

# Invasive Plant Field Guide

## *Kalaupapa National Historical Park*

Preventing invasive plants from invading native habitats is vitally important for all Pacific Island national parks. This field guide highlights 15 invasive plants that Kalaupapa National Historical Park (KALA) 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



KALA



PACN I&M



# REPORT YOUR PEST!



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Online Pest Reporting: [www.reportapest.org](http://www.reportapest.org)

## **Acknowledgements:**

This field guide was developed by Elizabeth Speith and Sky Harrison of the University of Hawai'i, with the assistance of staff from the National Park Service and Moloka'i Invasive Species Committee.

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Additional thanks to Kim and Forest Starr for use of their extensive photo library.

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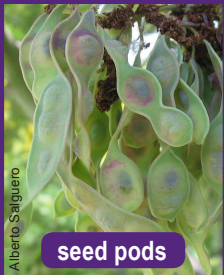
Cover Photo: Mexican creeper (*Antigonon leptopus*)

Inches



# SILVER WATTLE

*Acacia dealbata*



seed pods



silver hairs on stems and leaves



bright yellow flowers



Don't confuse with nonnative black wattle (left), which has white flowers or green wattle (above), which does not have silver hairs on stems or leaves.



up to 90'

TREE

# SILVER WATTLE

## *Acacia dealbata*

FAMILY: Fabaceae

**General Description:** Silver wattle (blue wattle) is a fast-growing tree that can reach 90'. It has feathery segmented leaves that are greyish-green and yellow puff-ball flowers (.2"). Its stems and leaves are covered with small, silver hairs.

**Impacts:** Silver wattle is often the first tree to grow in disturbed areas. As a nitrogen-fixing species, it can alter the structure and composition of native ecosystems potentially facilitating further invasion by other invasive species. Trees can adapt to many environments including high elevations.

**Dispersal Mechanism:** Silver wattle seeds can be spread by birds and ants, although the majority of seeds fall near the parent plant. It can also reproduce vegetatively via rhizomes (underground stems). It resprouts when cut. Seeds have a high rate of germination (74%) and can persist in the soil for 50 years.

**Origin, Distribution, and Habitat:** Native to Australia, silver wattle has been introduced throughout the world as an ornamental and has become a declared weed in numerous countries. Trees can thrive in diverse habitats including coastal dunes, streambeds, forests, and high elevation areas. It is only known from one planting in Hawaii, on Moloka'i.

**Cultivation:** Silver wattle is grown as an ornamental and forestry tree. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

### Don't confuse with:

Green wattle (*Acacia decurrens*) is a related nonnative tree that looks very similar to silver wattle but does not have small silver hairs. **THIS PLANT IS ALSO INVASIVE.**

Black wattle (*Acacia mearnsii*) is a related nonnative tree that has been planted throughout Hawaii. It has white flowers. It is common in the Kala'e area of Moloka'i. **THIS PLANT IS ALSO INVASIVE.**

# MEXICAN CREEPER *Antigonon leptopus*

**pink flowers**

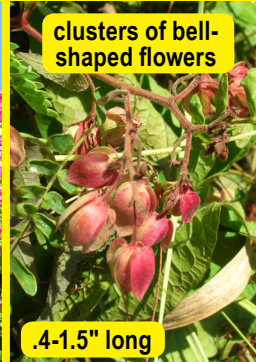


All images unless noted Forest & Kim Starr (UJH)



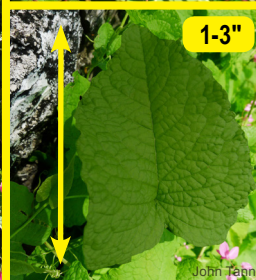
**up to 25'**

**clusters of bell-shaped flowers**



**.4-1.5" long**

**1-3"**



Don't confuse with the common, nonnative shrub bougainvillea, which has oval-shaped leaves and thorns.

**VINE**

John Tenn

# MEXICAN CREEPER

## *Antigonon leptopus*

**FAMILY:** Polygonaceae

**General Description:** Mexican creeper is a climbing herbaceous or sometimes woody vine with heart-shaped to triangular leaves and clusters of pink bell-shaped flowers (.5" long). Vines can grow to 25'.

**Impacts:** Mexican creeper is a smothering vine that can overgrow and eventually kill plants, shrubs, and small trees. It can also overgrow structures reducing access and causing damage. Leaves become dry during the dry season creating a fire hazard. It is recognized as invasive in Guam, Marquesas, Palau, Papua New Guinea, Australia, Tahiti, and the Virgin Islands.

