

# OAHU BOTANICAL FIELD GUIDE

*Explorations from Kulana' Ahane Trail*



## PARTICIPATING SCHOOLS

Ala Wai Elementary  
Hokulani Elementary  
Kuhio Elementary

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*\*cover graphic designed from print made by Ahveum Lee.*



# ALAHE'E

## *Psychrax Odorata*



- Alahe'e means "slippery like a squid"
- Small tree, glossy long narrow leaves, tiny white, clustered flowers, small, black fruit
- Wood was used for he'e spears, hooks, and adze
- Leaves were used to create dark brown or black dye



Kuhio ES

# HŌ'AWA

*Pittosporum Confertiflorum*



- Shrub/small tree, large, narrow, leathery, leaves, dense brown hairs under leaves
- Cream or light yellow flowers that cluster at the base of leaves; large, wrinkled fruits
- Wood used for top sides of canoes, crushed outer fruit layer used for skin sores
- 10 native species in Hawai'i, the fruit is the Alala's (rare Hawaiian crow's) favorite



AlaWai ES

# 'ĪLIAHI

*Santalum Freycinetianum*

## SANDALWOOD



- Medium sized tree in dry to mesic forest, red clustered, bud-like flowers, leaves that appear wilted
- Oil from the wood (sandalwood) is globally used as perfume and in skin care products
- 'Īliahi trade for its oils in 1780-1819 AD decreased Hawaiian sandalwood populations
- Shallow roots grab other host trees' roots for nutrients, but release when stressed



Hokulani ES

# KOA

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*Acacia Koa*

## HAWAIIAN MAHOGANY



- Largest native tree in Hawai'i, reaches up to 115ft., yellow flowers, crescent leaves
- Wood was carved into war canoes, surfboards, calabashes, furniture, ukuleles
- Koa means "brave, bold, fearless, warrior or fighter"
- Native, 'Elepalo bird, also known as the canoe makers bird, helped identify which Koa trees to avoid harvesting by pecking on the bark of insect infested trees



Hokulani ES

# KŌPIKO

*Psychotria Hawaiiensis*



- Small tree up to 25ft, glossy, thick leaves; small, tightly clustered, white flowers
- Piko (belly button) refers to the tiny holes at the mid vein of the leaf
- The piko provides a safe home for microscopic mites, in return they protect the plant from insects that may eat the plant or fungus that might grow on the leaves
- The hard whitish wood was used by the Hawaiians for anvils (kua kuku) for beating kapa cloth, or for fuel



Hokulani ES



# LOULU

*Pritchardia*

## HAWAIIAN PALM

- Medium to large palm 25-60ft tall with single ringed trunk and fan shaped leaves



- Leaves were used for thatching like lauhala, for hats and fans

- There are 19 different species of Loulu that vary in height, fruit and leaf color
- Hawaiians would eat the unripe seeds to treat fatigue; they taste similar to coconut



Hokulani ES

# MA'O

*Gossypium Tomentosum*

## HAWAIIAN COTTON



- Used to create yellow dye from its flower and green dye from its leaves for kapa
- Hybridized with mainland cotton for insect and disease resistance, saved industry
- Ma'o blooms from late summer through winter. Brown capsules containing light brown fuzzy seeds follow the blooming period
- Small shrub, 2-6ft, found in dryland to coastal habitats



Hokulani ES

# MĀMAKI

*Pipturus Albidus*

HAWAIIAN NETTLE



- Leaves dried to make tea for sore throats and coughing; calms nerves, muscle relaxant, stress and anxiety reliever
- M'maki is the choice food for Hawaii's state insect the Pulelehua-Kamehameha's butterfly
- Small tree up to 15ft, good understory, flat, rough, serrated green or red vein leaves
- White fruits resembling small raspberries are edible but bland to subtly sweet



Kuhio ES

# NĀNŪ/NĀ'Ū

*Gardenia Brighamii*

HAWAIIAN GARDENIA



- Few remaining mature wild specimens in Kanepu'u, Lana'i and Nanakuli, O'ahu
- Yellow dye for kapa made from fruit; very fragrant, porcelain white flowers
- Wood made kapa anvils (kua kuku), and house posts (pou)
- Federally listed endangered species



Ala Wai ES

# NAUPAKA KUAHIWI

*Scaevola Gaudichaudiana*

## MOUNTAIN NAUPAKA



- Native legend of two lovers turned into half flowers, the other half on shorelines
- Naupaka kuahiwi grows in wet forest and open areas from about 555 to 2,600ft
- On Kaua'i and O'ahu, grows 2 to 30ft tall
- The fruits were used as a purplish black dye; fragrant flowers were used in lei making



