Invasive Plant Field Guide

Hawai'i Volcanoes National Park

Preventing invasive plants from invading native habitats is vitally important for all Pacific Island national parks. This field guide highlights 25 invasive plants that Hawai'i Volcanoes National Park (HAVO) and partners target for early detection and response.

Species cards have been divided into four categories (Grass / Herb, Shrub, Tree, Vine) that are color-coded for easy navigation. The front of each card has color photos and measurements to help with species identification. Also included are photos of possible "look-alike" species to keep in mind. A more complete description is on the back of each card.

National Park Service
U.S. Department of Interior

HAVO

PACN I&M

REPORT YOUR PEST!

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Acknowledgements:
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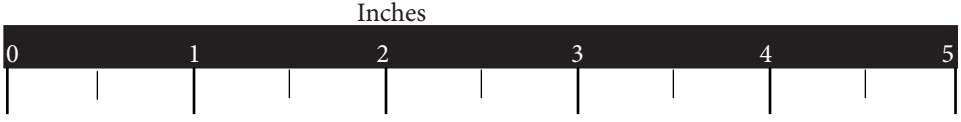
Cover Photo: African tulip tree (*Spathodea campanulata*)

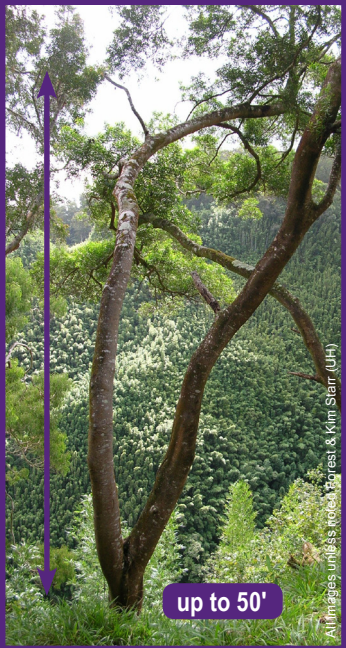


FORMOSA KOA
Acacia confusa


seed pods


bright yellow flowers

Don't confuse with native koaia (left), which has light yellow flowers, or koa (above), which has cream-colored flowers.



TREE

FORMOSA KOA
Acacia confusa

FAMILY: Fabaceae

General Description: Formosa koa is a tall evergreen tree (up to 50') with a compact rounded crown. Mature "leaves" have a crescent moon or sickle shape (3-4"), while young leaf growth consists of small bipinnately compound leaflets. Plants have small bright yellow puff-ball flowers (.5" diameter). Seed pods are dark brown and flattened (4" long). This tree looks similar to the native Hawaiian koa and koaia trees.

Impacts: Formosa koa is a prolific producer of seeds that can remain dormant for long periods of time. Mature trees shade out other plants and can form single species forest stands. All parts of this tree are considered toxic.

Dispersal Mechanism: Formosa koa produce abundant seeds and can also reproduce vegetatively via cuttings. Seeds are moved long distances as ornamental and forestry plantings.

Origin, Distribution, and Habitat: Native from Taiwan to the northern Philippines, Formosa koa has been introduced throughout the Pacific and has naturalized on all of the main Hawaiian Islands except for Ni'ihau. It thrives in wet and dry conditions up to 2,000'.

Cultivation: More than 295,000 Formosa koa trees were planted in Hawaii by the Division of Forestry in forest reserves. It has been planted for forestry and ornamental purposes throughout the Pacific. The Hawaii Department of Land and Natural Resources considers formosa koa one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Koaia (*Acacia koaia*) is a native Hawaiian tree that looks nearly identical to the Formosa koa, with the exception of its flowers. Koaia flowers are pale yellow to white in color, while Formosa koa flowers are a much darker yellow.

Koa (*Acacia koa*) is a native Hawaiian tree with flowers that are also light yellow in color, while Formosa koa flowers are a much darker yellow. Hawaiian koa's generally grow taller (50-80'), have more curved "leaves", and longer seed pods (3-6" long).

AGAVE PLANTS
Agave spp.

All images Forest & Kim Starr (UH)

Don't confuse with the native hala tree. Look for fruits that look similar to pineapple.

SHRUB

AGAVE PLANTS
Agave spp.

FAMILY: Agavaceae

General Description: Agave species, such as agave, yucca, century plant, and sisal, are large succulents that form a rosette (circular arrangement) of rigid leathery hairless fleshy leaves. Leaves are long and pointed, often triangular in cross-section, and have a pronounced spike at the tip and sometimes along the sides. Plants produce tall stalks with candelabra-like flower clusters at the top and die after fruiting. Some varieties are quite large with 8' long leaves and 40' tall flowering spikes.

Impacts: Plants in the Agavaceae family tolerate extremes in temperature, wind, drought, and poor soil. They are not grazed by animals and recover quickly from damage. They readily escape cultivation and can become established in a wide variety of areas, such as pastures, grasslands, woodlands, urban areas, riparian areas, rocky cliffs, and sandy areas. The leaves can shade out other plants and their dense network of roots can effectively extract nutrient resources in harsh environments, potentially reducing availability for native plants.

Dispersal Mechanism: Agave species reproduce clonally and from bulbils, or small plants that grow from seeds directly on the parent plant. Leaves of some species can resprout from fragments.

Origin, Distribution, and Habitat: Native to the neotropics, agave species have been planted and become naturalized throughout Hawaii.

Cultivation: In Hawaii, there are over 30 agave species planted ornamentally on all islands and in all climates. Sisal (*Agave sisalana*) was introduced to Hawaii for fiber production. American century plant (*A. americana*) has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

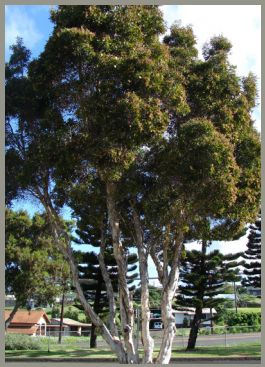
Don't confuse with:

Hala tree (*Pandanus tectorius*) is a native Hawaiian tree that has long pointed leathery leaves with spines along the edges. Young plant leaves form a rosette. Unlike agave species, hala grows into a tree with long prop roots and segmented fruits that look similar to pineapple.

COAST BANKSIA
Banksia integrifolia

All images Forest & Kim Starr (UH)

TREE



Don't confuse with paperbark (left), which has white flowers and papery bark or button mangrove (above), with button-like fruit.

COAST BANKSIA
Banksia integrifolia

FAMILY: Proteaceae

General Description: Coast banksia is an evergreen tall shrub/short tree in the Protea family that can grow 20-52' tall. Plants have rough grey bark and dark green leaves that are white and woolly underneath and grow in a whorled arrangement. Its leaves are long and narrow (2-8" long by .4-1" wide). Its flowers are pale yellow and grow in a dense spike (4-5" long) nested within the leaves. Older flowers fall away to reveal a "cone" that starts green and fuzzy and fades into grey with age. Each cavity in the cone contains 1 or 2 winged seeds.