**Dispersal Mechanism:** Mexican creeper primarily reproduces vegetatively through small pieces of underground tubers and small buried stem pieces. Seed production is rare but prolific when it occurs. Seeds are dispersed by pigs and birds and remain viable in the ground for a long time. Seeds can float on water.

**Origin, Distribution, and Habitat:** Mexican creeper is native to Mexico, but has been introduced throughout the tropics and subtropics. It has become established on all Hawaiian Islands. On Moloka'i, it is common within the settlement of Kalaupapa and occurs in Kakahai'a and 'Ualapu'e. It thrives in dry to moist disturbed lowland areas and coral-based soils typically below 100'.

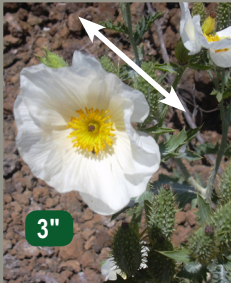
**Cultivation:** Mexican creeper often escapes cultivation. The Hawaii Department of Land and Natural Resources considers it one of Hawaii's most invasive horticultural plants. The Hawaii Chapter of the American Society of Landscape Architects categorizes Mexican creeper as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

### **Don't confuse with:**

Bougainvillea (*Bougainvillea* spp.) are common nonnative, vine-like shrubs that often have pink "flowers." Bougainvillea "flowers" are actually modified leaves surrounding small flowers. A common species in Hawaii, *Bougainvillea spectabilis*, has oval-shaped leaves (2-4") and is covered in thorns.

# MEXICAN POPPY

*Argemone mexicana*



Don't confuse with the native Hawaiian poppy, pua kala. This plant has white flowers and white-tinted foliage.



GRASS/  
HERB

# MEXICAN POPPY

## *Argemone mexicana*

FAMILY: Papaveraceae

**General Description:** Mexican poppy (Mexican prickly poppy) is a prickly plant with showy yellow flowers (1-2" wide) and blue-green thistle-like leaves with prominent white veins. Leaves are covered by a waxy residue that can rub off. Seeds are formed in a prickly spherical fruit. All parts of plant produce a yellow milky sap.

**Impacts:** All parts of the Mexican poppy are poisonous. It is an agricultural pest in pastures and fields where it can reduce grazing area, compete with more desirable species, and make harvest painful due to skin irritants. It produces chemicals that can inhibit the growth of other plants. Mexican poppy might be able to crossbreed with the Hawaiian native poppy, potentially breeding the native pua kala out of existence.

**Dispersal Mechanism:** Mexican poppy reproduces via small seeds. Seeds are moved long distances by infested mud adhered to livestock, boots, agricultural equipment, and vehicles.

**Origin, Distribution, and Habitat:** Mexican poppy is native to the tropical Americas. In Hawaii, it has naturalized in agricultural and waste areas on Kaua'i, O'ahu, and Maui. On Moloka'i, it is restricted to the Kalaupapa peninsula within the settlement and landfill sites.

**Cultivation:** Mexican poppy has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

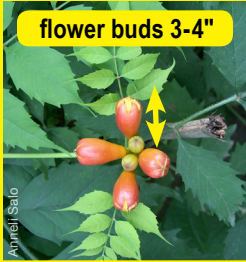
### **Don't confuse with:**

Pua kala (*Argemone glauca*) is a native Hawaiian poppy that also produces a yellow sap. It has white flowers (3") and blue-green leaves with whitish veins that are not as prominent as Mexican poppy veins. The plant has an overall white appearance. The native pua kala is common on the Kalaupapa peninsula of Moloka'i, predominantly along the east and west coasts.



# TRUMPET CREEPER

*Campsis radicans*



Don't confuse with another invasive orange-flowered vine, flame vine. Flame vine has leaves with smooth edges.



VINE

# TRUMPET CREEPER

## *Campsis radicans*

FAMILY: Bignoniaceae

**General Description:** Trumpet creeper (cow itch vetch) is a woody vine that uses aerial roots to climb plants and structures (40'). It produces clusters of orange to red trumpet-shaped flowers (1-4" long). Its leaves are 4-12" long, composed of smaller toothed leaves with a prominent point. The stalk is covered with u-shaped stem scars and root-like aerial stems. Seeds are produced in long narrow capsules containing many winged seeds.

