

Honolulu Zoo Children’s Discovery Forest Receives Friends of Hawaii Charities Grant

The Hawai‘i Forest Institute (HFI) was awarded another grant this year from Friends of Hawaii Charities for the Honolulu Zoo Children’s Discovery Forest. Hawai‘i Tourism Authority Aloha ‘Āina Program has provided supported the project in previous years.

The infrastructure of the Honolulu Zoo Children’s Discovery Forest Upland Hawaiian Forest Zone was completed in 2015 and volunteers continue to enhance and maintain this Zone. Volunteer Coordinator Linda Duling has coordinated efforts to engage over 1,500 volunteers of all ages in maintaining the Discovery Forest and outplanting 1,120 seedlings. An additional 3,000 trees, shrubs, and ground cover were planted in the Upland Hawaiian Forest by the landscape contractor in 2015.



Community volunteers plant seedlings at the Honolulu Zoo Children's Discovery Forest. April 21, 2018

With assistance from HFI President Dr. Travis Idol, Linda coordinates monthly volunteer events and educational tours with youth groups. In addition to community volunteers, groups include US Navy and Marine Corp, Boy Scouts, Punahou Key Club, Hawaii Community College, Kiwanis Young Professionals, and Hawaii School for the Deaf and Blind. Natural resource lesson topics include Native Hawaiian Birds, Energy & Nutrient Cycling, Kalo cultural stories and replanting guidelines, El Nino & Global Climate Change, Polynesian vs. Native Hawaiian plants identification and uses, and Island Chance paper airplane activities.

An Upland Hawaiian Forest Interpretive Sign was created in 2016 and installed at the Discovery Forest at a dedication ceremony on April 29, 2017. The sign illustration was created and generously donated by artist Gerald Mayfield and Diana Tusher donated her time to work with Lowell Gillia, Design Asylum Inc. to create the layout and design. The Wayfinder sign was funded by Hawai‘i Tourism Authority, Hawai‘i Community Foundation, and Friends of Hawaii Charities.

HFI formed a partnership with faculty and students at the University of Hawai‘i-Mānoa and the State Division of Forestry and Wildlife to improve the native plant collection and educational signs and other materials in the adjacent Kipuka Nene Exhibit to better highlight native forest bird habitat and conservation efforts. HFI President Travis Idol worked with community partners to create a “Birds of the Montane Native Forest” Interpretive Sign. Gerald Mayfield created and donated the sign illustration and Diane Tusher did the layout and design. This interpretive sign was funded by Hawai‘i Tourism Authority and Friends of Hawaii Charities.

BIRDS OF THE MONTANE NATIVE FOREST

Shrouded in clouds and mist, montane forests on Hawai'i mountainsides provide a refuge for many unique native plants and animals. The cooler temperatures of these forests reduce mosquitoes that carry avian diseases, and the high rainfall supports a diversity of native life forms. The zoo's Kīpuka Nēnē is a representation of native bird populations and forest habitats. Many other native bird species, sadly, cannot survive at the zoo without a mosquito-proof enclosure.



Nēnē (*Nesofregetta cincta*)
An endemic Hawaiian hawk, the Nēnē is considered one of the 100 Most Endangered species and found only on Hawai'i Island. They live in forests and prey on small mammals, birds, reptiles, and insects.



Pua'a (*Phasianus versicolor*)
An endemic Hawaiian subspecies of wild forest owl. Found throughout Hawai'i in grasslands and forests, the Pua'a is listed as threatened on O'ahu. They feed on small mammals and, unlike most owls, are active mostly during the day.



Nōho (*Myadestes occidentalis*)
This endemic Hawaiian species is the Hawai'i state bird. It has a diverse diet and ability to live in many habitats. However, predation by introduced mammals and loss of habitat have caused it to be listed as endangered. Captive breeding, predator control, habitat restoration, and other efforts are helping to recover.

Food Plants

Nēnē geese graze on native grasses such as pū and sedges (*Carex* spp.) and the leaves and fruits of native shrubs and trees such as māmao, ōhelo, and pūkiawe.

Nest & Perching Sites

Nēnē nest on the ground. Native shrubs like pūkiawe and o'ōhiʻi provide cover for nesting nēnē. Raptors like the ʻŌʻi (Hawaiian hawk) perch and nest in trees including the native ʻŌʻi ʻŌhelo, ʻŌhelo, and ʻŌhelo. The pua'a (Hawaiian owl), on the other hand, may nest on the ground or in burrows, benefiting from native shrubs and ground cover plants.

