volunteered to be the Society's Big Island ambassadors. Sincere in their commitment to Hawai'i's birds and to partnering with HAS, Mike and Nicole flew to O'ahu to attend our Annual Meeting at Sea Life Park.

On November 17th, Mike and Nicole arranged a first gathering of 24 people to hear HAS President Susan Scott's PowerPoint talk about the Kōlea Count and the new face of the Hawaii Audubon Society.



First meeting of Hawaii Audubon Society, Big Island Hui, in Kailua-Kona, photo credit Rich Downs.

VP Rich Downs and HAS Volunteer Accountant Rhea Reed also attended this first meeting of the Hawai'i Island branch of HAS. Naturalist Lance Tanino gave a brief presentation about the 123rd Christmas Bird Count.



Mike Carion, Rhea Reed, Susan Scott, Rich Downs, Nicole Carion, photo credit Nicole Carion.

Mike and Nicole have planned several outings. Check out their Facebook group: **Hawaii Audubon, Big Island Hui** <https://www.facebook.com/groups/461190122607695> for more information. Contact Mike and Nicole to sign on: Mpcarion@gmail.com

Mosquito Surveys Underway to Help Protect Birds from Disease

The following is a news release first published by the Department of Land and Natural Resource (DLNR) on <https://dlnr.hawaii.gov/blog/2022/11/07/nr22-168/> on November 7, 2022.

***Birds, Not Mosquitoes* Aims to Prevent Honeycreeper Extinctions**

(PU'U MAKA'ALA NATURAL AREA RESERVE) – This high-elevation Natural Area Reserve is one of six locales on Hawai'i Island where teams from the DLNR Division of Forestry and Wildlife (DOFAW) and the University of Hawai'i Pacific Cooperative Studies Unit (PCSU) are trapping mosquitoes to detect the presence of avian malaria.

It's the disease that is on the cusp of eliminating, forever, at least two species of native Hawaiian honeycreepers, possibly within the next two years, with several other species at risk within five years.

The population surveys will help partner organizations, involved in the *Birds, Not Mosquitoes* initiative, of which DLNR is a member, determine where best to begin potentially using male mosquitoes that are incompatible with wild female mosquitoes to try and knock back their ability to infect birds with the deadly disease. These field surveys will provide information about the presence of disease and would be part of the planning process for a potential mosquito control project, which would also include an environmental assessment.

On a typical rainy morning at Pu'u Maka'ala, Cara Thow, the DOFAW/PCSU Avian Disease Research Supervisor for Hawai'i Island and her team of three, begin checking mosquito traps strung across the moist and mossy forest floor. "We are only interested in female southern house mosquitos, because they are the big bad guys in terms of the avian malaria story," Thow explained. "Once a female bites a susceptible bird, it has a 90% chance of dying."

This species of mosquito, like all others in Hawai'i, are not native and came in on ship bilges or water stores in the early 1800s. Hawaiian honeycreepers evolved in the absence of mosquito-borne diseases such as avian malaria and have little to no natural immunity.

Now the field studies have begun for potential future projects to reduce their numbers in forests on Hawai'i Island, Maui, and Kaua'i where avian malaria is prevalent. Due to climate-change-induced warming, mosquitoes have moved higher and higher into native bird habitats, the reason for trapping occurring at locations between 4000 and 6000 feet in elevation.

The collection teams use two types of traps. One is baited with carbon dioxide and is designed to bring in female mosquitoes seeking a blood meal. The second, known as a gravid trap, attracts the insects with a small container of stagnant, stinky water.

Both traps ultimately catch mosquitoes in nets. “The gravid traps are a little tricky because there is so much space for mosquitoes to move around,” Thow said. So, using plastic tubing and pipes, survey team members vacuum (aspirate) the insects out of the nets, where they are then placed into a small vial of ethanol for preservation.

The collected mosquitoes are then sent to one of two labs: Northern Arizona University or a U.S. Geological Service (USGS) lab in Honolulu, where further work will be conducted to detect the presence of malaria.

On non-collection days, the field team bands birds and conducts blood tests on them to expand the available data to help inform management decisions about where to release the incompatible males after all permitting and regulatory approvals.

Thow added, “The truth is, mosquitoes are not native to Hawai‘i, and they have no role in the environment that cannot be filled by other insects and so there’s no downside to eliminating them. What’s being proposed (introduction of males that are incompatible with wild females) will not eliminate them entirely, but hopefully knock back populations enough to give these critically endangered native birds some breathing room.”

No lab results are available yet. Over 200 mosquitoes have been sent to laboratories for testing since collections began last November. The majority have come from the Pu‘u Maka‘ala Natural Area Reserve, which is at the 4,000-foot elevation level.