**Impacts:** Trumpet creeper is capable of smothering other plants, preventing sunlight from reaching the vegetation it covers. The leaves produce a skin irritant, which can cause burning and itching in some people. This vine is rated one of the 10 worst agricultural weeds of the Mississippi Delta region. Plants can be difficult to control with standard herbicides.

**Dispersal Mechanism:** Trumpet creeper produces winged seeds that are carried in the wind. Vines have deep root systems that can produce new plants through root suckering. Plants can reproduce from pieces of root or stem as small as .8" long.

**Origin, Distribution, and Habit:** Native to the eastern United States, trumpet creeper has been introduced throughout the world. In Hawaii, Moloka'i is one of the few places it has been observed.

**Cultivation:** Trumpet creeper has been introduced to gardens throughout the world. Due to its invasive traits in Hawaii, it should not be cultivated.

### Don't confuse with:

Flame vine (*Pyrostegia venusta*) is a popular, nonnative ornamental vine with orange to red trumpet-shaped flowers. Flame vine has leaves comprised of 2-3 leaflets (2-3") with smooth edges, not toothed like trumpet vine.

**THIS PLANT IS ALSO INVASIVE.**

# AUTOGRAPH TREE

*Clusia rosea*



Autograph trees can have aerial roots like a banyan tree (top) or rubber tree (bottom).



TREE

# AUTOGRAPH TREE

## *Clusia rosea*

FAMILY: Clusiaceae

**General Description:** Autograph tree is a common street and parking lot tree in Hawaii that can also grow epiphytically (on top of other plants/trees). It has thick, round, dark green leaves (3-6") that can show a mark that has been scratched on its surface for a long period of time, giving the tree its name. It produces white flowers (2-3") and brown fruits (2-3") that break open to reveal reddish-orange seeds. Trunks and leaves produce a yellow sap.

**Impacts:** Autograph trees can grow in other trees, eventually strangling them. It can cause substantial damage to structures, establishing with very little substrate and posing a major threat to Hawaiian cultural and archaeological sites, including heiau (Hawaiian temple) and fish ponds.

**Dispersal Mechanism:** Birds eat autograph tree seeds and disperse them to wilderness areas. Its fruits have an unusual shape and are sometimes used in flower arrangements. Improperly disposed fruits can spread seeds to new areas.

**Origin, Distribution, and Habitat:** Autograph tree is native to tropical America. In Hawaii, it has become naturalized on Kaua'i, O'ahu, and the Big Island. On Moloka'i, it can be found on the west and east ends, and in Kaunakakai and Ho'olehua. Plants can grow in a range of environments including lava flows, dry areas, and wet forests up to 3,000'.

**Cultivation:** The Hawaii Department of Land and Natural Resources considers autograph tree one of Hawaii's most invasive horticultural plants.

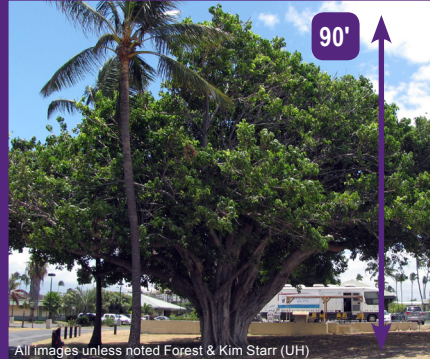
### Don't confuse with:

Other tropical epiphytes, like members of the fig family (*Ficus* spp.), can grow on other plants, rocks, and structures using aerial roots like the autograph tree. *Ficus* also produce a yellow sap, but they can be distinguished from autograph tree by their fig fruits. **THESE PLANTS ARE ALSO INVASIVE.**

# BO TREE *Ficus religiosa*



Don't confuse with the hundreds of ficus that have been introduced to Hawaii, many of which are invasive. Banyan tree (left) and edible fig (above).



# BO TREE

## *Ficus religiosa*

FAMILY: Moraceae

**General Description:** Bo tree (bodhi tree, sacred fig) is a fig tree capable of growing to 90' with distinctive heart-shaped leaves with elongated tips that grow in an alternate arrangement along the branches. It can grow as a strangling climber or single trunk tree depending on conditions. It forms small figs that grow in pairs.

**Impacts:** The bo tree, like other fig trees, is capable of growing in other trees, eventually splitting their host trees from within. It is sometimes called the "tree splitter" for this reason. It can cause substantial damage to structures, establishing with very little substrate and posing a major threat to Hawaiian cultural and archaeological sites, including heiau and fish ponds. Individual trees can live for hundreds of years.