Impacts: Coast banksia does well in coastal areas and in poor soil environments, making it a potential invader in coastal strand communities and lava fields.

Dispersal Mechanism: Coast banksia reproduces via winged seeds that are carried by the wind and can travel well beyond the parent plant.

Origin, Distribution, and Habitat: Coast banksia is native to eastern Australia. It has started to naturalize and become weedy in western Australia and New Zealand. In Hawaii, it can be found on Kaua'i, Maui, and the Big Island, where it is found from sea level to 2400' elevation in Waimea. As the common name implies, this tree can live in coastal areas, where it is resistant to salt and wind exposure.

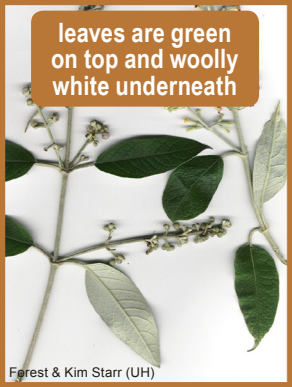
Cultivation: Coast banksia has been planted in botanical gardens in Hawaii. It is cultivated as a specimen tree in Waimea and Honomalino on the Big Island. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Paperbark (*Melaleuca quinquenervia*) can be distinguished by its white bottle-brush flowers and paper-like peeling bark. THIS PLANT IS ALSO INVASIVE.

Button mangrove (*Conocarpus erectus*) also grows in coastal areas and has a similar leaf shape. Look for button-like fruits to make a distinction. THIS PLANT IS ALSO INVASIVE.

SMOKEBUSH
Buddleja madagascariensis



Don't confuse with other nonnative butterfly bush shrubs like dog tail (left) and butterfly bush (right), which do not have orange flowers.

SHRUB

SMOKEBUSH
Buddleja madagascariensis

FAMILY: Scrophulariaceae

General Description: Smokebush is a sprawling ornamental shrub that grows from 9-15' tall with arching stems. Plants can climb other plants or man-made objects to reach 30' or more. Leaves grow in an opposite arrangement and are dark green on top and woolly white underneath. Small yellow to orange flowers (.2-.5" long) form in cylindrical clusters. Young fruits are pink-white and then mature to a purple color. Its hairy stems give the shrub an overall frosted white look.

Impacts: Smokebush is recognized as invasive in Florida, Australia, South Africa, and the Caribbean. Its dense growth can smother other plants, overgrow trees, and form impenetrable thickets.

Dispersal Mechanism: Smokebush seeds are dispersed by birds and animals that are attracted to its fruit. It can spread from stem cuttings and dumped garden clippings.

Origin, Distribution, and Habitat: Native to Madagascar, smokebush has been introduced to worldwide tropical regions. In Hawaii, on the islands of Maui and Kaua'i, it naturalizes in low to mid-elevation gulches, streambeds, and open range. On the Big Island, it has been found in Waimea, Upper Puna, and South Kona, where it is actively being removed.

Cultivation: Smokebush is sometimes grown as a privacy hedge and a butterfly attractant. The Hawaii Department of Land and Natural Resources considers smokebush one of Hawaii's most invasive horticultural plants. The Hawaii Chapter of the American Society of Landscape Architects categorizes smokebush as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Dog tail (*Buddleja asiatica*) is a white to lavender flowered shrub that grows to 10' and is widespread in Hawaii. Butterfly bush (*B. davidii*), a fragrant bush with white or purple flowers, is considered invasive in Oregon, Washington, New Zealand, and Australia. Smokebush is the only butterfly bush in Hawaii with orange flowers. Due to the potentially invasive nature of these plants, avoid planting. THESE PLANTS ARE ALSO INVASIVE.

IRONWOOD
Casuarina equisetifolia

Don't confuse with nonnative pine trees, which have leaves (needles) with no joints.

TREE

IRONWOOD
Casuarina equisetifolia

FAMILY: Casuarinaceae

General Description: Ironwood (Australian pine) is an evergreen tree that looks like a pine (conifer) tree. Plants grow up to 60' and have long drooping branches and wispy slender pine needle-like "leaves" that give it a distinctive appearance. The grey-green jointed "leaves" are actually stems. Small woody fruits resemble tiny pine cones (.5-.8" diameter), form in clusters, and contain winged seeds.

Impacts: Ironwood grows very fast, up to 5-10' per year, and can form single species stands that crowd out all other vegetation. Dropped "leaves" create a thick bed that can prevent the growth of other plants. A shallow root system makes this tree susceptible to falling over in high winds. As a nitrogen-fixing species, ironwood can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. Dense growth along coastal strands can interfere with the nesting habits of endangered sea turtles and seabirds.

Dispersal Mechanism: The small, winged seeds of ironwood are spread by the wind.

Origin, Distribution, and Habitat: Ironwood is native to Malaysia, Southern Asia, and parts of Oceania. It has been introduced to tropical and subtropical beach areas around the world. It also thrives in disturbed areas, such as roadsides.

Cultivation: Ironwood was intentionally planted throughout Hawaii as a coastal windbreak. The Hawaii Department of Land and Natural Resources considers ironwood one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Pine trees (*Pinus* spp.), which are not native to Hawaii, can be found growing in similar habitats (roadsides and coastal areas) as ironwood. Pine tree needles do not have toothed joints like ironwood "leaves." THESE PLANTS ARE ALSO INVASIVE.

! Hawaii State Noxious Weed

FOUNTAIN GRASS
Cenchrus setaceus

Don't confuse with cane grass (left), which is taller (7-15'+) or feathertop (right), which has short fluffy seed heads (2").

GRASS/ HERB

FOUNTAIN GRASS
Cenchrus setaceus

FAMILY: Poaceae

Hawaii State Noxious Weed

General Description: Fountain grass is an erect perennial bunch grass that grows up to 3' high. The leaves are greenish-grey and have a slender, cylindrical, rolled shape. The small flowers are grouped together in an upright purple to rose-colored inflorescence that turns white as it seeds. Each inflorescence is 6-15" long.

Impacts: Originally introduced as an ornamental, fountain grass has become an aggressive, habitat-altering weed. It can degrade the quality of pasture lands, particularly in drier areas. Fountain grass is fire adapted and its dry leaves can increase the risk, intensity and longevity of fires. After a fire, it may resprout faster than native plants.

Dispersal Mechanism: Fountain grass is dispersed through the horticultural trade as an ornamental grass. Seeds are also transported via wind, water, and by hitchhiking on vehicles, livestock, and humans.

Origin, Distribution, and Habitat: Native to Africa, fountain grass has invaded many types of natural areas in Hawaii, including bare lava flows, grasslands, and range lands. On the Big Island, fountain grass covers at least 200,000 acres.