Thow says monitoring will need to continue even after the implementation of the incompatible insect technique, to determine if the incompatible mosquitoes released are sufficient to knock-back populations.

“The entire team (Kupu members, and RCUH/PSCSU contract employees) is absolutely proud to be part of this work,” Thow added. “It’s an honor to work toward solutions that will mean these birds persevere and that our children and grandchildren can enjoy them into the future. It’s really meaningful to be part of it.”

This is the third release detailing preliminary work underway prior to potential mosquito control projects on Hawai‘i Island, Maui, and Kaua‘i.

See links to the previous releases below.

Mosquito Survey Teams On Maui Give Voice To The Voiceless (10-13-22):

<https://dlnr.hawaii.gov/blog/2022/10/13/nr22-153/>

Kaua‘i Mosquito Survey Teams At The Forefront Of Avian Malaria Detection (9-7-22):

<https://dlnr.hawaii.gov/blog/2022/09/07/nr22-134/>

*** THE END***

Hawaii Audubon Society 2023 Leadership

A big mahalo to all our board members and volunteers for their efforts and hard work, especially during this first year of transitioning.

The following officers and directors were reelected for another two-year term on November 10, 2022:

Treasurer: John Harrison, PhD

Director: Pat Moriyasu

Director: Alice Roberts

Director: Colleen Soares, PhD

Continuing to serve on the BOD will be:

President: Susan Scott

1st Vice President: Rich Downs

Recording Secretary: Wendy Johnson

Director: Yvonne Chan, PhD

Director: Wendy Kuntz, PhD

Second Vice-President Elizabeth Kumabe-Maynard reached the end of her 10-year term in 2022, and the Society wants to thank her for her support. We are excited that Liz decided to stay involved as volunteer in the future. As per the new bylaws, the position of 2nd VP will be eliminated.

As of August of this year, we would also like to welcome Rhea R. Reed, JD, CPA (retired) as our volunteer staff accountant.

Hawaii Audubon Society Membership and Donations

The mission of the Hawaii Audubon Society (HAS) is to foster community values that result in the protection and restoration of native wildlife and ecosystems, and conservation of natural resources through education, science and advocacy in Hawai'i and the Pacific. Founded in 1939, HAS is an independent nonprofit 501(c)(3) organization and does not receive dues paid to the National Audubon Society. Thank you for supporting your local Hawaii Audubon Society.

All annual memberships end on December 31. See details on <https://hiaudubon.org/membership>.

Please choose your membership level on our website <https://hiaudubon.org/membership>:

\$15 Hawaii Audubon Society Student Membership

\$25 Hawaii Audubon Society Regular Membership

\$40 Hawaii Audubon Society Family Membership

\$100 Hawaii Audubon Society Supporting Membership

Or, make a tax-deductible donation in any amount on <https://hiaudubon.org/donate/>.

International membership is now only \$25.

All members will receive by email the bimonthly 'Elepaio journal, with peer-reviewed scientific articles and local environmental news and activities. To request the 'Elepaio by mail (**not available to international members**), contact office@hiaudubon.org.

Announcements

For regular updates, check out hiaudubon.org/events and/or our social media sites

Service Trip on Mount Ka'ala

When: January 7, 2022, 7:15am – 4:00pm,

Where: Mount Ka'ala. Hawaii Audubon Society MEMBERS only. Limited to 10 HAS members.

Leader: Colleen Soares (Hawaii Audubon Society Board)

Description: Work with Natural Area Reserve (NAR) staff to remove nonnative species on the highest point on O'ahu in the Waianae mountains. Mount Ka'ala is home to many of Hawai'i's rare and endemic species. Work can be strenuous. Space is limited. Members of Hawaii Audubon Society only.

RSVP: Email your name, email and cell phone number to Colleen Soares (csoares48@gmail.com) for reservations and instructions.

Kōlea Count

From December 1 until March 31, you can participate in the Kōlea Count citizen science project. Join a "Big Count" for large areas such as campuses, golf courses, parks, or carry out a "Little Count" for small areas such as backyards or schoolyards.

For more information, go to <https://www.koleacount.org>



KEEP CATS SAFE INDOORS

Keep Cats *and* Birds Safe

'Elepaio ISN 0013-6069

Managing Editor: Susanne Spiessberger, PhD

Scientific Editor: Glenn Metzler, PhD

The 'Elepaio is printed on recycled paper and published six times per year.

Hawaii Audubon Society
850 Richards St, Suite 505, Honolulu, HI 96813
office@hiaudubon.org
<https://hiaudubon.org>





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

<https://hiaudubon.org>
 office@hiaudubon.org

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‘ELEPAIO • 83:1 • JANUARY / FEBRUARY 2023

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