

VOL. 2 ISSUE 2 • AUGUST 2024

KEĀLIA POND NATIONAL WILDLIFE REFUGE (NWR)

Summer & Fall 2024 Edition



M. Woodward/USFWS Image of the Koa butterfly mural.

New Installations: Pollinator Mosaics

In early April, two mosaics were installed outside of Keālia Pond's visitor center. The vibrant mosaic artwork that is placed at the entrance depicts a much larger version of the tiny Koa butterfly, commonly known as the Hawaiian Blue, welcoming guests inside. The seven smaller mosaics along the side of the building encourage visitors to explore the native pollinator garden and recognize the importance of plant-pollinator mutualistic relationships. Each plant displayed can be found on the Refuge's grounds.

Leah K. Rigg, a long-time artist from O'ahu, returned for a 2nd collaborative project at the Refuge. Rigg expressed how this project has expanded her own personal knowledge. She hopes she can pass along and contribute to the success of Keālia Pond.



M. Woodward/USFWS Image of the pollinators-plants mural.

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M. Woodward/USFWS Image of propagated plants in the shadehouse.

New Installations: Shade House

Refuge staff began to install the shade house in December 2023 to support the propagation and germination of native Hawaiian plants. This horticultural structure is crucial for our Refuge, which encompasses a dryland forest and a coastal salt marsh. Due to the climate, the majority of the plants have adapted to survive in physiologically dry conditions by storing water. Species such as Ma'ō, 'A'ali'i, 'Ākulikuli, 'Āki'aki, Hala, 'Ilima, Naio, Naupaka Kahakai, Pōhuehue, Pōhinahina, 'Ulei, and Wiliwili, thrive in these environments. These plants grow well along coastlines, in the valley, and at lower elevations, providing habitat for native pollinators and water birds.

The shade house, measuring 40ft x 60ft, can house approximately four times as many plants as the old greenhouse. A black shade cloth is used as paneling on all sides and the roof. This filters sunlight by reducing UV radiation by 50%, which helps moderate temperature for the plants underneath. The material and the dark color of the cloth suppresses weed growth, reducing time typically needed for weed management. The open design of the shade house also improves ventilation, allowing for more air flow. The irrigation system has hoses hooked onto the sides of the tables, spraying water horizontally, rather than from the ceiling. This set-up is ideal for Keālia Pond due to its hot, dry climate and intense sunlight.

“The black shade cloth filters sunlight by reducing UV radiation by 50%.”

M. Woodward/USFWS Image of propagation chalk board.



Nesting Season

Higher Numbers & Increased Management

After several years of significant drought, the Refuge finally received enough rainfall this winter to provide suitable nesting habitat for 'alae ke'oke'o (Hawaiian Coot). These waterbirds prefer to make nests in floating vegetation, requiring a water depth of at least 18 inches. With higher water levels sustaining since January, along with the decline in the number of 'auku'u (Black-crowned Night Heron) present since the massive fish die-off last fall, Keālia Pond has witnessed the most successful coot breeding season in more than 20 years. After only observing four fledglings in 2023 and no better than one or two per year since 2019, staff have counted at least 63 successful fledglings in 2024. Not to be outdone, ae'o are hard at work raising chicks, too. And nesting season isn't even over yet. New ae'o and 'alae ke'oke'o nests are still being spotted.