Climate Change & Conservation

In Hawai'i, climate change means warmer temperatures and lower rainfall overall, pushing montane forest environments higher up the mountains and allowing further invasion of mosquitoes and other invasive species into native and restored forests. Climate change projections can be used to prioritize habitat protection and restoration to continue to provide a welcoming environment for migrating flora and fauna.

CHILDREN'S DISCOVERY FOREST

A Project of the Hawai'i Forest Institute and the Honolulu Zoo

CAN YOU FIND THESE PLANTS?

Food Plants:

These include grasses, sedges, leafy herbs, fruiting shrubs and trees. Hawai'i's native forests provide a variety of food plants for nēnē and other native birds to ensure a healthy diet.



Apteris gracilis

A bunchgrass found on O'ahu, Molokai, Lanai, Maui and Hawai'i Island. It is a member of an ancient lineage of grasses and is an important food source for nēnē. They feed on small mammals and, unlike most owls, are active mostly during the day.



Carex sp.

A hardy sedge plant found in forests up to 12,000 feet in elevation. The "moss" that grows on its leaves and in addition to being a food source for nēnē, they are used in making and flower arrangements.



Vesicaria sp.

Hawai'i's rare cactinary species. They provide a common food source for birds and make a great jam and butter for ground nesting birds. The leaves are used medicinally and the stem leaves and fruit are used in making oil.



Pipturus albidus

A large shrub found on all main islands up to 6,000 feet in elevation. The leaves are used for fuel and construction of the Kanihōhōa's hōhō and make a great medicinal tea. The stem bark is used to make a pig paint.



Myrsine umbellata

A small to medium size tree found from sea level to over 7,000 feet. The flowers have an odor reminiscent of sandalwood, and the fruits are eaten by nēnē and other frugivorous birds. The dense wood was traditionally used for ʻŌʻi (pig) and small tools.



Pipturus albidus

A shrub up to 25 feet tall found up to 6,000 feet that is known for very hard double wood and fragrant flowers. Wood was traditionally used for tools, fishhooks, ʻŌʻi (pig), and ʻŌʻi (pig). Leaves were used for dye, and fruit is eaten by birds.



Lumnitzera racemosa

A large shrub found in dry to wet montane forests up to 7,000 feet in elevation. It is a food source and shelter for ground nesting birds. The leaves are used medicinally, and the stem leaves and fruit are used in making oil.



Dodonaea viscosa

A hardy shrub growing from coastal areas to subalpine forests on most of the main Hawaiian Islands. The seed pods are used for stuffing in, and the leaves are used for small tools and baskets.



Pittosporum spp.

A small to medium size tree growing 8 to 15 feet tall up to 6,000 feet. The fruit is a favorite of the nēnē. Wood was traditionally used for small tools and baskets.



Anacardium

Hawai'i's tallest native tree, growing up to 175 feet tall. Native moths and birds feed on its leaves and flowers. The wood was used to make traditional surfboards and oars. It is now used to make fine furniture, high-quality musical instruments, tableboards and other decorative items.



Metrosideros polymorpha

Hawai'i's most widely distributed native tree, growing up to 100 feet tall. Many native birds feed on the seeds from its flowers. The wood was traditionally used for canoes, houses, tools, and weapons. ʻŌhelo remains a prominent grass in Hawaiian culture and history.



Pisonia sp.

A single trunked palm growing from 25 to 40 feet. Each island has one or more unique species of this palm found regionally throughout the Pacific (e.g. on Kauai (Papaia palm), Oahu (Papaia palm), and other islands). Locals refer to it as "Papaia".

Designed to feature our native and culturally important species. Learn more at: www.hawaii-forestinstitute.org/honolulu-zoo-discovery-forest
Major In-kind Support:
Wahiolo Botanicals • Bernice Pauahi Bishop Museum • Native Plant Source • Green Field Nursery • Starbuck Nursery & Garden Center • Hilo Valley Board of Water Supply • Hilo Hawaiian Food • 50-50 Street Inn • Sharon's Nursery • Hilo Valley Nurseries • Tanager Arch-Historical Group • The Hilo Market • University of Hawai'i Hilo • USMC Division of Forestry & Wildlife
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Birds of the Montane Native Forest Interpretive Sign. Illustration by Gerald Mayfield and layout and design by Diana Tusher. Funded by Hawai'i Tourism Authority and Friends of Hawaii Charities