



Mālama
Learning
Center

Symphony of the Hawai'i Forests

Teaching Resources

Explore this curated list of educational lessons and resources related to trees and forests in Hawai'i.

This resource is compiled by Mālama Learning Center with support from the Hawai'i Forest Institute, Hawai'i Department of Land & Natural Resources - Division of Forestry and Wildlife, U.S. Forest Service, and the University of Hawai'i at Mānoa Music Department. It will be updated periodically.

Last update: February 2023

Featured Tree-riffic Lesson Plans

Elementary

[Moanalua Gardens Foundation](#)

[Schoolyard to Forest](#) +

[Student Sheets](#)

This lesson encourages students to research a native Hawaiian plant and understand how Hawaiian forests have been negatively impacted by invasive species. Students will conduct a schoolyard weed survey.

Middle/Intermediate

Partners for Reform through Investigative Science and Math - PRISM

[Hawai'i's Dryland Forest - 6th Grade](#)

Downloadable lessons on Hawai'i's Dryland Forest ecosystem emphasizing impacts to the dry forest, seed and flower adaptations, and the scientific method.

High School

Hō'ike o Haleakalā Curriculum

[Rain Forest Unit](#)

High school science curriculum designed by Maui teachers and field biologists with downloadable Units on the following topics: "Why is the Rain Forest Wet? Rain Forest Relationships, Rain Forest Birds, Impact of Invaders, and Weed Warriors." This curriculum aligns with state science standards using local ecosystems as a context to teach this multidisciplinary curriculum. Although it uses specific examples from Maui, many can be easily adapted for other islands.

Helpful Resources To Get You Started

Tree/Plant Identification:

- Citizen Forester Program
 - [TreePlotter Inventory](#)
Inventory of trees on O'ahu.
- Coordinating Group on Alien Pest Species (CGAPS)
 - [Plant Pono Archive](#)
Resource archive tool with plant risk assessment levels and scores to help people learn about and choose a “pono plant” or “right plant” for both their home and for our ‘āina.
 - [Resources and Planting Guides](#)
- Department of Land and Natural Resources - Division of Forestry and Wildlife: Forestry Program Resources
 - [Tree Canopy Viewer Hawai'i](#)
 - Urban Tree Canopy (UTC) Virtual Tour - [UTC Map Layers](#)
 - [Urban Trees of Hawai'i Identification Guide](#)
- [SelecTree](#) A Tree Selection Guide
*Make sure to click on “Search Pacific Islands”

Tree/Forest Information:

- [The Department of Land and Natural Resources Educational Resources](#)
 - Information on [Hawai'i's Rare Native Plant Species](#)
 - Information on [Hawai'i's Common Plant Species](#)
- [Hui Kū Maoli Ola Plant Descriptions](#)
This website provides descriptions of well-known and little-known native and Hawaiian-introduced plants, including images, characteristics, uses, cultivation, and care.
- Three Mountain Alliance
 - [Learning Activity Guides](#)
Guide topics focus on watersheds, wai, native species, plant and bird anatomy, and kilo lā'au and kilo manu (observation of plants and birds).
 - [Hawaiian Watershed Adventure Board Game](#)
 - [Nā Māhele Activities](#)
These worksheets feature important restoration tree species at Keauhou, Ka'ū and terms for their different parts.
*This description is taken directly from the Three Mountain Alliance website.