C. Hagenlocher Image of Ae'o chick; 2019 Friends photo contest.

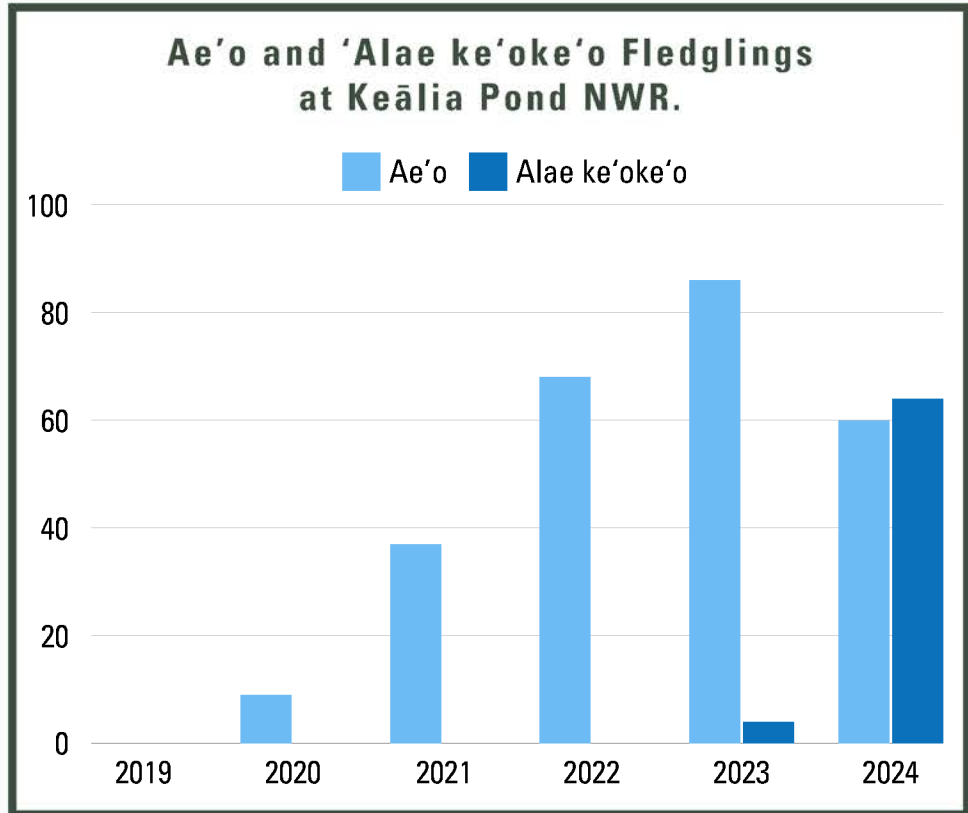


Figure I. Yearly chart of the native bird fledgling population.



J. Eeonomaki Image of an 'Alae ke'oke'o feeding her chicks.



A. Morriss/USFWS Image of Nile Tilapia redds.

Nile Tilapia an invasive species

What is that Smell?

Every year during the dry season, when Keālia Pond water levels begin to decline, copious amounts of invasive Nile Tilapia die off. This causes the smell of dead fish to permeate the air for prolonged periods of time.

In order to alleviate the odor, the refuge staff spend a large amount of time raking, plowing, and burying the dead fish. Minimizing the fish smell during the dry season is all we can do until an eradication solution is found.

How did they get here?

Nile Tilapia, native to parts of Africa, were introduced to Maui for baitfish and aquatic vegetation control. At Keālia, Tilapia were originally raised in the old aquaculture ponds, now referred to as Kanuimanu Wildlife Viewing Ponds. These were later restored as a wetland habitat for two endangered and endemic Hawaiian waterbirds, the Ae'o (Hawaiian Stilt) and 'Alae ke'oke'o (Hawaiian coot).

Despite removal efforts, the invasive fish return each year through up-country streams. Their adaptability and resilience can be worrisome; Tilapia can reproduce large quantities of eggs in shallow, circular depressions called redds. Depending on their size, a female can lay over a thousand eggs per redd (e.g.; 1,500 eggs spawned by a 1 kg fish), allowing their population to easily take over the native fish. They also compete for food sources (invertebrates and algae) against the 'Alae ke'oke'o.

Fortunately, Tilapia are considered prey for our native bird, the 'Auku'u (black-crowned night heron). However, 'Auku'u's also predate on the eggs and chicks of the Ae'o and 'Alae ke'oke'o, so the large amounts of Tilapia attract the 'Auku'u' in unwanted areas. The Tilapia put our endangered waterbirds in a vulnerable position.



Germano Roberto Schuur Image of a Nile Tilapia.



