

Invasive Plant Field Guide

War in the Pacific 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 War in the Pacific National Historical Park (WAPA) and partners target for early detection and response.

Species cards have been divided into five categories (Grass / Herb, Shrub, Tree, Vine, Water) 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



WAPA



PACN I&M



REPORT YOUR PEST!



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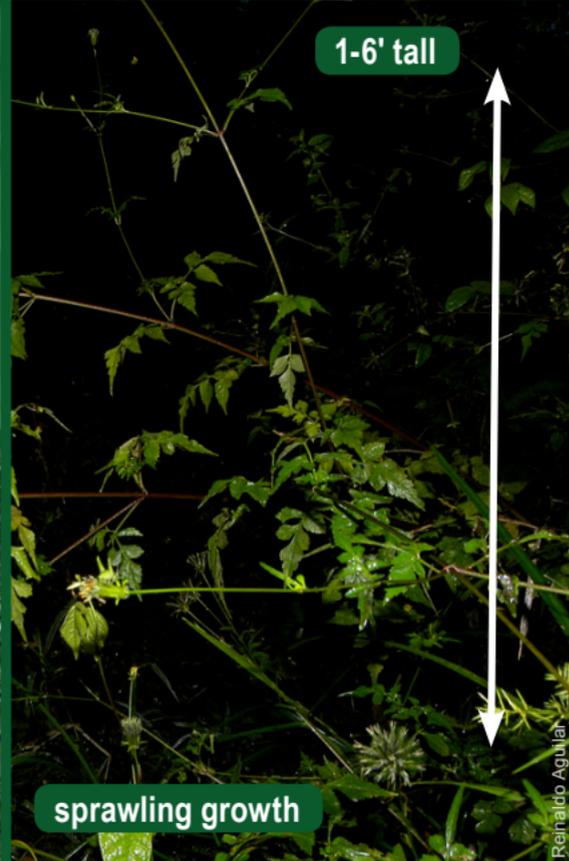
Cover Photo: Sourgrass (*Digitaria insularis*)

Inches



SPANISH NEEDLES

Bidens pilosa



GRASS/
HERB

SPANISH NEEDLES

Bidens pilosa

FAMILY: Asteraceae

General Description: Spanish needles (beggar's tick) is an annual herb that grows from 1-6' tall and has leaflets of 3 or 5 with toothed edges. The flowers form in tiny yellow clusters born at the end of long nearly leafless branches. Occasionally, flowers will have white to cream-colored petals. The distinctive elongated black seeds (.2-.6") have 2-3 small barbs at the tip.

Impacts: Spanish needles is considered a significant crop pest of 31 crops in 40 countries. A single plant can produce 6,000 seeds, which have a high rate of germination. Seeds can remain viable in the soil for 5 years. This plant is often the first to appear after a disturbance, such as fire, flood, or land clearing. Its roots and leaves secrete chemicals that can suppress the growth of other plants and remain potent even after the plant has died.

Dispersal Mechanism: Spanish needles can be dispersed long distances via hitchhiking seeds. The barbed seeds attach to clothing, hair, fur, feathers, and even machinery. Improper disposal of garden waste can also spread this plant. The stems of cut plants can take root and grow into a new plant. Seeds can also be dispersed by wind and water.

Origin, Distribution, and Habitat: Native to the tropical Americas, Spanish needles has been introduced throughout the tropics. It is one of the most widespread weeds on Guam and in the Northern Mariana Islands. It is common along roadsides, in disturbed areas, and on farms throughout Micronesia.

Cultivation: Spanish needles is often introduced unintentionally through agriculture. It is used medicinally in some parts of the world. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Asiatic hawkbeard (*Youngia japonica*) is a nonnative yellow-flowered herb common throughout Guam, Rota, and Saipan. Its leaves grow close to the ground in a rosette (circular) arrangement. The flowers open to reveal petals and distinctive dandelion-like seeds have white "parachutes" to carry them in the wind.

MONGOS HALUM-TANO

Canna indica



Don't confuse with the many other canna species grown in gardens (water canna above). Most have invasive traits and should be avoided.