Cultivation: Fountain grass is cultivated for its ornamental attributes. It is a Hawaii state noxious weed and is illegal to plant or transport across the state. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

Don't confuse with:

Cane grass (*Cenchrus purpureus*) is common throughout Hawaii. It can be differentiated by its taller height (6-8'). It is NOT fountain-shaped and does not grow in defined clumps. Cane grass flower heads are cream-colored. THIS PLANT IS ALSO INVASIVE.

Feathertop (*Cenchrus villosum*) is another perennial bunch grass with a growth structure and leaves similar to fountain grass. Feathertop produces distinctive feathery seed heads that can grow up to 2" in length. Feathertop is also considered a weed in Hawaii and should not be planted. THIS PLANT IS ALSO INVASIVE.

NIGHT CESTRUM
Cestrum nocturnum

All images unless noted Forest & Kim Starr (UH)

Penarc

Don't confuse with other nonnative cestrum, which have non-white flowers.

Gary Bess

SHRUB

NIGHT CESTRUM
Cestrum nocturnum

FAMILY: Solanaceae

General Description: Night cestrum (night blooming jasmine) is a sprawling evergreen shrub with pale white bark that turns green with age. It grows to 20' tall and has smooth hairless leaves that grow in an alternate arrangement (3-6" long) and are foul smelling when crushed. The predominantly white tubular flowers (1" long), which open at night, are strongly fragrant, and form in clusters. Glossy berries start green and mature white (.2-.5" diameter).

Impacts: Night cestrum can form dense impenetrable thickets that exclude all other plants. All parts of this plant are toxic to humans and animals, including livestock. Its strong scent can cause hay fever-like respiratory symptoms in sensitive and asthmatic people. Once naturalized, night cestrum can be hard to control.

Dispersal Mechanism: Night cestrum seeds are moved by birds, flooding, soil movement, and garden waste dumping. Its seeds persist for long periods of time and it can reproduce vegetatively from stem or root fragments.

Origin, Distribution, and Habitat: Native to tropical America and Cuba, night cestrum has been introduced to the southern United States, China, India, Australia, New Zealand, and much of Oceania. In Hawaii, night cestrum has escaped cultivation on all of the main islands except Moloka'i, Ni'ihau, and Kaho'olawe. On the Big Island, this plant is widely cultivated and common in communities surrounding Hawai'i Volcanoes National Park. It naturalizes in moist to wet forests, and along roads, trails, and streams.

Cultivation: Night cestrum is a popular ornamental plant due to its strong-smelling flowers. The Hawaii Department of Land and Natural Resources considers night cestrum one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Other cestrum plants, such as green cestrum (*Cestrum parqui*), red cestrum (*C. fasciculatum*), purple cestrum (*C. elegans*), and orange cestrum (*C. aurantiacum*) are found in many Hawaiian gardens. Only night cestrum has predominantly white flowers. THESE PLANTS ARE ALSO INVASIVE.

PADANG CASSIA
Cinnamomum burmannii

Don't confuse with invasive camphor (left), which lacks the "leaf within a leaf" vein pattern or cinnamon (above), which has wider leaves.

TREE

PADANG CASSIA
Cinnamomum burmannii

FAMILY: Lauraceae

General Description: Padang cassia is a tree that grows up to 23' tall and has thick cork-like bark. The leaves are aromatic, glossy (4" long by 1-1.5" wide), have a "leaf within a leaf" vein pattern, and grow in an alternate arrangement (except at the tips of branches where they are often opposite). Young leaves are red. Its small (.2") flowers are inconspicuous and grow in loose clusters that form dark purple berries.

Impacts: Padang cassia readily spreads from intentional plantings. When naturalized, it can form single species stands that shade out all other plants. Padang cassia is resistant to many herbicides and can be hard to control once established.

Dispersal Mechanism: Padang cassia seeds are eaten by birds and distributed long distances. Trees are intentionally planted for commercial and ornamental purposes.

Origin, Distribution, and Habitat: Padang cassia is native to Southeast Asia and Indonesia. In Hawaii, it is established on Kaua'i, O'ahu, Maui, and the Big Island. It grows in moist to wet forests.

Cultivation: Padang cassia is planted for ornamental purposes, as a forestry or specimen tree, and as a source of spice. Its bark is the source of the spice "cassia," which is used as an inexpensive alternative to cinnamon. The Hawaii Department of Land and Natural Resources considers Padang cassia one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Camphor tree (*Cinnamomum camphora*) and cinnamon (*C. verum*) are related trees that are widespread in Hawaii. Camphor trees do not have the "leaf within a leaf" vein pattern on their leaves. Cinnamon trees have wider leaves (1.5-3") than Padang cassia. THESE PLANTS ARE ALSO INVASIVE.

! Hawaii State Noxious Weed

KOSTER'S CURSE
Clidemia hirta

Don't confuse with other invasive melastomes like miconia (left) or cane tibouchina (above), which are covered in soft felt-like hairs.

SHRUB

KOSTER'S CURSE
Clidemia hirta

FAMILY: Melastomataceae

Hawaii State Noxious Weed

General Description: Koster's curse is a sprawling shrub that grows up to 9' tall. Its stems grow vine-like and are covered in coarse red bristles that get lighter with age. The leaves are covered with rough hairs and have a distinctive "leaf within a leaf" vein pattern. The deep leaf veins give a "quilted" appearance. Its small 5-petaled white flowers grow in clusters and its fruits are black and fleshy (.3" long). Mature plants produce up to 500 fruits yearly, with each fruit containing 100 small seeds.

Impacts: Koster's curse can form impenetrable thickets that crowd out all other plants and impede movement for humans and animals. It can spread rapidly into areas disturbed by pigs, landslides, fire, storms, and humans.

Dispersal Mechanism: Koster's curse seeds are moved by birds, pigs, and other animals who consume the fruit, and on people who move through infested areas. Its bristle-covered fruits can attach to clothing, feathers, and fur. The miniscule seeds contaminate mud which can be moved long distances on vehicles. Plants also spread rapidly through vegetative growth.

Origin, Distribution, and Habitat: Native to the tropical Americas, Koster's curse has been introduced and is considered a major weed throughout Oceania, Southeast Asia, Australia, and India. In Hawaii, it is established in the wild on Kaua'i, O'ahu, Moloka'i, Maui, and the Big Island. It thrives in moist environments, but is otherwise tolerant of a wide range of conditions and grows in areas from sea level up to 4,000' elevation.

Cultivation: Koster's curse is not cultivated, but was unintentionally moved throughout the Pacific in the 1880s in contaminated nursery stock and coffee plants. Koster's curse is a Hawaii state noxious weed and is illegal to plant or transport across the state.