M. Woodward/USFWS Image of refuge staff shoveling dead fish.



J. Rivas III Image of Kealia Coastal Boardwalk.



Friends of Keālia Pond NWR

2024 Photo Contest Winners

Friends of Keālia Pond NWR is dedicated to supporting the Refuge in achieving its goal to conserve and protect native wetland habitats by fostering appreciation and educating the public about the native species found at the Pond.

After a four-year hiatus, the photography contest was restored to support the Friends group's conservation mission, aiming to enhance the visitor experience and raise awareness of Keālia Pond's native habitat and wildlife. The contest was open to participants of all backgrounds, with entries ranging from youth to adults and residents to tourists. Categories included wildlife, scenic views, and people in action. To celebrate their work, the winning photographers and honorable mentions have their photos displayed in the visitor center. To see all the winners, view their website: <https://friendsofkealiapond.org/>. Check out a few winning shots below!

The Friends hope they can continue to reach a wider audience with the photography contest next year in 2025.

J. Economaki Image of a Kōlea (Pacific Golden Plover).



Top left to right images: R. O'Neal, D. Cohen, N. Watkins.
Bottom left to right images: A. Itenge, Z. Meyer, J. Rivas III

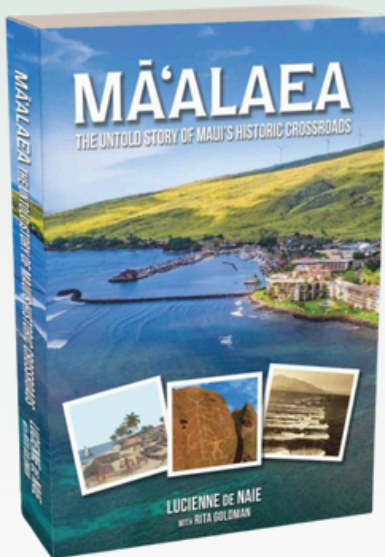
Spring & Summer Highlights

HYCC

The Hawai'i Youth Conservation Corps (HYCC), through Kupu, allows local youth to work on field projects at various host sites, fostering their growth in conservation and supporting the islands' sustainability. At Keālia Pond, a total of 10 Maui high school students spent two weeks assisting the Burned Area Rehabilitation (BAR) team with tasks like maintaining native Hawaiian dryland forests, repairing ungulate fences, collecting seeds, propagating plants, monitoring birds, and making lei.



Book Signing Event



On April 18th, Keālia Pond hosted Lucienne de Naie, author of 'Mā'alaea: The Untold Story Of Maui's Historic Crossroads, for a presentation and book signing. Published by the Mā'alaea Village Association, the book explores the significant role Mā'alaea Village has played throughout Maui's history, spanning to modern times. Highlights include archival materials, detailed photographs, and mentions of Mā'alaea as a centuries-old Hawaiian fishing village and harbor. It also features the establishment of Keālia Pond National Wildlife Refuge. Proceeds from the book support restoration projects in Mā'alaea Bay and the Pohakea watershed.

Our visitor center and multipurpose room frequently host community events, such as book talks, aimed at raising awareness about our natural world and conservation.

Earth Day Event

During this year's Earth Day, the Refuge celebrated our planet—more specifically Maui—by hosting a free, keiki friendly event! Over 50 people attended the event, majority of those attendees being local community members. A variety of fun, crafty activities were provided, such as creating native seed balls, using natural dyes from Hawaiian plants as watercolor, and painting rocks to add to the pollinator garden.



Julie Urban



M. Woodward/USFWS Image of USFWS Volunteer.

Volunteer Position:
Hawaiian Tropical Dryland
Forest Volunteer

Favorite bird:
Hawai'i 'Elepaio

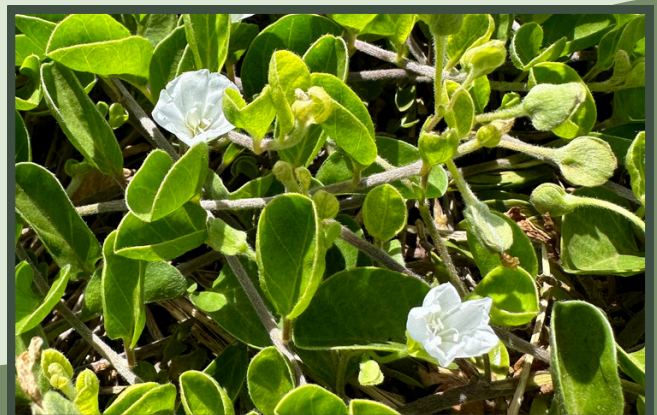
Favorite plant:
Pā'ū o Hi'iaka

Julie, a retired veterinary nurse with 25 years of experience, grew up in the San Francisco Bay Area with a deep love for wildlife and nature.