GRASS/
HERB

MONGOS HALUM-TANO

Canna indica

FAMILY: Cannaceae

General Description: Mongos halum-tano (Indian shot) is a fast-growing ornamental (up to 11' tall). It has long fleshy leaves (1-2') that are similar to ginger and often tinged with purple. It usually has showy red lily-like flowers, but there are many cultivars that display different colors. BB-shot-sized seeds (.2-.3") are formed in capsules covered in soft spines.

Impacts: Mongos halum-tano can form dense clumps that exclude all other vegetation. It is especially problematic in wetlands and waterways where it can exclude native aquatic plants. It can reduce habitat for rare water birds, such as the Guam rail (*Gallirallus owstoni*) and is a host for many crop pests, including banana bunchy top virus and cucumber mosaic virus. Its rhizomes have molluscicidal properties, making it a threat to rare native land snails, many of which are found nowhere else in the world. Seeds can remain viable for long periods (600-year-old seeds have been successfully grown).

Dispersal Mechanism: Mongos halum-tano spread through rhizomes (fleshy underground stems). It can also produce long-lived seeds, which are spread by birds. Plants are moved unintentionally in contaminated garden waste.

Origin, Distribution, and Habitat: Native to temperate and tropical America, mongos halum-tano has been introduced all over the world as an ornamental. It is common on roadsides, around villages, along streams, and in disturbed wet forests throughout Micronesia, including on Guam and all of the Northern Mariana Islands.

Cultivation: Mongos halum-tano is grown as an ornamental. Its rhizomes are used as a source of starch. There is a seedless variety that is sold for ornamental use. Due to the unpredictable nature of hybridization, it should not be cultivated. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment.

Don't confuse with:

Other canna hybrids (*Canna edulis*, *C. flaccida*, *C. iridiflora*, or *C. flaccida* x *iridiflora*) are sold as ornamentals. Due to their invasive traits and tendency to hybridize, all canna species should be avoided.

FOUNTAIN GRASS

Cenchrus setaceus



Don't confuse with elephant grass (left), which is taller (7-15'+) or mission grass (right), which has flowers that range from purple to yellow-brown.



**GRASS/
HERB**

FOUNTAIN GRASS

Cenchrus setaceus

FAMILY: Poaceae

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 can become an aggressive, habitat-altering weed. Fountain grass is fire adapted and its dry leaves can increase the risk, intensity and longevity of fires. After a fire, exposed soils are prone to erosion, impacting nearby reefs. Fountain grass may resprout faster than native plants after fire, preventing natural reforestation.

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 been introduced to Guam and observed in the Northern Mariana Islands on the islands of Saipan and Rota. It can invade many types of areas, including savannas/badlands, limestone forests, roadsides, and disturbed areas.

Cultivation: Fountain grass is grown for its ornamental attributes. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

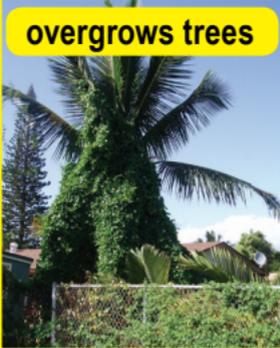
Don't confuse with:

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

Mission grass (*Cenchrus polystachion*), also called sakate, is common throughout Guam and the Northern Mariana Islands. It grows taller (3-6') and has flower heads that start purple and mature to yellow-brown. It does not have a "fountain" shape. **THIS PLANT IS ALSO INVASIVE.**

SCARLET GOURD

Coccinia grandis



Don't confuse with nonnative bitter melon vine. It has leaves that are more lobed, yellow flowers (left), and orange fruit (right).

VINE

SCARLET GOURD

Coccinia grandis

FAMILY: Cucurbitaceae

General Description: Scarlet gourd (ivy gourd) is an aggressive vine. Its leaves are 2-3" long and variably shaped (sometimes deeply lobed). Flowers are white and star-shaped, up to 2" across, and have five petals. The fruits are smooth and green (1-3" long) with whitish stripes turning to a uniform crimson red when ripe.