Don't confuse with:

Several species in the melastome family have been introduced to Hawaii. All have the distinctive leaf within a leaf vein pattern. Miconia (*Miconia calvescens*) has much larger leaves (3' long by 1' wide). Cane tibouchina (*Tibouchina herbacea*) has 3" leaves covered in soft hairs and purple flowers. THESE PLANTS ARE ALSO INVASIVE.

ALBIZIA
Falcataria moluccana

Don't confuse with native koa, which has similar young leaves (inset), but matures to be distinctly different.

All images unless noted Forest & Kim Starr (UH)

TREE

ALBIZIA
Falcataria moluccana

FAMILY: Fabaceae

General Description: Albizia is a large tree, often 80-100' tall or more. Its trunk is smooth to slightly warty, very light in color, and usually straight and branchless up to 30'. It forms an umbrella-shaped canopy when growing in open conditions. The leaves are bipinnately compound and have a nectar-producing organ at the base. It has white silky feather-like flowers.

Impacts: Albizia is one of the fastest growing trees in the world (up to 21' a year). It can form single species stands that shade out all competition. As a nitrogen-fixing species, it can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. Albizia is the preferred habitat for certain types of nonnative ants, including little fire ant (*Wasmannia auropunctata*). It can establish on new lava flows, replacing native species such as ʻōhiʻa lehua (*Metrosideros polymorpha*) and can also drop large limbs that can damage property.

Dispersal Mechanism: Albizia seed pods are light and can be carried in the wind, but generally fall close to the tree. It is moved long distances for intentional planting. Seeds are moved in contaminated gear, vehicles and soil.

Origin, Distribution, and Habitat: Albizia is native to Indonesia and Papua New Guinea. Hundreds of thousands have been planted throughout Hawaii. It rapidly spreads in moist to wet forests up to 2,000' in elevation.

Cultivation: Albizia is grown as an ornamental and plantation/reforestation tree. Its wood is used for furniture and canoe-making and it is sometimes grown as a shade tree for coffee. The Hawaii Chapter of the American Society of Landscape Architects categorizes albizia as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Koa (*Acacia koa*) is a native Hawaiian tree that is in the same family as albizia and has light-colored bark. Hawaiian koa's have similar looking leaves when young, but curved, sickle-shaped "leaves" when mature. It has cream-colored puff-ball flowers.

! Hawaii State Noxious Weed

KĀHILI FLOWER
Grevillea banksii

Don't confuse with silk oak (left), which has yellow flowers or bottlebrush (above), which has flowers in the middle of stems.

TREE

KĀHILI FLOWER
Grevillea banksii

FAMILY: Proteaceae

Hawaii State Noxious Weed

General Description: Kāhili flower, sometimes known as bottlebrush, is a small showy ornamental tree (up to 25') with deeply lobed wispy leaves (5-12" long) that are smooth on top and fuzzy white underneath. Leaves end in a pointy tip and are arranged alternately along branches. Plants have red or yellow-white bottle-brush-like flower clusters (2-4" long) with a yellow calyx (outermost part of the flower, forms a cup-like whorl at base).

Impacts: Kāhili flower can invade pastures, potentially reducing foraging area for grazing animals, and natural areas, potentially out competing native plants. This tree has become naturalized in similar climates in Madagascar, where it now dominates large tracts of forest. Flowers and seeds contain hydrogen cyanide. The sap and other parts of the tree can cause allergic contact dermatitis, much like poison ivy or oak.

Dispersal Mechanism: Kāhili flower seeds are wind dispersed.

Origin, Distribution, and Habitat: Native to Australia, kāhili flower was introduced to Hawaii in 1909. It is naturalized on all main Hawaiian Islands, except Lāna'i. There are significant infestations on the Big Island, where the red flower variety is prolific in the Ka'ū district and the yellow flower variety is invading Hawaiian Paradise Park subdivision. It thrives in areas with moderate amounts of moisture.

Cultivation: Kāhili flower is a popular ornamental that readily escapes cultivation. It is a Hawaii state noxious weed and is illegal to plant or transport across the state.

Don't confuse with:

Silk oak (*Grevillea robusta*) is also considered invasive in Hawaii. It looks very similar to kāhili flower except for its yellow flower clusters with sepals that grow in an upright shape primarily on one side of the stalk. It has a taller growth habit (up to 75'). THIS PLANT IS ALSO INVASIVE.

Bottlebrush (*Callistemon* spp.) are nonnative shrubs that have a similar appearance to the red flower variety of kāhili flower. Bottlebrush leaves are smaller, linear and not lobed. Flowers are not terminal and often have leaves on both sides of the flower.

ENGLISH IVY
Hedera helix

Don't confuse with cape ivy, another invasive vine with similar shaped leaves. Its leaves are rubbery to the touch and have ear-shaped appendages at the base of the leaf stalk.

VINE

ENGLISH IVY
Hedera helix

FAMILY: Araliaceae

General Description: English ivy is a woody evergreen vine that can climb over almost anything using adventitious sticky roots. Its stems are covered in stout hairs. The variably shaped leaves (2-4") are waxy, dark green with white veins, and grow in an alternate arrangement along the stem. Under the right conditions it can produce clusters of greenish-white flowers that turn into black fleshy fruits.

Impacts: English ivy can smother other plants from ground level to canopy, preventing sunlight from reaching the vegetation it covers. Its root system effectively outcompetes its "host" for nutrients. Suffocated trees and plants can die, and with the added weight of the vines, are likely to be blown down, potentially causing damage to property and disturbance in forest ecosystems. The seeds and fruit contain glycoside hederin, a toxic chemical that can cause acute illness in people and animals.

Dispersal Mechanism: English ivy spreads vegetatively or longer distances via bird or animal disseminated seeds. Small pieces of stem can resprout, making dispersal through the dumping of garden waste and infested wood materials, flooding, and soil movement possible.

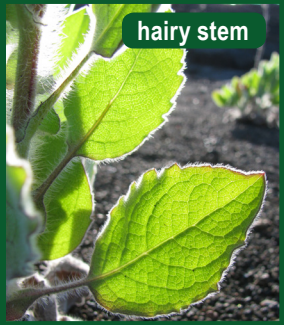
Origin, Distribution, and Habitat: English ivy is native to Europe, western Asia, and northern Africa. In Hawaii, it has escaped cultivation and naturalized in moderately wet forest, including the Puna and Volcano areas of the Big Island.

Cultivation: English ivy is a popular, low maintenance, fast-growing ground cover that is popular in Hawaii. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Cape ivy (*Delairea odorata*) is an invasive vine with leaves that superficially resemble English ivy leaves. Cape ivy produces malodorous, yellow, daisy-like, disc-shaped flowers and has a distinct "rubbery" feel. At the base of each leaf stalk is a pair of ear-shaped appendages (or stipules). THIS PLANT IS ALSO INVASIVE.

TELEGRAPH WEED
Heterotheca grandiflora



Don't confuse with common mullein, which does not smell like sage.