Curriculum/Lessons

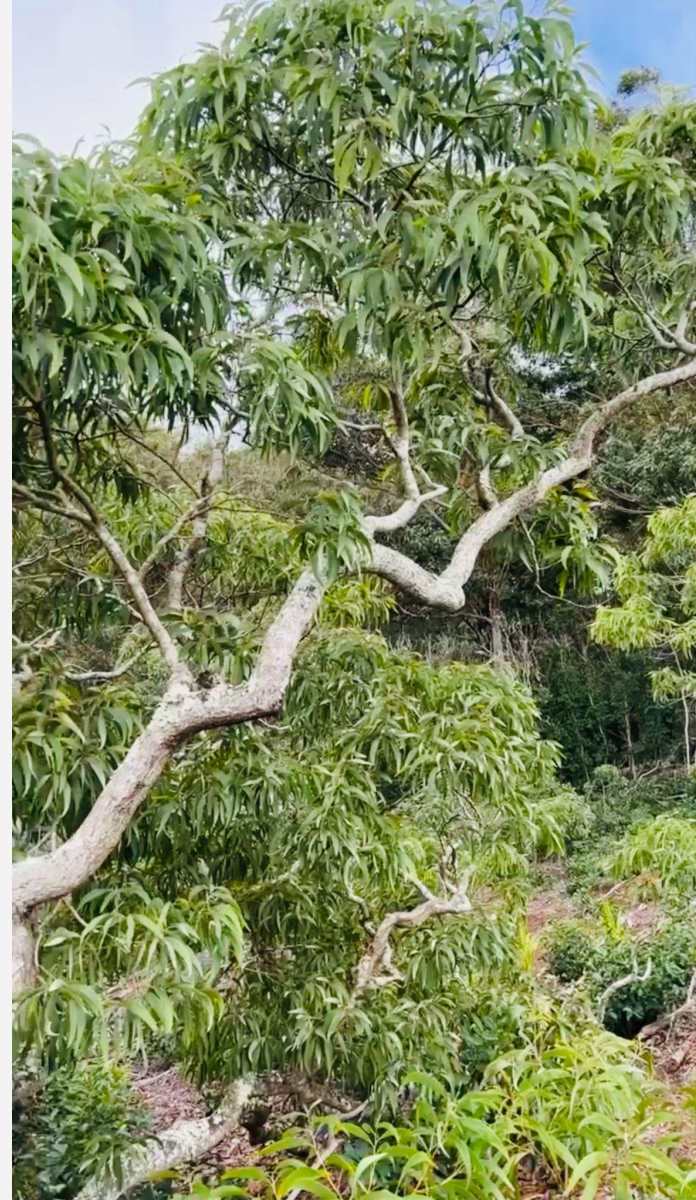
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- Ka'ahahui 'O Ka Nāhelehele
 - [Lessons on Dryland Forests](#)

Lessons on Dry Forests, plant shapes, invasive plants, native plants, and more!
- Lyon Arboretum
 - [Comparing Birds and Bird Food Preferences](#)

A series of activities geared to an outdoor field environment. Designed for Lyon Arboretum in Hawai'i, but can be used in any outdoor location. Includes worksheets. Activities include 1) Observations of birds, trees, food preferences, and adaptations of birds; an invertebrate hunt; observing plants and animals and defining role; bird beaks and adaptation; an activity to model a food chain; an activity to examine seeds and determine mode of dispersal; drawing activity to identify an invasive species.

*Created by Norine Yeung, description taken directly from the website.



Curriculum/Lessons

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 - [Rain Forest Unit](#)

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Curriculum/Lessons

- [Mālama Learning Center](#)
 - [Ola Nā Kini: How To Propagate Native Hawaiian Plants lesson Plan](#)
 - Link to Ma'ō Propagation Video: <https://vimeo.com/762797271> (6:29)
 - Link to 'Ilima Propagation Video: <https://vimeo.com/762799820> (8:01)
 - Link to Lonomea Propagation Video: <https://vimeo.com/762795394> (4:32)
- [Moanalua Gardens Foundation](#)
 - [Schoolyard to Forest](#) + [Student Sheets](#)

This activity encourages students to research a native Hawaiian plant and understand how Hawaiian forests have been negatively impacted by invasive species. Students will conduct a schoolyard weed survey.
 - [Giving Back to the 'Āina](#) + [Student Sheets](#)

Students take a huaka'i (field trip) to Kamananui Valley to learn about the history of this place and help with restoration efforts using plants they cared for at school.