Impacts: Scarlet gourd grows aggressively and can climb over trees and shrubs, and on fences and power lines. It can also cover archaeological sites. If left unchecked, scarlet gourd can form a dense canopy that quickly smothers its host plant or structure under a solid blanket of vines. Smothered native plants may not produce flowers and fruits, reducing forage for native birds, bats, and pollinators.

Dispersal Mechanism: Scarlet gourd is dispersed long distances by humans who cultivate the plant for food. This pest can also be dispersed unintentionally via the transport of plant material by humans. Very small pieces of stem or root can resprout. Scarlet gourd seeds are spread by birds and rodents.

Origin, Distribution, and Habit: Scarlet gourd is native to Africa, India, Asia, and Australia. This weed is common on Guam and the Northern Mariana Islands on the island of Saipan, where it escapes from cultivation in towns and villages and invades nearby parks, pasture land, and forests. Three biocontrol agents (*Acythopeus cocciniae*, *A. burkhartorum*, and *Melittia oedipus*) have been introduced to Guam and Saipan to control scarlet gourd.

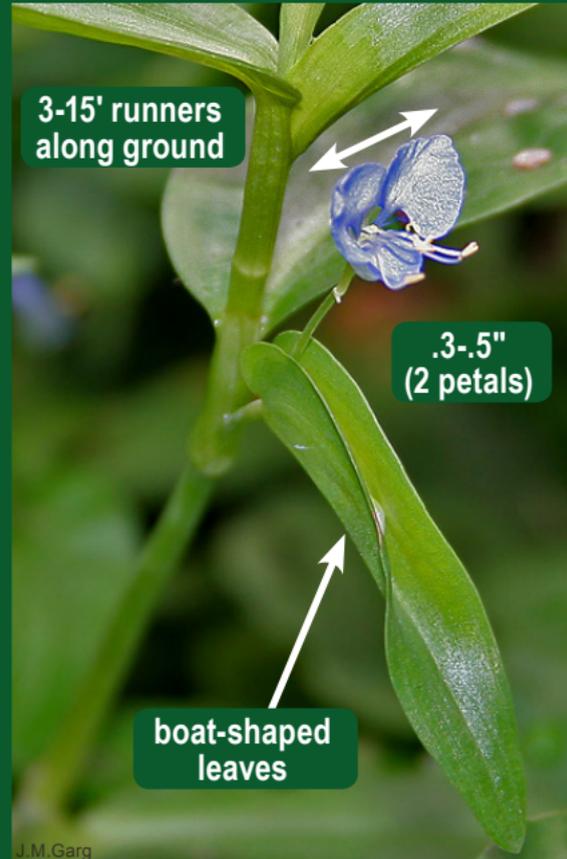
Cultivation: Scarlet gourd is cultivated for its edible shoots, leaves, and fruits. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Bitter melon (*Momordica charantia*) is a fast-growing nonnative vine also in the cucumber family. It has thin stems and deeply lobed alternate growing leaves that are often covered in hairs. Plants produce yellow flowers and oblong prickly fruit that turn from green to yellow or orange at maturity. **THIS PLANT IS ALSO INVASIVE.**

SEMPREBIBAN-DAMALONG

Commelina diffusa



Don't confuse with the related invasive Benghal dayflower. It has a similar blue flower but its leaves are funnel-shaped and fused at the flower stalk (left).

GRASS/
HERB

SEMPREBIBAN-DAMALONG

Commelina diffusa

FAMILY: Commelinaceae

General Description: Semprebiban-damalong (climbing dayflower) is a creeping plant with small bright blue flowers. The flowers have 3 petals, 2 large (approximately .3-.5" across), and 1 small. Flowers last for 1 day. Its stems grow from 3-15' prostrate along the ground. It has boat-shaped leaves (1-4" long by 1" wide).