**Dispersal Mechanism:** The bo tree, like all fig trees, needs a specific wasp to be present for pollination. Its wasp pollinator has been found on Moloka'i. Trees may produce fruits that can be bird and animal (most likely deer and pig) dispersed. Bo trees can also reproduce vegetatively and via cuttings.

**Origin, Distribution, and Habitat:** Native to India and Southeast Asia, the bo tree has been introduced throughout Hawaii. On Moloka'i, immature trees were found at the USDA Plant Materials Center and the Kaunakakai Waste Water Treatment Facility indicating that nearby intentional plantings were reproducing. It can grow in dry areas where it will have a single trunk or in wet areas where it will form aerial roots like the banyan tree.

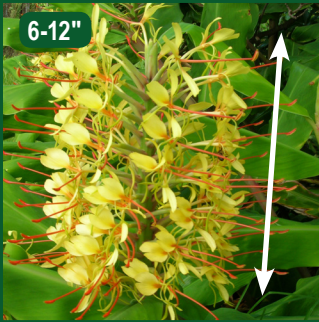
**Cultivation:** The bo tree is said to be the tree under which Buddha was born and reached enlightenment. For this reason it is sometimes planted near temples and as a specimen tree. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated. The Moloka'i Invasive Species Committee is controlling all known reproducing trees.

### Don't confuse with:

Other *Ficus* trees. Hundreds of species of *Ficus*, many of which are invasive, have been introduced to Hawaii as landscape plantings. Related fig trees usually have aerial roots, which create a wide and tangled base to the tree, fig-like fruits, and a characteristic wide mushroom-shaped canopy. **THESE PLANTS ARE ALSO INVASIVE.**

# HIMALAYAN GINGER

*Hedychium gardnerianum*



Don't confuse with other nonnative gingers, such as yellow ginger (left) or white ginger (right), that tend to have skinnier leaves and non-red flower stamens.

GRASS/  
HERB

# HIMALAYAN GINGER

## *Hedychium gardnerianum*

FAMILY: Zingiberaceae

**General Description:** Himalayan ginger (kāhili ginger) is a showy ginger plant that grows in wet habitats from thick rhizomes to a height of 3-7'. It has lance-shaped leaves, 8-12" long by 4-6" wide, arranged in 2 rows along the length of the stem. Flower heads grow in stalks (6-12") with numerous strongly fragrant yellow flowers with elongated red stamens. Flowers are produced midsummer through fall. Fruits are bright red and orange within.

**Impacts:** Himalayan ginger can rapidly grow into dense thickets, potentially displacing all other undergrowth in the rain forest and preventing the regeneration of all plants including trees and ferns. Once established, it can be difficult to control often requiring many visits over years. Removal can produce large muddy holes in the ground that look like pig wallows. This ginger has invaded and endangers the biodiversity of some of the most pristine native rain forests in Hawaii, such as Kīpahulu Valley on Maui, Kōke'e on Kaua'i, and Kīlauea on the Big Island.

**Dispersal Mechanism:** Himalayan ginger is a common garden planting in Hawaii. Fruit-eating birds spread the seeds of Himalayan ginger from the garden into the forest. Once established, it can spread vegetatively via densely growing rhizomes that sprout new stems. Even small root fragments can regrow.

**Origin, Distribution, and Habitat:** Himalayan ginger is native to the Himalayan Mountain regions of India, Nepal, and Bhutan. It has naturalized throughout Hawaii. On Moloka'i, naturalized plants can be found in the Kala'e area. Himalayan gingers thrive in higher elevation areas and in rain forests.

**Cultivation:** The Hawaii Department of Land and Natural Resources considers Himalayan ginger one of Hawaii's most invasive horticultural plants. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment. The Moloka'i Invasive Species Committee is working with the community to discontinue plantings.

### Don't confuse with:

Other gingers (Zingiberaceae). Nonnative gingers, such as yellow ginger and white ginger, can be found in cultivation and naturalizing throughout Moloka'i. Himalayan ginger tends to have wider leaves and is the only ginger that produces stalks of deep yellow flower heads with red stamens. **THESE PLANTS ARE ALSO INVASIVE.**



# MANUKA *Leptospermum scoparium*



Don't confuse with native pūkiawe, which have similar leaves but different fruits.



# MANUKA

## *Leptospermum scoparium*

FAMILY: Myrtaceae

**General Description:** Manuka (New Zealand tea tree) is a compact shrub or small tree that grows to 20' with many erect thin branches and shredding bark. Lance-like narrow leaves (.5-1") are alternate in growth arrangement. Oil glands beneath the leaves produce an astringent "tea tree oil" smell. Small white to pink flowers (.5") grow at the end of small stems perpendicular to the main branches. It produces numerous tiny brown seed pods (.2").