A culminating project will include final group presentations to the school sharing a summary of learning and proposals for which native Hawaiian plants to grow at school.
- Pacific American Foundation
 - [Aloha 'Āina Curriculum](#)

Downloadable lessons include readings such as mo'olelo, student reflections, maps, and interviews with kūpuna (elders), and help foster creative collaborative projects, problem-solving in math and science, and investigations around different ahupua'a. There are mo'olelo available on trees such as the ['Ulu](#) and [Koa](#).



Curriculum/Lessons

- Partners for Reform through Investigative Science and Math - PRISM [Hawai'i's Dryland Forest - 6th Grade](#)
Downloadable lessons on Hawai'i's Dryland Forest ecosystem emphasizing impacts to the dry forest, seed and flower adaptations, and the scientific method.
 - [Hawai'i Project Learning Tree](#) (DLNR)
Curriculum available on analyzing the many ecosystem services that trees provide, collecting data to understand how trees grow, the roles trees play in ecological systems, Energy in Ecosystems, and on Carbon & Climate. Information on local workshops is also available. *Primary curriculum materials available after taking workshop.
 - [University of Hawai'i Seed Dispersal Lesson Plan](#)
Students will examine seeds and predict and test their means of dispersal. This lesson will help students learn about hypotheses and experiments, as well as understand the difference between observations and inferences, while learning about how plants colonized Hawaii and its offshore islets.
 - [Waihona](#)
An interactive and collaborative repository coordinated by Kamehameha Schools where kumu share resources and ideas with each other. There are hundreds of lessons on this site. Lessons on trees include:
 - Mālama 'Āina Lesson: Rapid 'Ōhi'a Death (In 'ōlelo Hawai'i)
 - Saving 'Ōhi'a: Hawai'i's Sacred Tree (In 'ōlelo Hawai'i)
 - Hawai'i Forests (Overview of the different native forest types along with some of the native plants and animals found in each)
 - Modern Konohiki - Discovering the math of being a konohiki
- *Need to register as a User in order to access lessons and resources on this website.



Educational Resources

- Aloha Arborist Association (AAA) - AAA is an organization of professionals and private citizens that care for, and support, Hawai'i's trees and ecosystem. With members from the islands of Hawai'i, Maui, O'ahu and Kaua'i, AAA represents the interests of those involved in Arboriculture across the entire state.
 - Helpful Handouts/Presentations on trees and proper tree care.
 - [Proper Pruning Techniques](#)
 - [Trees from the Ground Down](#)
 - [Handouts and presentations from the Pests and Trees Workshop \(March 2015\)](#)
- [Arbor Day Hawai'i](#)
Information and guides on selecting a tree and tree care.
- Citizen Forester Program
 - [TreePlotter Inventory](#)
Inventory of trees on O'ahu.
- City & County of Honolulu Community Forestry Program
 - [Learn To Properly Plant a Tree Video](#)
In 10 easy steps, learn how to properly plant a containerized tree at your hale (house).
 - [K-5 Educational Activities](#)
Educational lessons for grades K-5 about trees in the urban forest created by The Honolulu Botanical Gardens and the Community Forestry.
*This description is taken directly from the Honolulu Botanical Gardens website.





Educational Resources

- [City & County of Honolulu Office of Climate Change, Sustainability, and Resiliency](#)
 - Urban Tree Canopy Assessment on O‘ahu - [Online Map of Data](#)
 - [100k Trees O‘ahu Database Map](#)
- Coordinating Group on Alien Pest Species (CGAPS)
 - [Plant Pono Archive](#)
Resource archive tool with plant risk assessment levels and scores to help people learn about and choose a “pono plant” or “right plant” for both their home and for our ‘āina. This archive has various search fields (native, growth form, elevation, edible, sunlight/water requirements, etc...) to help narrow down searches.
 - [Resources and Planting Guides](#)
Videos and guides to help prevent the spread of invasive species pests, and diseases in the community and how to plant in areas with different environmental conditions.
- [The Department of Land and Natural Resources Educational Resources](#)
Lessons and printable materials are available around forestry & wildlife education (topics around our watershed, endangered plants and animals, forest birds and snails, and the precious ‘Ōhi‘a). Resources include virtual field trips, informational videos, posters, coloring pages, games, crafts and more!