GRASS/
HERB

TELEGRAPH WEED
Heterotheca grandiflora

FAMILY: Asteraceae

General Description: Telegraph weed is a fuzzy member of the sunflower family. Young growth is rosette-shaped. After it has bolted, the inflorescence reaches 3-4' in height. The stems and leaves are covered in dense white woolly hairs that give the plant an overall grey-green appearance. Yellow flowers form in clusters and mature into dandelion-like seed clusters. When crushed, the leaves, stems, and flowers smell strongly of sage.

Impacts: Telegraph weed produces prolific amounts of seeds several times a year and can form dense stands that crowd out other plants. It can colonize lava flows, displacing native colonizers.

Dispersal Mechanism: Telegraph weed seeds have small tufts of hair and are easily carried long distances in the wind.

Origin, Distribution, and Habitat: Telegraph weed is native from California to Arizona and Baja, Mexico. In Hawaii, it typically grows in disturbed open areas and on lava flows from 30-7,500' in elevation. However, on the Big Island it can be found at higher elevations near the Mauna Kea visitor center.

Cultivation: Telegraph weed was unintentionally introduced to Hawaii and is not cultivated.

Don't confuse with:

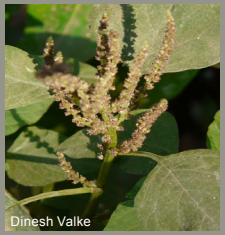
Common mullein (*Verbascum thapsus*) also has light grey-green fuzzy leaves and is widespread in some parts of Hawai'i Volcanoes National Park and along Saddle Road. Mullein also forms a rosette when young, but its leaves are considerably larger (4-12" long) and have a rounded tip. It has small yellow flowers that grow along a tall (up to 10') spike. It does not smell of sage when crushed. THIS PLANT IS ALSO INVASIVE.

WHITE SHRIMP PLANT
JUSTICIA BETONICA

All images unless noted Forest & Kim Starr (SH)

SHRUB

Don't confuse with pōpolo (left) and amaranth (right), which have similar leaves but different flowers.



WHITE SHRIMP PLANT
Justicia betonica

FAMILY: Acanthaceae

General Description: White shrimp plant (squirrel's tail) is a sprawling plant that grows 2-7' tall. Leaves (5.5" long by 4.3" wide) form at each stem node and are dark green on the upper side and paler green below with edges that are slightly wavy. The stems are slightly purplish. Its distinctive flowers form as elongated clusters at the tip of stems and appear white, but actually consist of a white bract covering a lavender flower.

Impacts: White shrimp plant readily escapes cultivation and establishes in the wild. It can form dense mats of impenetrable ground cover that shade out other plants.

Dispersal Mechanism: Birds and animals are attracted to white shrimp plant fruit and can spread the seeds long distances. Small pieces of the plant can regenerate, creating new infestations and making eradication difficult.

Origin, Distribution, and Habitat: Native to eastern and southern Africa and India, white shrimp plant has become weedy in Queensland, Australia and across Hawaii. It is a common weed across the Big Island. It flourishes in wet areas, tolerates shade and can become established in wooded areas.

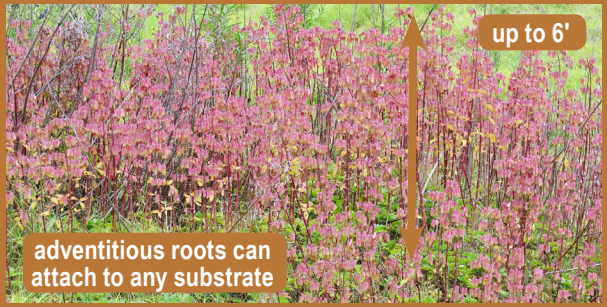
Cultivation: White shrimp plant is popular for gardening. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Pōpolo (*Solanum americanum*) has similar leaves and growth habit to white shrimp plant. It can be differentiated by its round black fruits and white pendulant flowers.

Amaranth (*Amaranthus* spp.) have similar leaves and growth habit to white shrimp plant. They can be differentiated by their very small flowers which grow in a spike. THIS PLANT IS ALSO INVASIVE.

AIR PLANT
Kalanchoe pinnata



Don't confuse with other air plants, like "mother of millions", which is also invasive.

All images unless noted Forest & Kim Starr (UH)

SHRUB

AIR PLANT
Kalanchoe pinnata

FAMILY: Crassulaceae

General Description: Air plant is a distinctive fast-growing succulent that grows to 6' tall. It has hollow stems and fleshy dark green leaves (2-8" long) with scalloped red edges. Its bell-like flowers are pendulous (1-2" tube) and pale green with a magenta blush. Plants attach to substrate with adventitious roots.

Impacts: Air plant can form dense stands in dry disturbed areas and become established on new lava flows, potentially crowding out native colonizers. Chemicals released from the leaves and roots can inhibit the growth of other plants. It contains cardiac glycosides, which can poison livestock.

Dispersal Mechanism: Air plant seeds are dispersed by wind or birds. Stem fragments can resprout and broken leaves can form miniature plantlets along the margins. It is moved long distances by humans as a novel garden plant.

Origin, Distribution, and Habitat: Native to Madagascar, air plant has naturalized across Hawaii. It thrives in dry to moist disturbed areas and recent lava flows under 2,000'. This plant is common on the dry side of the Big Island.

Cultivation: Air plant is a popular house and garden plant. The Hawaii Department of Land and Natural Resources considers air plant one of Hawaii's most invasive horticultural plants.

Don't confuse with:

Other air plants (*Kalanchoe* spp.). Several related species of air plants, such as mother of millions (*K. daigremontiana*) and chandelier plant (*K. tubiflora*), have been introduced to Hawaii and have the same characteristics of adventitious rooting on any substrate and bulb production along leaf margins. All air plants are nonnative to Hawaii and many are invasive. THESE PLANTS ARE ALSO INVASIVE.

HYBRID LUPINE
LUPINUS HYBRIDUS

Don't confuse with the nonnative rattlepod, which has similar flowers but a different leaf shape.

SHRUB

HYBRID LUPINE
Lupinus hybridus

FAMILY: Fabaceae

General Description: Hybrid lupine is a clump-forming plant that grows to 20" tall. Each stem contains 5-9 leaflets that are palmate and deeply lobed with pointed tips. The lilac or white flowers have yellow and white markings and form on a showy flower spike. It produces small black seeds in seed pods.

Impacts: Hybrid lupine readily naturalizes and can form dense stands. As a nitrogen-fixing species, hybrid lupine can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. Its true invasive potential is not fully known, as Hawai'i Volcanoes National Park on the Big Island of Hawaii is the first place in the United States this plant has become invasive.

Dispersal Mechanism: Lupines are a popular garden plant. Seeds are sold in wildflower mixes in stores and on the internet. Long distance dispersal is via human introductions.