**Impacts:** Manuka produces chemicals that can inhibit the growth of other plants, resulting in thickets that can crowd out all other vegetation. It can invade intact rain forest.

**Dispersal Mechanism:** Manuka produces prolific amounts of seeds that are wind dispersed and fire resistant.

**Origin, Distribution, and Habitat:** Native to New Zealand and Tasmania, manuka has been introduced throughout Hawaii as a garden plant and forestry planting. It has naturalized in moist forests and rain forests on O'ahu, Kaua'i, Lāna'i. On Moloka'i, it can be found in the Kala'e area and in the east end mountains.

**Cultivation:** Manuka is used in the production of manuka honey. It is sold as an ornamental and used in flower arrangements in Hawaii. The Hawaii Department of Land and Natural Resources considers manuka one of Hawaii's most invasive horticultural plants. The Hawaii Chapter of the American Society of Landscape Architects categorizes manuka 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.

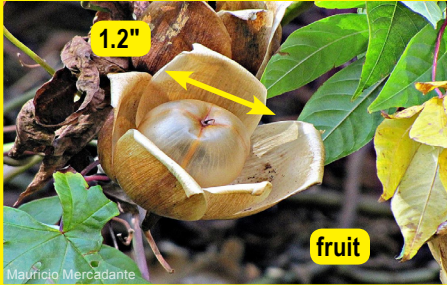
### Don't confuse with:

Other *Leptospermum* species. Other tea trees are used as landscape trees in Hawaii. Differences are subtle.

**THESE PLANTS ARE ALSO INVASIVE.**

Pūkiawe (*Leptecophylla tameiameia*) is a small variable shrub that is native to Hawaii. This shrub ranges from coastal to alpine, though it is most prominent at higher elevations. The small lance-like leaves often have a dull white hue. Flowers are white to pink and smaller than the tea tree flowers. Its mature fruit is dark red, pink or white.

# WOOD ROSE *Merremia tuberosa*



Don't confuse with Horsefall's morning glory, a popular, nonnative garden plant in Hawaii. It has similar lobed leaves but a tubular pink-fuschia flower.

VINE

# WOOD ROSE

## *Merremia tuberosa*

FAMILY: Convolvulaceae

**General Description:** Wood rose (Hawaiian wood rose) is a woody climbing vine with yellow, tubular, morning glory-like flowers and distinctive brown seed pods that look like wooden roses. The pods contain 4 large black seeds. It has deeply lobed leaves (up to 6.3" across).

**Impacts:** Wood rose is fast-growing and has seeds that can remain viable in the soil for many years. This vine can overgrow and smother trees and shade out other plants. All parts of the plant are toxic to humans and animals.

**Dispersal Mechanism:** Wood rose produces an abundant amount of seeds in the winter, which can readily germinate. Small pieces of root fragments can reproduce. Seed pods can float short distances in fresh and salt water. Seeds and plants are moved long distances in infested garden waste and improperly disposed seed pods from floral arrangements.

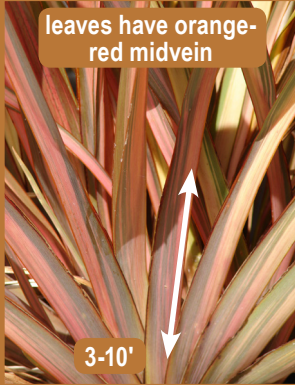
**Origin, Distribution, and Habitat:** Although this plant is sometimes called "Hawaiian," wood rose is native to the tropical Americas. It was found naturalized in wilderness areas in Hawaii as early as 1932. On Moloka'i, it is spreading in areas adjacent to Kamakou where it threatens native forests. Plants can grow in a variety of habitats from sea level to almost 5,000'.

**Cultivation:** Wood rose is planted as an ornamental and the dried seed pods are used in floral arrangements. The Hawaii Chapter of the American Society of Landscape Architects categorizes wood rose 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. The Moloka'i Invasive Species Committee is working to remove wild plants.

### Don't confuse with:

Horsefall's morning glory (*Ipomoea horsfalliae*) is a nonnative pink-flowered vine popular in Hawaii gardens. It is also known as Prince Kūhiō vine due to its popularity in the prince's Waikīkī gardens. It has similar deeply lobed leaves to wood rose but tubular pink-fuchsia flowers instead of the characteristic yellow flower.