Impacts: Semprebiban-damalong can form a carpet in moist areas, potentially displacing grass in pastures and native plants in wet forests. It is a principal weed of tropical crops, competing for light and nutrients with banana, coffee, taro, and papaya. It can invade wetlands, displacing native vegetation critical to endangered birds such as the Mariana common moorhen (*Gallinula chloropus guami*).

Dispersal Mechanism: Semprebiban-damalong can spread both by seed and vegetatively. It can root at each node along the stem. Small pieces of the stem can grow into a new plant. Plants are moved long distances as a contaminant of soil and garden waste.

Origin, Distribution, and Habitat: Semprebiban-damalong is native to tropical Asia into northern Polynesia. It was likely an accidental Chamorro introduction to Micronesia. It is widespread throughout Guam and the Northern Mariana Islands. It can be found in moist pastures, wetlands, gardens, waste areas, and along roadsides.

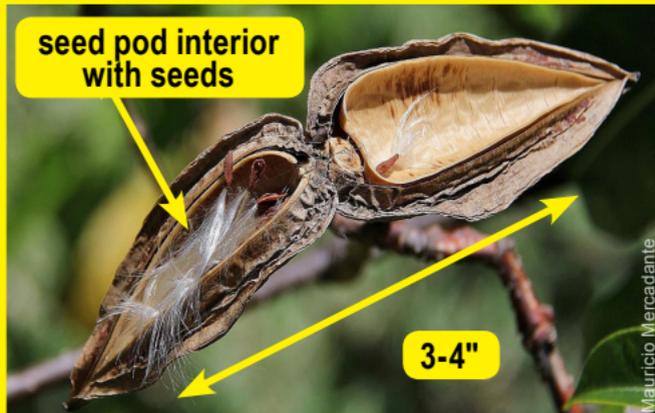
Cultivation: Semprebiban-damalong has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Benghal dayflower (*Commelina benghalensis*) is an invasive herb that is closely related to semprebiban-damalong. It has blue flowers and a creeping growth habit like semprebiban-damalong, but its leaves are covered with reddish-brown hairs, are funnel-shaped, and fused at the base. The leaves clasp around the flower stalk, partly hiding it. **THIS PLANT IS ALSO INVASIVE**

RUBBER VINE

Cryptostegia grandiflora



Don't confuse with purple allamanda, which has similar flowers but different leaves.

VINE

RUBBER VINE

Cryptostegia grandiflora

FAMILY: Asclepiadaceae

General Description: Rubber vine is a woody self-supporting vine that grows up to 6.5' tall unsupported, and 60-90' supported. All parts of the plant produce a milky-white sap when broken. Its glossy leaves grow in pairs and have a prominent reddish-purple midvein. The funnel-shaped 5-petaled flowers (2-3.5" across) are white to light purple in color. The triangular seed pods grow in wing-like pairs. When dry, the pods split open to release seeds with silky hairs.

Impacts: Rubber vine is a notorious invader and Weed of National Significance in Australia due to its ability to climb and cover trees, form dense thickets, and generally outcompete native vegetation. It is poisonous to humans, cattle, and horses. The milky sap can cause burning rashes and blisters. When the plant and sap are dry, a powdery dust emerges that may cause coughing, nose swelling, and eyelid blisters. Individual plants can live and reproduce for up to 80 years.

Dispersal Mechanism: Rubber vine is distributed widely for use in landscaping. Seeds have tufts of silky hairs adapted for wind dispersal. The seeds are also spread by movements of floodwater and mud, and by sticking to machinery and animals. Seeds have a high rate of germination (95%).

Origin, Distribution, and Habit: Rubber vine is native to Madagascar. It has been introduced to Guam and the Northern Mariana Islands on the island of Saipan. It can invade many habitats, including wetlands, streams, agricultural lands, savannah/badlands, disturbed areas, and intact forests.

Cultivation: Rubber vine is cultivated in warmer regions of the world as an ornamental and for rubber production. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Purple allamanda (*Allamanda blanchetii*) is a nonnative sap-producing vine with purple flowers. It has glossy leaves that grow in rings around the stem (arranged like spokes on a wheel) and lacks the reddish-purple midvein that is characteristic of rubber vine.