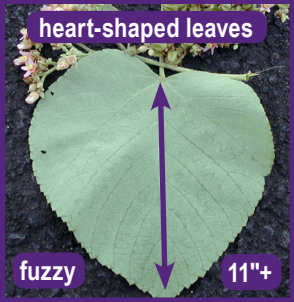
Origin, Distribution, and Habitat: Native to France, hybrid lupine naturalizes on the Big Island of Hawaii. It has been found near Kīlauea Military Camp.

Cultivation: Hybrid lupine is cultivated as an ornamental plant. Check wildflower mix seed packets before planting to prevent unintentional introductions.

Don't confuse with:

Rattlepod (*Crotalaria* sp.) and other related members of the Fabaceae (legume) family have similar flowers and leaves to lupine. Rattlepod leaves have a distinct egg shape, while lupine leaves have pointed tips. Rattlepod flowers are exclusively yellow, while lupine flowers are multi-colored. THIS PLANT IS ALSO INVASIVE.

MELOCHIA
Melochia umbellata



All images unless noted Forest & Kim Starr (UH)

TREE

Don't confuse with the invasive parasol leaf tree (left), which has similar, but non-fuzzy leaves or the native 'ilima (above), which has smaller fuzzy leaves.

MELOCHIA
Melochia umbellata

FAMILY: Malvaceae

General Description: Melochia is a tree that grows up to 45' tall with large (11"+), heart-shaped, soft, hairy leaves. It has pink 5-petaled flowers that are clustered at the base of the leaf. The twigs, leaves, flowers, and fruit are all covered in soft grey hairs.

Impacts: Melochia readily invades roadsides and waste areas, where it can grow in dense stands and shade out other plants.

Dispersal Mechanism: Melochia seeds have wings and are transported long distances via wind.

Origin, Distribution, and Habitat: Native to India and east to Papua New Guinea, melochia has become widespread in the Hilo and Puna areas on the Big Island of Hawaii. It can be seen along the Volcano Highway and the Hāmākua Coast.

Cultivation: Several thousand melochia trees were aerially seeded on the Big Island in the 1920s. It is cultivated as a fast-growing shade producer for coffee and young forestry trees. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Parasol leaf tree (*Macaranga tanarius*) is an invasive tree with similarly shaped leaves, but lacking the dense hairs that are characteristic of melochia. Parasol leaf tree has yellow cup-shaped flowers. THIS PLANT IS ALSO INVASIVE.

'Ilima (*Sida fallax*) is a native shrub that grows primarily on the dry sides of the Hawaiian Islands. 'Ilima has similarly shaped leaves that are covered with dense hairs, but that are much smaller (2-3") than melochia leaves. It has yellow, tubular, 5-petaled flowers.

! Hawaii State Noxious Weed

MICONIA
Miconia calvescens

Don't confuse with invasive clerodendrum, which lacks the 3 prominent veins.

Don't confuse with invasive Koster's curse, a shrub with small 2-6" long leaves.

TREE

MICONIA
Miconia calvescens

FAMILY: Melastomataceae

Hawaii State Noxious Weed

General Description: Miconia is a fast-growing weedy tree that reaches 13-50'. Its large leaves average 3' long by 1' wide and have a distinctive "leaf within a leaf" vein pattern. The leaves are dark green and felt-like above and purple underneath. Plants produce dark purple fruits that are .3" in diameter and contain hundreds of seeds.

Impacts: Miconia trees can grow quickly and close together, shading out nearly all other forest plants with their large dark leaves. Miconia has a shallow root system and can cause increased erosion and landslides. It quickly matures, producing fruit after three to four years and flowers and fruits several times a year. Plants produce ten to twenty million seeds a year, which can remain viable for twelve years and possibly longer.

Dispersal Mechanism: Birds and animals (such as rats) spread miconia seeds long distances. Seeds, about the size of a sand grain, are unintentionally spread by humans and hitchhike on clothes, boots, gear, pets, and contaminated vehicles, equipment, and soil. Hitchhiking seeds have been moved on hāpu'u fern (*Cibotium* spp.) harvested from infested areas.

Origin, Distribution, and Habitat: Miconia is native to South and Central America and was introduced to Hawaii as a garden plant in 1961. It has become widespread throughout much of windward Big Island.

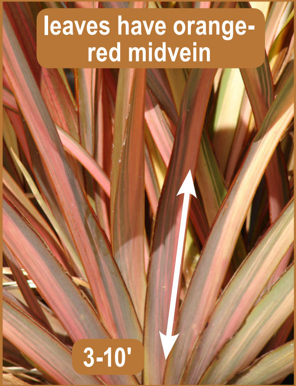
Cultivation: Miconia was primarily grown as an ornamental plant for arboreta. It is a Hawaii state noxious weed and is illegal to plant or transport across the state.

Don't confuse with:

Clerodendrum (*Clerodendrum quadriloculare*) is a common ornamental plant that has leaves with purple undersides. It does not have the "leaf within a leaf" vein pattern. THESE PLANTS ARE ALSO INVASIVE.

Koster's curse (*Clidemia hirta*) is a widespread pest on the Big Island and a Hawaii state noxious weed. Also a Melastome species, it can be differentiated by its shrubby growth and small leaves covered in coarse hairs.

NEW ZEALAND FLAX
PHORMIUM TENAX



Don't confuse with the native 'uki (left) or pa'iniu (right).

SHRUB

NEW ZEALAND FLAX
Phormium tenax

FAMILY: Xanthorrhoeaceae

General Description: New Zealand flax has smooth, leathery, sword-shaped leaves (3-10' long by 2-5" wide) that form 2 rows of fan-like clusters and have a single orange-red midvein. The base of the leaf is keeled (v-shaped) and orange, while the edges are red. Plants have orange-yellow rhizomatous roots and small red and orange flowers that form on a stalk.

Impacts: New Zealand flax can form dense stands that crowd out other plants. Large plants can block sunlight from reaching native plants. It thrives in wet montane conditions, threatening native Hawaiian 'ōhi'a-uluhe wet forests.

Dispersal Mechanism: New Zealand flax can spread via wind-dispersed winged seeds and clonally through new sprouts along root-like rhizomes, even in plants that have been uprooted. Each plant can produce thousands of wind-dispersed seeds per year.

Origin, Distribution, and Habitat: Native to New Zealand, New Zealand flax was introduced to Hawaii in the late 1800s. It can thrive in coastal areas, gullies, waterways, and wet forests.

Cultivation: New Zealand flax is planted in gardens as an ornamental, used in fiber production and as basket weaving material. The New Zealand Maori used this plant to make clothing, mats, baskets, and cord. The Hawaii Chapter of the American Society of Landscape Architects categorizes New Zealand flax as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

'Uki (*Machaerina angustifolia*) is a native Hawaiian sedge that has leaves similar to New Zealand flax and grows in wet areas. It does not have any orange coloring on its leaves or stalk.