An avid birder for 30 years, Julie's enthusiasm has taken her around the globe—from Australia to Ecuador—and eventually to Keālia Pond.

Her birding journey began during hikes and later evolved into an interest in plants. Having lived in the Pacific Northwest and Minnesota, she has spent many years gardening with the goal of attracting native pollinators and birds.

After moving to Maui, Julie has volunteered with the BAR (Burned Area Rehabilitation) team for almost three years. Her efforts have been highly rewarding, allowing her to give back to the island she now calls home.



C. Fulford/USFWS Image of Pā'ū o Hi'iaka.

Q: Where are you from? Educational background?

A: I was born and raised in Maryland throughout all my childhood and teen years. I attended college in Missouri, a small, all women, liberal arts school known as Cottey. I studied abroad for a semester in Heredia, Costa Rica. Having the opportunity to live in different places has given me the chance to learn from multiple perspectives.

Q: Why do you aloha 'āina?

A: Growing up, I developed a deep love for the outdoors, from hiking the Appalachian Mountains through a sleepaway adventure camp to exploring scenic places along the East Coast and to walking along the Little Patuxent River by my home. The 'āina has always held a special place in my heart. This appreciation for the natural world has fueled my passion for serving in the conservation field.

Q: What are your goals after your term?

A: As someone who recently graduated college, I am planning to continue to seek short-term opportunities in conservation and environmental education across the country and explore what other organizations have to offer.

KUPU: Conservation
Leadership Development
Program (CLDP)

CLDP Participants serve at
a host site that matches
their interests and
prepares them for a career
in the conservation field.

What is KUPU?

KUPU's mission is to empower young adults to serve their communities through character-building, service-learning, and environmental stewardship opportunities.

Madison Woodward



C. Fulford/USFWS Image of Americorps member.

Position:

Visitor Services Assistant

Favorite bird:

Ae'o

Favorite plant:

Ko'olua'ula



MEET OUR FELLOW!

Elise Gustilo



Position:

Pollinator Garden
Directorate Fellow

Favorite bird:

Ae'o

Favorite plant:

Naupaka

Directorate Fellows Program (DFP)

DFP is a direct-hire program through the collaboration between the Hispanic Access Foundation and the USFWS to increase diversity within the service. Fellows receive a direct-hire authority after students complete an 11-week fellowship.

Q: Where are you from? Educational background?

A: I grew in Las Vegas but lived in the Philippines for four years! I'm currently in my last year at UC Davis for Environmental Science and Management.

Q: What does your position entail?

A: My time at Keālia has been focused on enhancing the visitor experience in the pollinator garden through a brochure and map! I'm also in the process of creating the trail throughout the garden with the rest of the team.

Q: Why do you aloha 'āina?

A: To me, aloha 'āina is a lifestyle. Prior to being on Maui, I didn't know there was an all encompassing term for loving our land and our community. It's important for us to remember that it's a two-way relationship and that we need to continue to give back to the land that allows us to grow.

Q: What are your goals after your fellowship?

A: After graduating I hope to join the US Fish and Wildlife Service and continue to carry the spirit of mālama 'āina wherever I'll go.



M. Woodward/USFWS Image of the visitor center.

Ongoing Events on the Refuge

First Saturday at Keālia Pond

The first Saturday of every month, 9:00am - 3:00pm. Free guided tours with staff through the Native Pollinator Garden and Kanuimanu Wildlife Viewing Ponds. The first tour is 9:30am, the second tour is at 1:30pm. All day Keiki (kids) educational crafts and activities!