SOURGRASS

Digitaria insularis



Don't confuse with the common weeds Guinea grass (left), which has larger flower heads or swordgrass (above), which has much larger seed heads and flowers.



All images unless noted Forest & Kim Starr (UH)

GRASS/
HERB

SOURGRASS

Digitaria insularis

FAMILY: Poaceae

General Description: Sourgrass is a large, sprawling or erect crabgrass, growing to 5' tall. The base of its stems is hard, bulbous, covered in long stiff hairs, and scaly. Its leaves are long and flat (8-20"). It has slender, silky, drooping flower stalks (8-11") that all nod or lean in one direction. Crushed foliage has an unpleasant odor, much like sour lemons.

Impacts: Sourgrass can form dense stands, preventing natural forest regeneration, and can transform infested areas into open badlands. It is a major weed of crops, pastures, and golf courses. Browsing animals, such as deer and domestic livestock, avoid this unpalatable grass giving it a competitive advantage. Sourgrass may be developing resistance to herbicides making it very difficult to control.

Dispersal Mechanism: Sourgrass produces large quantities of hairy seeds that can be carried long distances in the wind. It can also spread vegetatively via runners.

Origin, Distribution, and Habitat: Native to tropical America, sourgrass has been introduced throughout the Pacific. It has been introduced to Guam and the Northern Mariana Islands on the island of Saipan. It can invade many types of habitats including abandoned fields, roadsides, disturbed sites, savannah/badland, and limestone forest.

Cultivation: Sourgrass was most likely an unintentional introduction as an agricultural contaminant. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Guinea grass (*Urochloa maxima*) is a common invasive clump-forming grass (7'). Its large open flower heads (6"-2' long by 1' wide) are much larger than sourgrass. Its leaves grow up to 3' long. **THIS PLANT IS ALSO INVASIVE.**

Swordgrass (*Miscanthus floridulus*) is a common invasive grass on Guam and the Northern Mariana Islands. It is much larger than sourgrass (15' tall) and looks like a giant water fountain. Its flowers and seed heads are larger (18-20") than sourgrass. **THIS PLANT IS ALSO INVASIVE.**

WATER HYACINTH

Eichhornia crassipes



WATER HYACINTH

Eichhornia crassipes

FAMILY: Pontederiaceae

General Description: Water hyacinth is a large floating freshwater plant with spongy round leaves and showy purple flowers. Its leaves are waxy to the touch and have bladder-like stalks that keep the plant afloat. Flowers form clusters of 8-15. Its 3-celled seed capsules contain up to 300 minute seeds. It grows very densely, up to 144 metric tons of plants per acre, and can reach up to 3' in height above the water and 3' in growth below.

Impacts: Water hyacinth is a major threat to freshwater wetlands and waterways. Its dense growth can reduce water flow from ridge to reef, leading to shortages for human consumption and irrigation of taro fields. It can deoxygenate water, killing fish and other organisms, and impede access for humans and native water birds, such as the endangered Mariana common moorhen (*Gallinula chloropus guami*). Water hyacinth can increase mosquito habitat by providing larval breeding sites where mosquito predators cannot reach.

Dispersal Mechanism: Water hyacinth is moved long distances for use as an ornamental. It can reproduce vegetatively or via long-lived seeds. Small pieces of the roots break off to form new plants. A single plant can produce 3,000 new plants in 50 days. Improper disposal and contaminated fishing and farming equipment can unintentionally introduce plants to new areas.

Origin, Distribution, and Habitat: Native to the Amazon Basin of South America, water hyacinth was first introduced to Guam in 1946 and has become a widespread problem in wetlands and watersheds, such as at Agana Springs and Yabai wetlands. It has also been introduced to the Northern Mariana Islands on the islands of Rota and Saipan. It can spread in ponds, streams, and wetlands. American Memorial Park has made efforts to remove this species from native mangrove stands.