Pa'iniu (*Astelia menziesiana*) is a native Hawaiian plant found in montane wet forests. Its sword-shaped leaves are silvery instead of red/orange.

! Hawaii State Noxious Weed

SWEET PITTOSPORUM
Pittosporum undulatum

TREE

Don't confuse with invasive cape pittosporum (left), which does not have wavy leaf margins or macadamia nut (right), which also looks similar but has pipe cleaner-like flower spikes and rounded leaf tips.

SWEET PITTOSPORUM
Pittosporum undulatum

FAMILY: Pittosporaceae

Hawaii State Noxious Weed

General Description: Sweet pittosporum (Victorian box) is a fast-growing evergreen tree often cultivated in gardens for its aromatic white flowers. It can grow from 15-45' tall and has shiny green leaves that are 2-6'' long with distinctly undulating edges. The leaves are arranged alternately along the stem. Its white 5-petaled flowers (.7-1'' long) are found clustered at the ends of young branches and smell strongly of citrus. Orange fruit capsules are formed in the fall (.6'' long) and contain shiny black seeds.

Impacts: Sweet pittosporum is a popular landscaping tree that has escaped cultivation in Hawaii, Jamaica, South Africa, New Zealand and other Pacific and Atlantic islands. This tree is considered the most threatening invasive plant in the Blue & John Crow Mountains of Jamaica, where it outcompetes native plants in tropical montane forests. A single tree can produce more than 37,500 seeds.

Dispersal Mechanism: Sweet pittosporum is spread by humans who use the plant in landscaping. It readily escapes cultivation and the seeds are eaten and dispersed long distances by fruit-eating birds.

Origin, Distribution, and Habitat: Sweet pittosporum is native to Australia. On the Big Island, it has naturalized in disturbed mesic forests in Waimea and Pa'auilo where it covers large acreage.

Cultivation: Sweet pittosporum is widely cultivated throughout the world as an ornamental plant.

Don't confuse with:

Cape pittosporum (*Pittosporum viridiflorum*) is native to South Africa and cultivated in Hawaii for garden plantings. It has fragrant flowers and orange seed pods, but lacks the undulating leaf margins. This tree is also a target pest as it readily naturalizes. THIS PLANT IS ALSO INVASIVE.

Macadamia nut (*Macadamia integrifolia*) is a nonnative crop plant that also has the undulating leaf margins characteristic of sweet pittosporum, but it has drooping flower spikes that resemble a pipe cleaner and fruits that turn from green to brown.

CASTOR BEAN
Ricinus communis

Don't confuse with cassava, which has leaves that are similar, but are deeply lobed all the way to the stem.

SHRUB

CASTOR BEAN
Ricinus communis

FAMILY: Euphorbiaceae

General Description: Castor bean is a shrub that can grow to tree-like heights (3-15' tall). It has large (up to 16" across) palmate-shaped leaves with 7-9 pointy lobes that all radiate from one point. Male and female plants produce different colored flowers (male flowers are yellow and female flowers are pink-red) born on upright spikes. Fruits are red, green, or bluish spiny capsules (.4-.8" diameter).

Impacts: Castor bean can grow prolifically in disturbed areas, creating single species stands that can crowd out all other vegetation. Seeds (.2-.6") contain ricin, which can be toxic in small amounts (as few as 2.5-6 seeds) to many animals, including humans.

Dispersal Mechanism: Castor bean reproduces via seed and crown sprouting if cut. Seeds can be moved in contaminated soils or vehicles. Rodents, birds, and some species of ants can move seeds long distances. A single large plant has the potential to produce 150,000 seeds per year.

Origin, Distribution, and Habitat: Native to Asia and Africa, castor bean was spread around the world as an oil-producing crop and an ornamental. It can be commonly observed in Hawaii in disturbed areas, such as vacant urban lots, forest edges, roadsides, and waste areas.

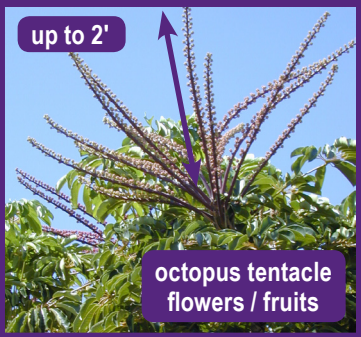
Cultivation: Castor bean was historically grown as an ornamental. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Cassava (*Manihot esculenta*), also known as yucca or tapioca, is another nonnative in the Euphorbiaceae family that has similarly shaped leaves and is planted across Hawaii. Cassava leaves are 1' or more across and have 5-9 leaf divisions that dissect almost to the stem. The leaf stalk grows up to 2' long (much longer than castor bean).

OCTOPUS TREE
Schefflera actinophylla

Don't confuse with native 'ōlapa (top) or dwarf umbrella tree (bottom). Neither have "octopus tentacle" flowers/fruits.



TREE

OCTOPUS TREE
Schefflera actinophylla

FAMILY: Araliaceae

General Description: Octopus tree (umbrella tree) is an evergreen tree (20-40') that can grow epiphytically (on another tree). It has large leaves of 7-12 leaflets (up to 12" long) arranged in a drooping circle at the end of a leaf stalk, much like an umbrella. Its flowers are showy red and grow in clusters along stalks (up to 2' long) above the foliage. The radiating stalks resemble the tentacles of an octopus. The flowers produce bright red fruits that turn dark purple or black with age.

Impacts: Octopus tree can strangle host trees when growing epiphytically. Roots can lift sidewalks and building foundations. Plants can grow prolifically in wet areas, creating single species stands that can crowd out all other vegetation. Leaves can cause an allergic rash or inflammation of the skin to sensitive individuals.

Dispersal Mechanism: Birds and animals are attracted to octopus tree fruits and spread seeds long distances. Improperly disposed octopus tree fruit leis can spread the seed. It can also reproduce from cuttings.

Origin, Distribution, and Habitat: Octopus tree is native to Australia and New Guinea and has been introduced as an ornamental plant throughout the tropics and subtropics. In Hawaii, it has become widespread in low to middle elevation moist and wet forests on Kaua'i, O'ahu, Maui, and the Big Island.

Cultivation: Octopus tree is widely cultivated throughout the world as an ornamental plant. It is occasionally used for lei-making or kept as an indoor potted plant or bonsai. The Hawaii Department of Land and Natural Resources considers octopus tree one of Hawaii's most invasive horticultural plants. The Hawaii Chapter of the American Society of Landscape Architects categorizes octopus tree as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

'Ōlapa (*Cheirodendron trigynum*) is a native Hawaiian tree with leaves that contain clusters of 3-5 leaflets that could be confused with octopus tree from a distance. 'Ōlapa does not produce the octopus-like flower "tentacles."