Hokulani ES

# 'ŌHI'A LEHUA

*Metrosideros Polymorpha*

HAWAIIAN MYRTLE



- Legend of two lovers turned into the flower and tree; rains when the flowers are picked
- Wood used for houses, heiau, canoe seats, poi boards, weapons, kapa beaters
- Flowers for lei making, flower and inner bark of Hau for labor pains
- Many native birds depend on nectar of lehua blossom, honey made of its nectar



Hokulani ES

# PAPALA KĒPAU/KAULU/ĀULU

*Pisonia Sandwicensis*



- Sticky pod fruits used to catch native birds for feather making; 'O 'o and Mamo birds were seasonally plucked of their few moulting yellow feathers and set free to grow more for the next season
- Native l'iwi and 'Apapane birds which were totally covered with red-colored feathers would not survive the plucking, they were captured, plucked, and eaten
- The milky sap was used for cuts; cooked leaves cured lepo pa'a (constipation)
- Large tree 30 to 50ft, large leaves, dry to mesic areas 850 to 3,400ft



Hokulani ES

# KOKI'O KE'OKE'O

*Hibiscus Waimeae*

## NATIVE HIBISCUS



- Small shrub up to 10 - 25ft, green smoothed serrated leaves, delicate white flowers
- More common in the past as it was referenced in many mo'olelo and oli
- Grown traditionally and contemporarily for its flowers
- The only scented hibiscus in the world



Hokulani ES



# 'A'ALI'I

## *Dodonaea Viscosa*



- Seeds boiled for red dye, seeds crushed and used as a medicine for skin rashes
- Wood used for canoes, weapons, agricultural and house tools, seeds used for lei
- 'A'ali'i k' makani means "standing in wind" suggesting it's strength to strong winds
- Medium bush 6 to 12ft, long, pointed, smaller green with tinge of red



Hokulani ES

# 'AHU'AWA

*Cyperus Javanicus*



- Could be planted around water banks to prevent erosion, food/shelter for wildlife
- Grass sedge 2-4ft, coarse thin leaves, golden brown seed head, marshy-wet areas
- Stem fibers used as cordage, canoe rigging, fishing line, nets, brush, strainer
- Mixed with other plants for deep cuts, bruises, cold sores, runny nose, thrush



# 'ILIH'E

## *Plumbago Zeylanica*



- Scrambling shrub; leaves are small, light green, soft; flowers are white star-shaped
- Fruits are sticky and help with dispersal, grows in dryer or coastal areas
- Used to treat swelling or toothache, roots for black or dark blue tattoo ink
- However, sap on skin causes blistering, must be mixed with other plants



Ala Wai ES

# 'ILIMA PAPA/'ILIMA KŪ

*Sida Fallax*



- Flowers & roots for labor or menstrual medicine, one of Laka's (hula goddess) form
- Flowers prized for lei, this and malle for farewell or welcome, all 'Ilima lei for love
- Sprawling or upright shrub, bright yellow, fragile flowers
- Grows coastal to up to 6,500ft



Ala Wai ES

# KOU

## *Cordia Subcordata*



- Large tree 30-40ft, large pointed droopy leaves with wavy margins, veins & midribs
- Tubular orange flowers and round fruit, flowers for dyeing kapa reddish color
- Used to store poi, meat, flowers, feathers, polished with oil and pumice/shark skin
- Wood used for bowls because it was soft, easy to cut and held liquids well



Ala Wai ES

# MAILE

*Alyxia Oliviformis*



- A vine with oval, pointed and shiny leaves; black olive-like fruit
- Laka the goddess of hula was thought to take this form at will
- Greatly desired, found in many song, dance and chant
- Vanilla-like scented bark and leaves; used for lei



Kuhio ES

# PALA'A

*Sphenomeris Chinensis*



- Small ground cover fern, found in mesic forests, near trails
- Frail light, light green lacy fronds
- Red brown dye made from dried fronds
- Used in lei



Hokulani ES

# 'UKI'UKI

*Dianella Sandwicensis*

## HAWAIIAN LILY



- Fruit creates purple dye, seeds used as a seed lei
- Smaller sedge, grass-like, 2-3ft tall
- Leaves used for thatching and cordage
- Grows on lava fields to wet forests