Cultivation: Water hyacinth is grown as an ornamental. It is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature and is believed to be the world's worst water weed. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

COGONGRASS

Imperata cylindrica

circular infestation

up to 6' tall leaves

Charles T. Byson, USDA Agricultural Research Service, Bugwood.org

'Red Baron' cultivar

Brightorange

sharp-pointed rhizome

round base stem

Eric Galtner

IRRI Images

GRASS/
HERB

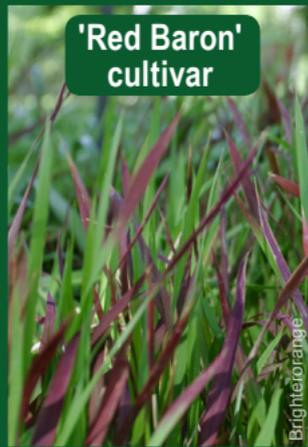
Forest & Kim-Starr (UH)

Maui Invasive Species Committee

Nancy Loewenstein, Auburn University, Bugwood.org

2-8"

Don't confuse with invasive elephant grass (left), which is taller (7-15'+) or fountain grass (right), which has a distinct fountain shape.



COGONGRASS

Imperata cylindrica

FAMILY: Poaceae

General Description: Cogongrass is a fast-growing grass. The base stems are round, unlike many other grasses and it has a sharp-pointed rhizome. Leaves start at the base of the plant, grow to 6', and have an off-center whitish midrib. Its large (2-8") fuzzy flower/seed heads have a cotton-like appearance.

Impacts: Cogongrass can form thick, usually circular, stands that crowd out native species, impede access, degrade grazing lands, and create fire hazards. Cogongrass can burn at hotter temperatures than most plants, increasing the intensity of fires. After a fire, exposed soils are prone to erosion potentially impacting nearby reefs. Browsing animals, such as deer and domestic livestock, avoid this unpalatable grass giving it a competitive advantage.

Dispersal Mechanism: Cogongrass can reproduce from seed and vegetatively spread by way of underground stems (rhizomes). It produces 3,000+ seeds per plant per year. Seeds have a high germination rate (95%) and can remain viable for up to a year. Rhizomes can grow 5-10' per year.

Origin, Distribution, and Habitat: Native to Southeast Asia, Philippines, China, and Japan, cogongrass has been introduced and become invasive worldwide, covering over 1.2 billion acres. It is widespread on Guam and the Northern Mariana Islands on the islands of Tinian and Saipan. It can be found in wetlands, savannah, forests, abandoned farmlands, and disturbed areas.

Cultivation: Cogongrass is considered one of the 100 worst invasive species in the world by the International Union for Conservation of Nature. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

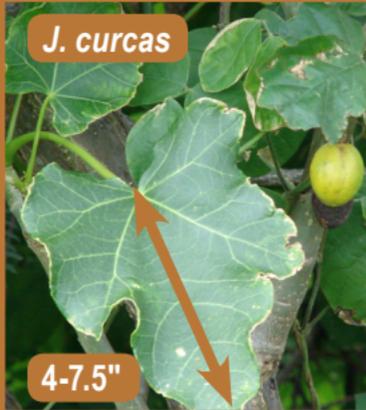
Don't confuse with:

Elephant grass (*Cenchrus purpureus*) has similar cream-colored flower/seed heads. It can be differentiated by its taller height (6-8'). **THIS PLANT IS ALSO INVASIVE.**

Fountain grass (*Cenchrus setaceus*) has similar flower/seed heads as cogongrass, but grows in a distinct clumping fountain shape. **THIS PLANT IS ALSO INVASIVE.**

JATROPHA

Jatropha curcas, *Jatropha gossypiiifolia*



Don't confuse with the invasive agaliya (castor bean), which can have similar leaves but has prickly fruit.