# NEW ZEALAND FLAX *PHORMIUM TENAX*



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



# 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 every year.

**Origin, Distribution, and Habitat:** Native to New Zealand, New Zealand flax plant was introduced to Hawaii in the late 1800s. On Moloka'i, it can be found in the Kala'e area and in the east end mountains. It can thrive in coastal areas, gullies, waterways, and wet forests.

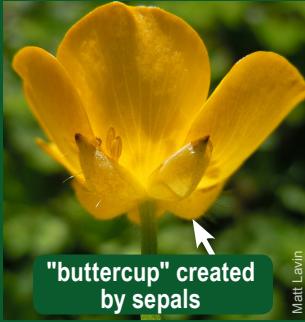
**Cultivation:** New Zealand flax is planted in gardens as an ornamental, used in fiber production and as basket weaving material. The New Zealand Maori used this plant to make clothing, mats, baskets, and cord. The Hawaii Chapter of the American Society of Landscape Architects categorizes New Zealand 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.

# CREeping BUTTERCUP *Ranunculus repens*



Don't confuse with the invasive geranium, cranesbill, which is widespread in Hawaii. It has non-yellow flowers and a "cranesbill" seed pod.

GRASS/  
HERB

# CREEPING BUTTERCUP

## *Ranunculus repens*

FAMILY: Ranunculaceae

**General Description:** Creeping buttercup is a low-growing plant (up to 1') with small yellow flowers that have 5 (sometimes 10) petals. Plants have both short swollen stems and creeping stolons (horizontal stems or runners that take root at points to form new plants). Leaves are almost round, with 3 deep indentions, numerous smaller indentions, and light-colored patches. The leaves resemble geranium leaves. Leaves and stems can be hairy.

**Impacts:** Creeping buttercup can grow rapidly. One plant can spread over a 40 ft<sup>2</sup> area in a year. Dense stands can eliminate native vegetation through both direct competition and by depleting soil potassium. Fresh buttercup is toxic to livestock, and can cause salivation, skin irritation, blisters, abdominal distress, inflammation, and diarrhea.

**Dispersal Mechanism:** Creeping buttercup reproduces by seed, which are spread by horses, cattle, and birds. Seeds can remain viable for 20-80 years. Small pieces of the roots or stolons can form new plants. Contaminated garden waste spreads plants long distances.

**Origin, Distribution, and Habitat:** Creeping buttercup is native to Europe. In Hawaii, it has become established on the Big Island. It thrives in wet areas, but can also become established on beaches, fields, pastures, and along streams.

**Cultivation:** Creeping buttercup was originally planted ornamentally, but is now considered a weed.

### Don't confuse with:

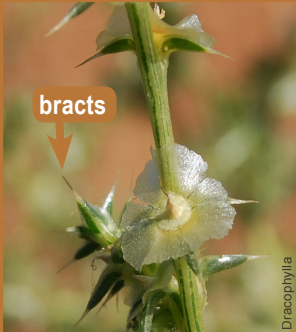
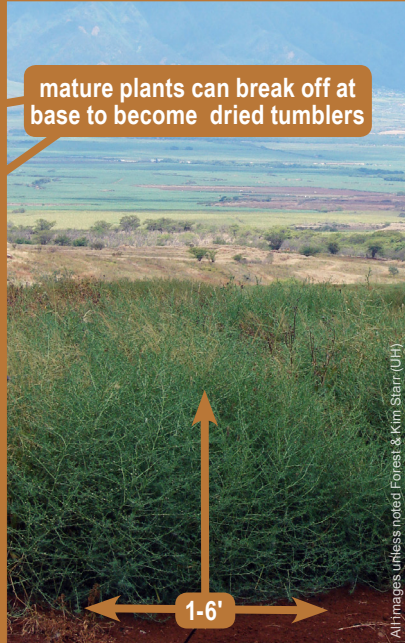
Cranesbill (*Geranium homeanum*) is a nonnative creeping geranium that is widespread in Hawaii. It has white or pink flowers that appear in pairs. It can be differentiated by its flowers, which are not yellow, and its distinctive "cranesbill" beak-like seed capsule. Cranesbill stems are often red and hairy. **THIS PLANT IS ALSO INVASIVE.**



! Hawaii State  
• Noxious Weed

# TUMBLEWEED

*Salsola tragus*



All images unless noted Forest & Kim Starr (UH)

SHRUB

# TUMBLEWEED

*Salsola tragus*

FAMILY: Chenopodiaceae

Hawaii State  
Noxious Weed

**General Description:** Tumbleweed (prickly Russian thistle) is a small bush with intertwined branches that forms a round clump at maturity that can break away at ground level to become a tumbleweed (1-6' across). Young plants have leaves that are highly divided and resemble pine needles (1" long). As the plant matures, the leaves flatten and become sharp points. The small flowers (~.1") are 4-5 parted, lack a true flower petal (the features that look like petals are actually sepals), and are accompanied by spiny bracts.