Hokulani ES



# 'ŪLEI

*Osteomeles Anthyllidifolia*



- Leaves and root bark used for deep cuts, seeds used as a laxative for children
- Edible fruit, also used as lavender dye, one of the Nene's favorite foods to eat
- Mature wood used as harpoons, javelin, spears, and digging sticks
- Small shrub 4-10ft tall



Kuhio ES

# 'AWAPUHI KUAHI

*Zingiber Zerumbet*

## SHAMPOO GINGER



- Red, floral pine cone-like bract (modified leaf), 3-petaled flowers emerge from cone
- Hawaiians brought it for its floral liquid & scent used as shampoo and moisturizer
- Can grow up to 7ft, grows in moist, forested areas; native to India
- Used for sprains, indigestion and toothaches



Ala Wai ES

# HALA

*Pandanus Tectorius*

## WALKING TREE



- Small tree up to 30ft, sword like leaves and serrated 2-6ft, used to thatch (lau hala)
- Pineapple shaped fruit in female trees, the dried fruit were used as brushes
- Male trees produce, fragrant white flower used as a male aphrodisiac
- Male wood used for hale, fibers and leaves for baskets, mats, sails, cordage



Ala Wai ES

# HAU

## *Hibiscus Tiliaceus*

- Small tree with tangling branches, bark is light brown to gray, leaves heart shaped
- Hawaiians brought it for medicinal and practical purpose, its flower buds and sap for a laxative, bark sap for chest congestion, leaf buds chewed for sore throat, and inner bark sap for labor pains
- Wood floated well and was used to build outriggers of canoes, fishing net floaters, long throwing spears for games, foundation for kites, tough inner bark was used for ropes and chords, or beaten into mats or cloth, plant was highly prized in ancient time, permission was required upon harvest
- Flowers last a day and change color through the day- from yellow, to orange to red



Attribution: Forest & Kim Starr



Ala Wai

# KUKUI

*Aleurites Moluccana*

## CANDLENUT TREE



- Kernels roasted, pulverized & spread by fisherman on the ocean for clarity, roasted nuts created a black soot used for tattoos or canoe drawings
- Hawaii's state tree 1959, grows up to 80ft, leaves are pale silvery green, 3-5 lobed star shaped
- Rounded brown to green fruits, hard nutlike, oily seed, nuts for lei
- Sap for chapped lips, seed oil as a laxative



Hokulani ES

# MILO

## *Thespesia Populnea*



- Yellow dye made from fruits/flowers, red dye from bark and heartwood
- The attractive grain of Milo wood was prized and used for utensils, containers, paddles
- Termite resistant wood, bark made into cordage, wood for poi bowls 'umeke 'ai
- Pointed, glossy, heart-shaped-leaves



Ala Wai ES

# NONI

*Morinda Citrifolia*

## INDIAN MULBERRY



- The leaves and bark of the stem can be pounded and strained, resulting in a liquid drunk as a tonic or for urinary disorders, muscle and joint pain
- Used as famine food, the fruit juice was traditionally used in the treatment of diabetes, heart troubles and high blood pressure, with different portions prescribed for different illnesses
- The young unripe noni fruit traditionally was pounded thoroughly with salt. The mixture was placed carefully on deep cuts and on broken bones.
- The bark yields a red dye, while a yellow dye can be prepared from the root, noni is a kīno-lau of the god Ku



Ala Wai ES

# 'OHI'AI

*Eugenia Malaccensis*

## MOUNTAIN APPLE



- Leaves and bark have been traditionally used as medicine, bark and root used as a reddish brown dye
- Wood was used to build beams for their hale (house), wood is gray, smooth
- The leaves are dark green, smooth and shiny, thick and oval and are paired
- The blossoms all secrete sweet nectars that attract birds and insects



Ala Wai ES



# LAUA'E

## *Phymatosorus Grossus*



- Broad, flat elongated, shiny, dark leaves and brown stems with orange spores
- Fern was traditionally warmed in Imu and placed on spine for muscle and back aches
- Fern grown over ground and amongst tree trunks
- Used to scent kapa cloth, popular for lei making

Hokulani ES



# MANAKO

*Mangifera Indica*

## MANGO



- Large tree, wood used for timber, first brought in 1824 from India and Philippines
- Large edible fruit, around 17 types of mango, sap can cause a rash
- Grows up to 30ft in places that rain 40-60in annually
- More rain causes more fruiting