All images unless noted Forest & Kim Starr (UH)

R. K. Henning

SHRUB

JATROPHA

Jatropha curcas, *Jatropha gossypifolia*

FAMILY: Euphorbiaceae

General Description: *Jatropha* (tuba-tuba) are closely related large shrubs that can grow to 9' tall. Leaves have 3-5 points and are dull green with wavy margins (*J. curcas*, 4-7.5") or dark reddish-purple when young with pointed tips (*J. gossypifolia*, 2-6"). Flowers are small and yellow-green (*J. curcas*) or dark red with yellow-centers (*J. gossypifolia*) and grow on the ends of branches, mostly hidden by foliage. Both have thin green bark that produces large amounts of clear latex when broken or cut. Fleshy, green (*J. gossypifolia*, .5") or dry, dull yellow to brown (*J. curcas*, 1-1.5") fruit split open to reveal 2-3 black seeds.

Impacts: *Jatropha* can escape cultivation and form dense stands on pasture lands, disturbed areas, and natural forests. Plants contain allelochemicals that can inhibit the growth of other plants. Both species contain poisonous, strong purgatives that are a common cause of poisoning among people who ingest the fruits and seeds.

Dispersal Mechanism: *Jatropha* can reproduce quickly from seed and tuberous root suckering. Small pieces of branches and roots can grow into new plants. It has seeds that remain viable for 4 years or more.

Origin, Distribution, and Habitat: Native to tropical America, *Jatropha* have been introduced throughout the tropics. *Jatropha* has been introduced and is naturalized throughout Guam and the Northern Mariana Islands.

Cultivation: *Jatropha* is grown in many parts of the world as a biofuel and as hedges for fencing and foraging animals. Several parts of the plant are used in folk medicine in Africa. Both plants have been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Agaliya (*Ricinus communis*), also called castor bean, is a common weed of waste areas. It has leaves with 7-9 points that are similar to *Jatropha* species. Look for fruiting capsules that are covered in soft spines and clusters of male and female flowers. **THIS PLANT IS ALSO INVASIVE.**

LANTANA

Lantana camara



Don't confuse with invasive trailing lantana, which has solid-colored flowers.



All images Forest & Kim Starr (UH)

SHRUB

LANTANA

Lantana camara

FAMILY: Verbenaceae

General Description: Lantana is a branching thorny shrub that grows up to 10' with a woody 4-angled (square-shaped) stem. It has multi-colored florets of yellow, orange, pink, and violet and small blue-black spherical fruits. Its tear-shaped leaves grow in an opposite arrangement along the stem and have a spicy smell when rubbed.

Impacts: Lantana is considered a significant weed in 60 countries. It can form dense thickets that crowd out all other plants. Its shoots and roots contain allelopathic chemicals that can inhibit the growth of surrounding plants, potentially reducing the overall biodiversity and productivity in orchards and pasture land. Lantana has a thorny, impenetrable growth habit that can prevent access for people and animals.

Dispersal Mechanism: Lantana fruit, produced almost year-round, attract animals and birds that disperse seeds long distances. Mature plants can produce 12,000 seeds every year. Lantana can also spread vegetatively when stems come into contact with the soil.

Origin, Distribution, and Habitat: Native to southern Mexico, Central America, northern South America, and the Caribbean, lantana has been spread throughout the tropics. It has been introduced and is widespread throughout Guam and the Northern Mariana Islands. Lantana can grow in a variety of habitats and on all types of well drained soil in areas that receive approximately 10-115" of rainfall.

Cultivation: A cultivated form of lantana with no thorns, a compact habit, and fewer seeds is a popular ornamental plant. Due to the unpredictable nature of cross-breeding with weedy forms, planting this cultivated form is highly discouraged. Lantana has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Trailing lantana (*Lantana montevidensis*) is a popular garden plant. It has solid-colored purple or yellow flowers and lacks prickles. **THIS PLANT IS ALSO INVASIVE.**

PEPPERGRASS *Lepidium virginicum*



GRASS/
HERB

PEPPERGRASS

Lepidium virginicum

FAMILY: Brassicaceae

General Description: Peppergrass is a fast-growing herb that reaches 20". When young, its leaves form a rosette (circular arrangement) of deeply lobed leaves that wither and disappear as the plant grows a stalk. Leaves growing along the upper stalk grow in an alternating pattern and are shorter, skinnier, and without indentations. The top third of the plant is branched. Its small white flowers grow in a "bottlebrush" arrangement at the tips of the branches. It has small flat fruits with a "winged" structure around the edge. All parts of the plant have a peppery taste.