Educational Resources

- Information on [Hawai'i's Rare Native Plant Species](#)
- Information on [Hawai'i's Common Plant Species](#)
- Department of Land and Natural Resources - Division of Forestry and Wildlife: Forestry Program Resources
 - [Tree Canopy Viewer Hawai'i](#)
 - Urban Tree Canopy (UTC) Virtual Tour - [UTC Map Layers](#)
 - [Urban Trees of Hawai'i Identification Guide](#)
 - [StoryMaps](#) exploring conservation topics like watersheds and forest protection, protective fencing, climate change impacts on forests, and more
 - [Educational videos](#) about conservation and forest protection in Hawai'i
 - [Virtual field trips](#) to protected areas and reserves
- Hawai'i Association of Watershed Partnerships
 - [Watershed Demonstration Kit](#) developed by East Maui Watershed Partnership
- Hawaiian Electric
["Planting the Right Tree in the Right Place" Booklet](#)
- Hawaiian Forest
 - [The Native Plants and Animals of Hawai'i](#)
Native plant and animal facts website created by the late Nate Yuen.

Educational Resources

- [Hawai'i Forest Institute](#)
 - [Information on Hawai'i's Forests](#)
Information on different terminology, forest publications, pests & diseases, the hydrology of the forest, and more.
- [Honolulu Zoo Children's Discovery Forest](#)
 - Plant Identification Guides
 - Forest Friends Coloring Book
 - Honolulu Zoo Children's Discovery Forest Interpretive Guide
- [Hawai'i Neighborhood Forests](#)
 - [PSA on the importance of trees](#)
- Hawai'i STEW-MAP
An interactive map to explore stewardship and civic groups that care for the environment in O'ahu and on the Big Island.
 - Information about STEW-MAP, O'ahu:
<https://www.nrs.fs.usda.gov/STEW-MAP/oahu/>
 - Information about STEW-MAP, Hawai'i Island:
<https://www.nrs.fs.usda.gov/STEW-MAP/NKandSK/>
 - Interactive map for O'ahu and Hawai'i Island:
<https://usfs.maps.arcgis.com/apps/webappviewer/index.html?id=f3988204d22247919f4c76b64e52367f>





Educational Resources

- [Hui Kū Maoli Ola Plant Descriptions](#)
This website provides descriptions of well-known and little-known native and Hawaiian-introduced plants, including images, characteristics, uses, cultivation, and care.
- [Lyon Arboretum Teacher and Student Resources](#)
 - Virtual tour of Lyon Arboretum
 - Plant Identification video
 - Grades K-4 Plant Educational Resources (includes links to informational videos, FAQs on invasive species, and more)
- Mālama Learning Center- videos created by Mālama Learning Center on topics related to native Hawaiian trees, restoration, and community collaboration.
 - Propagation Videos:
 - Link to Ma'o Propagation Video: <https://vimeo.com/762797271> (6:29)
 - Link to 'Ilima Propagation Video: <https://vimeo.com/762799820> (8:01)
 - Link to Lonomea Propagation Video: <https://vimeo.com/762795394> (4:32)
 - Reconnecting with Niu: The Tree of Life <https://vimeo.com/450576238> (6:03)
 - Restoration Videos:
 - Ola Nā Kini Life for the Multitude <https://vimeo.com/724612139> (5:47)