Kuhio ES

# 'ŌHAI

*Pithecellobium Saman*

## MONKEY POD



- Large tree, introduced for its wide canopy providing plenty of shade, Mexico native
- Top heavy canopy is problematic, as branches may break over highways/houses
- Long sticky pods edible by cattle and some humans, messy leaves, branches, pods
- Wood is golden brown used for bowl making, began the wooden bowl trade



Hokulani ES

# *Ficus Benghalensis*

## BANYAN TREE



- Mid 1800's Indian Royalty gave King Kalakaua the tree, Queen Liliuokalani planted it at 'Iolani palace.
- Large tree with aerial roots, large canopy providing shade, native to India
- Myna birds and other common birds, and rats live in them and spread seeds
- Aerial roots overgrow blunts beneath or around them



Hokulani ES

# 'AWAPUHI MELEMELE/ 'AWAPUHI KE'OKE'O

*Hedychium Favescens*

## YELLOW OR WHITE GINGER



- Fragrant flowers native to the Himalayas, grows in moist open areas
- Has over 70 species in this genus, grows up to 6ft tall or more
- Brought to Hawai'i as an ornamental plant (for its look/scent)



Ala Wai ES

# HILAHILA

*Mimosa Pudica*

## SLEEPING GRASS

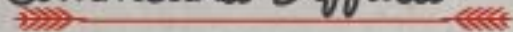


- Native to China and India, brought to Hawai'i for medicine or perhaps by accident
- Ground cover 1-2ft tall, tiny spines and toxic to cattle, used for fever, skin wounds
- Traditionally used for insomnia, irritability, insect bites, diarrhea, diabetes, headache, toothache
- Hilahila means "shy", perhaps for its nyctinastic "sleep" movement in leaves



# HONOONO GRASS

*Commelina Diffusa*



## SPREADING DAYFLOWER



- Found on O'ahu in 1837
- Honohono references the altering leaf pattern, forms carpets on forest floors
- Used to help deep cuts, sap of the crushed leaves act as liquid bandaid
- Blue dye made of its flower, not preferred by cattle



Hokulani ES

# KOA HAOLE

*Leucaena Leucocephala*



- Grows quick in dry to partially moist areas, introduced for its fuel (to be burned)
- Mimosine found in leaves cause human and cattle hair loss and sickness
- Small legume (bean) family shrub to tree 10-30ft tall, native to Mexico
- Young seed pods are edible, seeds strung into necklaces and lei



Kuhio ES



# KUAWA/WAIWI

*Psidium guajava*/*Psidium Cattleianum*

## YELLOW/STRAWBERRY GUAVA



- Shades out understory, brought for its edible fruit, spread by humans, birds, and pigs
- Allelopathic leaves on forest floor prevent other plants from growing beneath it
- Native to Brazil, one of the worst invasive species in HI
- Uses more water than native species, creates a monoculture in the forest



Hokulani ES

# Clidemia Hirta



## KOSTER'S CURSE



- Named after a man who accidentally introduced it to a coffee nursery in Fiji, 1880's
- Spread to Hawai'i in 1940's, and took over 90,000 acres in 30 years
- Wind blown seeds help disperse this lowland forest tree
- Grows 1-5ft in thick bushes, originally from Mexico to Central America



Kuhio ES

# Lantana Camara

## LANTANA



- Introduced for its floral ornamental uses and medicinal uses in its native countries
- Allelopathic, releases chemicals through roots/shoots prohibiting any other growth
- Infested wet, mesic (partially wet), and dry habitats, biocontrol used to maintain it
- Thorny shrub, could crowd out other plants, could regrow after wildfires



Kuhilo ES

## *Paederia Scandens*

### MAILE PILAU



- 20ft long vine, smothers trees, could break branches, native to Eastern Asia
- Introduced to Hawai'i as an ornamental vine or accidental introduction
- Strong, bad odor when leaves or stems are crushed
- Hard to control with herbicide without hurting host tree



Kuhlo ES

# Trema Orientalis

## GUNPOWDER TREE



- Brought for its soft and quickly drying wood for fuel (to burn), wood used for paper
- Leaves and bark traditionally used to treat coughs, sore throats, asthma, toothache, gonorrhea
- Used by 14 butterfly species as larva food plant, native to Southeast Asia
- Introduced evergreen, weedy tree, grows up to 60ft. in wet lowland area



# *Urochloa Mutica*

## CALIFORNIA GRASS



- Has fur covering stem of grass, which is irritating when touched with bare hands
- Takes over many wetland, riparian, and man-made waterway areas
- Grows in thick bunches up to 7ft tall
- Brought to Hawai'i to feed livestock, native to Africa



Kuhio ES