Field Trips

Schools visits include hands-on learning activities, such as waterbird identification, visitor center scavenger hunts, walks through our Pollinator Garden and Viewing Ponds, removing invasive plants, and much more!

Volunteer Opportunities:

More information is listed on the following page.



M. Woodward/USFWS Image of a several students making Ae'o nests out of art materials.

Interested in participating?
Contact our Refuge by
either emailing
KealiaPondNWR@fws.gov
or calling (808) 875-1582
for more information.

U.S. Fish & Wildlife Service

FIRST SATURDAY AT Keālia Pond

National Wildlife Refuge

Who: A **FREE** event for all ages

When: Every **FIRST Saturday** of the month, 9:00am - 3:00pm

Where: Keālia Pond National Wildlife Refuge
Milepost 6 Maui Veterans Highway

Activities: **9:30am & 1:30pm** Guided "Walk-and-Talk" with Refuge Staff

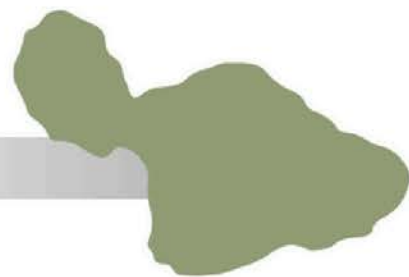
All day Keiki educational crafts and activities; learn more about our native pollinator garden and wildlife!

Explore our visitor center, bird viewing area, and Coastal Boardwalk

Contact the Refuge for details: KealiaPondNWR@fws.gov / (808) 875-1582

Keālia Pond

National Wildlife Refuge



VOLUNTEER OPPORTUNITIES

Want to join our Keālia crew? Contact the details below or scan the QR code for more information on volunteer positions.



kealiapondnwr@fws.gov



(808) 875-1582



POLLINATOR GARDEN

Keālia Pond showcases a native pollinator garden with over 45 species of Hawaiian plants. The refuge is seeking volunteers to assist in enhancing the visitor experience to the garden. Visitors will be responsible for trimming back plants, removing invasive species, basic trail maintenance, and more.

Knowledge of basic gardening is a bonus.

Volunteers must arrive with a water bottle, sun protection, and closed-toe shoes. Volunteers will be provided hand tools and gloves. This volunteer opportunity is every

Friday from 9am - 11am.



DRYLAND FOREST

The Hawaiian tropical dryland forest is one of the world's most endangered ecosystems. Hundreds of years ago, dry forests held the highest biodiversity in the islands. Today, less than 5% of their original range remains. This volunteer opportunity involves native plantings and invasive species removal. Work is in hot and dry conditions with limited shade. This opportunity allows volunteers to gain skills in plant identification, best planting practices, and invasive removal techniques. Volunteers must arrive with a water bottle, sun protection, long breathable pants, and closed-toe shoes. Volunteers will be provided hand tools and gloves. The volunteer opportunity is every

Thursday from 9am - 12pm.



VISITOR CENTER DOCENT

The Keālia Pond NWR Visitor Center serves as the gateway to the refuge. Docents perform duties in and around the Visitor Center and are often the first person that guests encounter. Docents greet visitors and share various options for experiencing the refuge, provide directions to trails and other visitor facilities, assist with basic bird and plant identification, interpret Visitor Center exhibits, share the Refuge's purpose and history, and complete sales from the Friends of Keālia Pond Nature Store. Volunteer shifts are **three hours** in duration, **Monday-Friday** and every **1st Saturday** of the month.

MATCH THE NATIVE HAWAIIAN PLANT TO THE NAME!

(1)



'Ilima

(2)



Wiliwili

(3)



Ma'ō

(4)



Naio

(5)



'Āweoweo

(6)



Pōhuehue

(7)



Ko'oloa 'ula

(8)



Pōhinahina

(9)



'Ōhai

Key: (1) Ma'ō, (2) 'Āweoweo, (3) 'Ilima, (4) 'Ōhai, (5) Pōhuehue, (6) Wiliwili, (7) Ko'oloa 'ula, (8) Naio, (9) Pōhinahina