Dwarf umbrella tree (*Schefflera arboricola*) is a related shrub/tree with smaller leaves (4-6" long) and a smaller stature. It does not produce the octopus-like flower "tentacles."

AFRICAN TULIP TREE
Spathodea campanulata

Don't confuse with native neneleau, which has similar leaves but different flowers.

TREE

AFRICAN TULIP TREE
Spathodea campanulata

FAMILY: Bignoniaceae

General Description: African tulip tree is a large (80'+) tree with glossy leaves and big showy tulip-like red-orange flowers (up to 8" long) that appear at the ends of branches. Leaves have prominent veins and are bronze when young. The branches are covered with small white lenticel (pore) spots. Its fruits are upright canoe-shaped pods (10" long). Each pod contains 500+ heart-shaped, tissue-papery, flat seeds that are dispersed in the wind when the pod bursts. Spent empty pods are sometimes used as toy boats by children.

Impacts: African tulip tree readily escapes intentional plantings. It can form dense stands that crowd and shade out other vegetation. Plants can grow 2" in diameter per year and are tolerant of shade. Its dropped flowers can create a slipping hazard for people and cars. The branches are easily broken in the wind, potentially creating road and structure hazards.

Dispersal Mechanism: African tulip tree produces large numbers of wind-dispersed seeds that establish quickly and grow rapidly. It can reproduce from stump suckers.

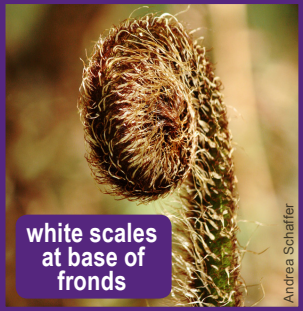
Origin, Distribution, and Habitat: Native to tropical Africa, African tulip tree has been introduced and become invasive throughout the Pacific. It is commonly found in low to mid-elevation areas on Kaua'i, O'ahu, Maui, and the Big Island. This tree is widespread on the Big Island except in the Ka'u and South Kona areas. It can spread in open agricultural land, waste areas, and forests.

Cultivation: African tulip tree is a popular ornamental. Over 30,000 were planted on Maui and the Big Island by the state of Hawaii, including aerial seeding in Pana'ewa and Waiākea near Hilo in 1928. The Hawaii Department of Land and Natural Resources considers African tulip tree one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Neneleau (*Rhus sandwicensis*) is a native Hawaiian tree found in mesic to wet forests across Hawaii with leaves that look similar to African tulip tree. Neneleau has leaflets that are unequal at the base and clusters of small flowers which develop into small hairy reddish fruits.

AUSTRALIAN TREE FERN
Sphaeropteris cooperi



Don't confuse with native hāpu'u tree fern. It has blond to red hairs at base of fronds and lacks the clean-cut, oval ring scar pattern.

TREE

AUSTRALIAN TREE FERN
Sphaeropteris cooperi

FAMILY: Cyatheaceae

General Description: Australian tree fern grows up to 40' tall or more and has stems covered by a clean cut, oval ring scar pattern. It has long white and short red-brown scales found at the base of the fronds. Leaves of mature plants are grouped in a tight rosette at the top of the stem rather than spread out along the stem. Sori (clusters of spores) are found in the middle of the pinnae or fern leaflet divisions.

Impacts: Australian tree fern is shade-tolerant and has wind-dispersed spores that can travel over 7 miles from the parent plant, allowing it to easily be transported from the garden directly into the rain forest. Once established, it can displace other understory vegetation and outcompete native Hawaiian tree ferns (hāpu'u), which are an important component of Hawaiian rain forest ecosystems. It is found in residential areas and readily escapes cultivation into wild areas.

Dispersal Mechanism: Australian tree fern spreads via wind-dispersed spores that can travel long distances.

Origin, Distribution, and Habitat: Australian tree fern is native to Queensland in northern Australia, but has been planted throughout the tropics. It has spread from residential plantings to intact rain forest in East Maui and on Kaua'i. On the Big Island, it is spreading from landscaped areas in Volcano, Laupāhoehoe, Kona, and other areas.

Cultivation: Australian tree fern is a common home and resort landscaping plant in Hawaii. The Hawaii Department of Land and Natural Resources considers Australian tree fern one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Hāpu'u (*Cibotium* spp.), native Hawaiian tree fern, have blond to red-colored hairs concentrated at stem bases and purse-shaped sori (clusters of spores) on the edge of the pinnae. Hāpu'u are a desirable garden alternative to Australian tree fern. Be aware that hāpu'u often contain a variety of invasive plants, like Himalayan raspberry (*Rubus ellipticus*), growing on their trunks, a potential source of inadvertent introduction of noxious weeds. Examine all hāpu'u used for cultivation and remove clinging vegetation.

! Hawaii State Noxious Weed

GORSE
Ulex europaeus

Don't confuse with native māmane (above), which lacks spines or pūkiawe (left), which lacks yellow flowers.

SHRUB

GORSE
Ulex europaeus

FAMILY: Fabaceae

Hawaii State Noxious Weed

General Description: Gorse is a thorny shrub that grows up to 6' tall. It is covered with 1" long spines that dwarf its small leaves. Its yellow flowers grow in clusters and smell slightly of coconut. Its small hairy seed pods (.8" long) split open at maturity flinging seeds a considerable distance away from the parent plant.

Impacts: Gorse can form dense stands that make pastures unproductive and impede the movement of humans and livestock. Its oily foliage and seeds make it an extreme fire hazard. As a nitrogen-fixing species, gorse can alter the structure and composition of native ecosystems, potentially facilitating further invasion by other invasive species. It can produce 14 million seeds per acre per year. Seeds can persist for 50+ years.

Dispersal Mechanism: Gorse seeds are spread via expulsion from bursting seed pods, water, birds, sheep, cattle, and infested vehicles, equipment, and soil. Plants and seeds respond vigorously after a fire.

Origin, Distribution, and Habitat: Gorse is native to Western Europe. It is considered a weed in 30 countries and is one of Australia's top 20 weeds. In Hawaii, it tends to naturalize in high elevation pastures, disturbed forests, and native māmane-naio forests. On the Big Island, large parts of the Humu'ula area on the slopes of Mauna Kea have become infested.

Cultivation: Gorse has been introduced throughout the world as an ornamental plant and living fence. It is a Hawaii state noxious weed and is illegal to plant or transport across the state.

Don't confuse with:

Māmane (*Sophora chrysophylla*) is a native Hawaiian tree in the same family as gorse. It grows in the same areas and has similar flowers, but lacks spines.

Pūkiawe (*Leptecophylla tameiameiae*) is a native Hawaiian shrub that can grow in the same substrate (bare rock/lava) as an early succession pioneer. It may resemble gorse from a distance with its small compact leaves, but does not have yellow flowers or long thorns.