**Impacts:** Tumbleweed can degrade agricultural and ranch lands by making harvest difficult and reducing forage area for cattle. Plants become entangled in fences and other structures, preventing access and creating fire hazards (as a dry, vegetative source of fuel). Large tumbleweeds can impede traffic and when tumbling across roads, surprise drivers and cause accidents. Plants can invade dry native forests where they catch in vegetation and compete with native plants.

**Dispersal Mechanism:** Tumbleweed seeds are dispersed over great distances by the tumbling motion of the mature plant. A large plant can produce 100,000 seeds over its lifetime.

**Origin, Distribution, and Habitat:** Native to Africa, Europe, and temperate to tropical Asia, tumbleweed has been introduced throughout the world. In Hawaii, it has been observed in the Waimea region on the Big Island, 'Ōma'opio area on Maui, on Kaho'olawe, abandoned sugarcane fields on O'ahu, and the dump and quarry on Moloka'i. It is often found along roadsides, trails, abandoned fields, and on over-grazed ranges and pastures, but can thrive on sandy beaches and in dry forests.

**Cultivation:** Tumbleweed is a Hawaii state noxious weed and is illegal to plant or transport across the state.

! Hawaii State  
• Noxious Weed

# FIREWEED

*Senecio madagascariensis*



fireweed gives pastures in Kohala (Big Island)  
and upcountry Maui a yellow appearance

Aliphanaga Forest & Kim Starr (UH)



Don't confuse  
with spanish  
needle (left) or  
wedelia (above).



nickel-sized

13 petals



2'

GRASS/  
HERB

# FIREWEED

## *Senecio madagascariensis*

FAMILY: Asteraceae

Hawaii State  
Noxious Weed

**General Description:** Fireweed is a daisy-like herb that grows up to 2' high. The stem is upright and slender with bright green leaves. The leaves are smooth, very narrow (only .2-.3" wide), have serrated edges, and they reach about 5" long. The small yellow flowers have 13 petals and are about the size of a nickel. The mature flowers turn into white dandelion-like puff-balls.

**Impacts:** Fireweed can invade pastures, disturbed areas, and roadsides. It is very toxic to cattle, horses and other livestock. When ingested, it can cause illness, slow overall growth, liver-malfunction and even death in severe cases. In Australia, fireweed costs over \$2 million per year in losses and control.

**Dispersal Mechanism:** Each fireweed plant can produce up to 30,000 seeds per year that are easily spread by wind, hiking boots, vehicles, and animals. Fireweed is also spread unintentionally as a contaminant seed in hydro-mulch and on equipment.

**Origin, Distribution, and Habitat:** Fireweed is native to Madagascar and South Africa. In Hawaii, it was first discovered on the Big Island in the 1900s where it is now too widespread for control. This pest can also be found on Maui and Lāna'i and on the east end of Moloka'i. It thrives in disturbed grasslands, over-grazed pastures, and roadsides. Fireweed grows on a wide range of moist to wet soils.

**Cultivation:** Fireweed is a Hawaii state noxious weed and is illegal to plant or transport across the state. The Hawaii Chapter of the American Society of Landscape Architects categorizes fireweed as a "do not plant" species. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

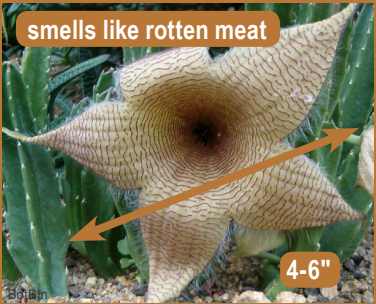
### Don't confuse with:

Spanish needle (*Bidens pilosa*) is a widespread invasive herb on Moloka'i. It has tiny yellow flower clusters unlike fireweeds daisy-like flowers. Spanish needle also grows much taller (up to 6'). **THIS PLANT IS ALSO INVASIVE.**