Educational Resources

- CONT'D Mālama Learning Center - videos created by Mālama Learning Center
 - Restoration Videos (cont'd):
 - The Disappearing Dryland Forests of Wai'anae: <https://vimeo.com/695798959> (5:42)
 - Wai'anae Dryland Forests on Fire: <https://vimeo.com/695787405> (5:52)
 - Wildfire Education in Wai'anae <https://vimeo.com/743543261> (5:43)
 - Mālamalama Pālehua <https://vimeo.com/544838137> (5:05)
 - MLC Restoration Planting Techniques <https://vimeo.com/415331910> (5:33)
 - Ola Nā Kini: Planting to Heal & Restore the 'Āina with MLC: <https://vimeo.com/427638604> (19:10)
 - Invasive Species Videos:
 - MLC Invasive Species <https://vimeo.com/577449429> (8:19)
 - Little Fire Ants in Hawai'i: Spot the Ant and Stop the Ant: <https://vimeo.com/652127209> (6:01)
 - Coconut Rhinoceros Beetles in Hawai'i- What you should Know: Part I: <https://vimeo.com/214747331> (4:07) Part II: <https://vimeo.com/214748136> (3:54)
 - Invasive Species and Biocontrol Solutions in Hawai'i: Part I: <https://vimeo.com/791295559> (6:07) Part II: <https://vimeo.com/791302473> (5:29)





Educational Resources

- CONT'D Mālama Learning Center - videos created by Mālama Learning Center
 - Arbor Day Videos
 - Arbor Day 2020: <https://vimeo.com/498687531> (3:59)
 - Arbor Day 2021: <https://vimeo.com/659750439> (4:50)

More videos related to trees and forests created by other producers can be found on Mālama Learning Center's [Outside Hawai'i website](#). Specific episodes include:

- February 2023: <https://vimeo.com/790249036> (27:54)
- December 2022: <https://vimeo.com/782971031> (27:55)
- August 2022: <https://vimeo.com/742335355> (27:54)
- July 2022: <https://vimeo.com/731555138> (27:55)
- March 2022: <https://vimeo.com/691506389> (27:55)
- February 2022: <https://vimeo.com/682926967> (27:55)
- January 2022: <https://vimeo.com/667955846> (27:55)
- December 2021: <https://vimeo.com/659740470> (27:55)
- November 2021: <https://vimeo.com/649692361> (27:55)
- September 2021: <https://vimeo.com/610771906> (27:55)
- January 2021: <https://vimeo.com/530527081> (27:55)



Educational Resources

- The Nature Conservancy
 - [Last Stand: The Vanishing Hawaiian Forest](#)
An informative publication overviewing the environmental and cultural richness and significance of Hawai'i's rain forests, cultural history, threats to forest ecosystems, the economic value of forests, and the future of forest conservation.
- [The 'Ōhi'a Challenge](#)
 - Background information on “the problem” and “the challenge” of Rapid 'Ōhi'a Death
 - UH Mānoa [Rapid 'Ōhi'a Death website](#) includes [academic studies](#), [updated maps showing infected forest areas](#), [useful guides about ROD](#), and [a trove of other relevant material](#).
 - The National Park Service [Rapid 'Ōhi'a Death website](#) with some great information on the spread of the disease around the big island and guidelines on how to prevent the spread of ROD while visiting Hawai'i.
*This description is taken directly from The 'Ōhi'a Challenge website.
- [The Outdoor Circle](#)
Have a question about a tree or plant? Check out this one-stop-shop for plant resources on ideal tree placement, Hawai'i tree information, arborist database, and more!
[Exceptional Tree Map of Hawai'i](#)



Educational Resources

- [Pacific Drought Knowledge Exchange 'Ōlelo Hawai'i Factsheets](#)
The PDKE has worked with stakeholders and research managers to develop factsheets about Hawai'i Volcanoes National Park, Pu'u Wa'awa'a Experimental Tropical Forest, and the State of Hawai'i that can be used for educational purposes, staff training, and community outreach (*This description is taken directly from the Pacific Drought Knowledge Exchange website). Factsheets include a history of drought at each site, future climate projections, and drought impacts on conservation operations and ecological restoration for both the environment and organizations.
- [Pilina 'Āina \(formerly Teaching Change\) - Hakalau Virtual Huakai: 'O Hakalau, ka nāhele ma uka o Hilo Palikū](#)
This video introduces us to the Hakalau Forest and tells the story of the journey it took to become the pu'uohonua for native species that it is today. It specifically spotlights the endangered native forest birds who call Hakalau home, as well as the threats our native species face and the immense native forest restoration that has been done at Hakalau. It emphasizes the importance of preserving and protecting native Hawaiian forests and the watersheds that they provide from invasive species, climate change, and other major threats.