Wedelia (*Sphagneticola trilobata*) is a widespread invasive on Moloka'i commonly planted as an ornamental ground cover. It can be distinguished from fireweed by its larger yellow flowers. It also has a variable amount of petals unlike fireweeds constant 13. **THIS PLANT IS ALSO INVASIVE.**

# CARRION FLOWER

*Stapelia gigantea*



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



SHRUB

# CARRION FLOWER

## *Stapelia gigantea*

FAMILY: Asclepiadaceae

**General Description:** Carrion flower (starfish flower, Zulu-giant) is a succulent plant with greyish-brown fleshy stems with 4 ridges that bear small spines and no leaves. Plants grow up to 8' tall. It has star-shaped flowers that are purple on the outside and yellow with purple hairs on the inside. Flowers smell like rotten meat. Plants produce a clear sap.

**Impacts:** Carrion flower is considered invasive in northern Queensland, Australia, and Papua New Guinea. It can form single species stands in dry disturbed areas. It can become established on new lava flows, where it can crowd out native colonizers, dry forests, and in other leeward areas.

**Dispersal Mechanism:** Carrion flower seeds are wind dispersed and can produce 150 seeds per ft<sup>2</sup> of plants. Wind-dispersed seeds allow plants to escape backyard cultivation. Plants primarily reproduce vegetatively, spreading out around a "mother" plant through a network of shallow roots.

**Origin, Distribution, and Habitat:** Carrion flower is native to tropical Africa and Mozambique. It is found naturalizing in dry forests and open areas of leeward O'ahu, Maui, and Moloka'i. It has been observed on the Kalaupapa peninsula and Lā'au Point area of Moloka'i.

**Cultivation:** Carrion flower was introduced to Hawaii prior to 1871 and is planted in rock gardens and xeriscapes. The Hawaii Department of Land and Natural Resources considers carrion flower one of Hawaii's most invasive horticultural plants.

### Don't confuse with:

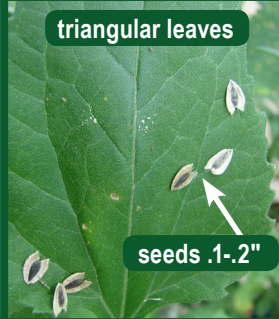
Air plants (*Kalanchoe* spp.). Several related species of succulent air plants, such as "mother of millions" (*Kalanchoe daigremontiana*) and chandelier plant (*K. tubiflora*), have been introduced to Hawaii and can grow wild in the same areas as carrion flower. **THESE PLANTS ARE ALSO INVASIVE.**

# GOLDEN CROWNBEARD *Verbesina encelioides*

small sunflowers



triangular leaves



1-5'+



bud



Don't confuse with the related native ko'oko'olau, some of which are rare.

GRASS/  
HERB

# GOLDEN CROWNBEARD

## *Verbesina encelioides*

FAMILY: Asteraceae

**General Description:** Golden crownbeard is a sunflower-like plant that grows 1-5'+ tall. It has two types of leaves. The lower leaves are triangular and grow in an opposite arrangement along the stem and the upper leaves are lance-shaped and grow in an alternate arrangement. Its sunflower-like flowers are yellow and 1-2" wide.

**Impacts:** Golden crownbeard can form dense stands and produces chemicals that can exclude all other plants, especially in coastal areas where it replaces naupaka (*Scaveola taccada*) and pōhuehue (*Ipomoea pes-caprae*). On Midway Island and Kure Atoll, it can grow so densely that it is considered the #1 plant preventing endangered native bird nesting. It is poisonous to cattle and sheep and its introduction can degrade pasture lands.

**Dispersal Mechanism:** Golden crownbeard seeds are wind dispersed and seedlings often grow around the maternal plant. Each individual flower can produce 300-350 seeds over its lifetime. Seeds may be moved long distances on infested equipment.

**Origin, Distribution, and Habitat:** Golden crownbeard is native to North and South America, most prolifically in the deserts of Mexico, Texas, and Arizona. It has become established on all Hawaiian Islands, except Ni'ihau. On Moloka'i, it has been found on the west end and in Ho'olehua, and occurs in isolated populations within the Kalaupapa National Historic Park. It thrives in coastal, dry, and disturbed areas from sea level to 9,000'.

**Cultivation:** Golden crownbeard has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

### Don't confuse with:

Ko'oko'olau (*Bidens wiebkei*, *B. molokaiensis*) are related native plants, some of which are endangered, that have similar flowers and leaves to golden crownbeard. Ko'oko'olau is much smaller (1' tall).