Educational Resources

- [SelectTree](#) A Tree Selection Guide for the Pacific Islands
Search for the right tree by their characteristics such as tree height, leaf form, flowers & fruit, site conditions and more!
*Make sure to click on “Search Pacific Islands”
- Smart Trees Pacific
 - [Benefits of Trees](#)
 - [Benefits of Trees Brochure](#)
 - [Planting & Care](#)
 - [Resources](#)
Downloadable documents, brochures, and documents to use as a resource to better navigate the urban forestry world in Hawai'i and the Pacific.
*This description is taken directly from the Smart Trees Pacific website.

Educational Resources



- Three Mountain Alliance
 - [Learning Activity Guides](#)
User friendly guides to help learners explore Hawai'i's native forests and watersheds in Hawai'i. Guide topics focus on watersheds, wai, native species, plant and bird anatomy, and kilo lā'au and kilo manu (observation of plants and birds).
 - [Hawaiian Watershed Adventure Board Game](#)
 - [Nā Māhele Activities](#)
These worksheets feature important restoration tree species at Keauhou, Ka'ū and terms for their different parts. Each species features a full-color diagram with terms and a worksheet packet with 1) a colorable worksheet, 2) fill-in-the-terms worksheet and 3) a list of terms and definitions.
*This description is taken directly from the Three Mountain Alliance website.
- [University of Hawai'i at Mānoa - Master Gardener Program](#)
General information on native Hawaiian and canoe plants.
- [Urban Tree Key](#)
A digital dichotomous key to help you identify trees near you!
- [USDA Forest Service Urban Tree Canopy in Hawai'i](#)
Use an ArcGIS platform to search urban tree canopy coverage in Hawai'i.



Educational Resources

- [Wiliwili Trees in Hawai'i: A Biocontrol Success Story](#)
This creatively animated video produced by the Coordinated Group and Alien Pest Species and the Department of Land and Natural Resources tells the story of how a biocontrol wasp helped save the native Hawaiian wiliwili tree from extinction.

Find an Organization Near You!

Hawai'i STEW-MAP

An interactive map to explore stewardship and civic groups that care for the environment on O'ahu and on the Big Island

O'ahu:

- Hui Kū Maoli Ola
- Hui o Ko'olaupoko
- Kāko'o 'Ōiwi
- Kōkua Kalihi Valley
- Kō'olau Mountains Watershed Partnership
- Mālama Learning Center
- North Shore Community Land Trust
- O'ahu Invasive Species Committee
- Papahana Kuaola
- Wai'anae Mountains Watershed Partnership

Kaua'i

- Kaua'i Forest Bird Recovery Project
- Kaua'i Invasive Species Committee
- Kaua'i Watershed Alliance
- Kōke'e Resource Conservation Program
- National Tropical Botanical Garden (NTBG)
- Waipā Foundation

Moloka'i

- Moloka'i Invasive Species Committee
- Moloka'i Land Trust
- Papahana Kuaola Lelekamanu Moloka'i

Maui

- Auwahi Forest Restoration Project
- East Maui Watershed Partnership
- Leeward Haleakalā Watershed Restoration Partnership
- Maui Forest Bird Recovery Project
- Maui Invasive Species Committee
- Pu'u Kukui Watershed Preserve
- Mauna Kahālāwai Watershed Partnership

Big Island:

- Akaka Foundation for Tropical Forests
- Big Island Invasive Species Committee
- Hawai'i Forest Industry Association
- Hui Aloha Kīholo
- Hui Mālama i ka Ala 'Ūlili
- Ka'ūpūlehu Dryland Forest
- The Kohala Center
- Kohala Watershed Stewardship
- Mauna Kea Watershed Alliance
- Pu'u Wa'awa'a Forest Reserve
- Three Mountain Alliance
- Ulu Mau Puanui
- Waikōloa Dry Forest

Statewide:

- The Nature Conservancy

Please contact us to add more organizations to the list!