Impacts: Peppergrass is a pest of agriculture competing with crops for moisture and light. Plants can act as hosts for pests of lettuce and other related crops. Consumption of leaves by livestock can taint the flavor of milk. It may be developing resistance to herbicides making it very difficult to control.

Dispersal Mechanism: Peppergrass reproduces by seed. It is moved long distances as a contaminant of seeds and hay.

Origin, Distribution, and Habitat: Native from the eastern United States down to Central America, peppergrass has been spread throughout the world. It is found on Guam and the Northern Mariana Islands on the islands of Saipan and Tinian. It is most common in disturbed areas, yards, crops, and along roadsides.

Cultivation: Peppergrass was most likely an unintentional introduction. Young leaves are edible. It has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

GIANT SENSITIVE PLANT

Mimosa diplotricha



Don't confuse with betguen sosa (sensitive plant). Look for a much smaller plant with more sensitive leaves.



SHRUB

GIANT SENSITIVE PLANT

Mimosa diplotricha

FAMILY: Fabaceae

General Description: Giant sensitive plant is a fast-growing sprawling shrub or climbing vine that grows up to 9'. It has bright green feathery compound leaves that will close-up when disturbed and at night. It has green to purplish stems that are 4-angled (square-shaped) with recurved thorns along its length. Its pale pink puff-ball flowers grow at the base of the leaf stem. It forms small green seed pods in clusters that are covered with thorns.

Impacts: Giant sensitive plant is considered one of the worst weeds of plantations in Fiji and the Philippines. It can form impenetrable thorny thickets overgrowing other plants and reducing flower and fruit production of species critical to native birds and bats. It can impede access to waterways and pastures for humans, livestock, and other animals. Its thorniness makes it a pest of agriculture by making harvest more difficult. Plants can be a fire hazard when the leaves are dry.

Dispersal Mechanism: Giant sensitive plant seed pods are covered in small thorns that can hitchhike on clothing, animal fur, bird feathers, and equipment. It can also be dispersed by streams and water movement. It produces prolific amounts of seeds (750-1,115/ft²). Plants can reproduce when only a few weeks old.

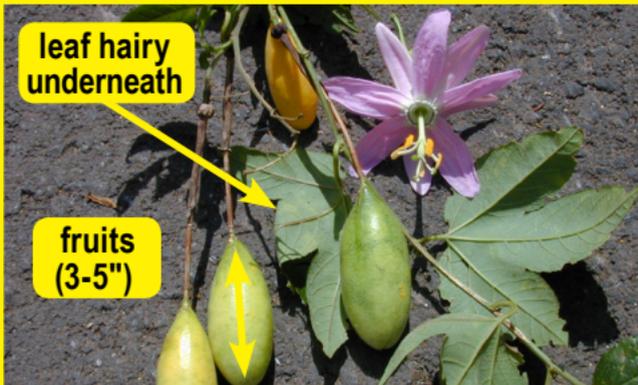
Origin, Distribution, and Habitat: Native to Brazil, giant sensitive plant has been introduced throughout the tropics. It is found in the Northern Mariana Islands on the islands of Rota, Saipan, and Tinian. It grows in agricultural areas, pastures, marshes, waterways, and along roadsides.

Cultivation: Giant sensitive plant has been classified as "High Risk" by the Hawaii-Pacific Weed Risk Assessment and should not be cultivated.

Don't confuse with:

Betguen sosa (*Mimosa pudica*), also called sensitive plant, is a nonnative plant (8-40" tall) with sensitive feathery leaves, a red-brown or purple stem, and thorny seed pods. It is found on Guam and the Northern Mariana Islands on the island of Tinian. It is much smaller than giant sensitive plant and has more sensitive leaves. **THIS PLANT IS ALSO INVASIVE.**

BANANA POKA *Passiflora tarminiana*



Many nonnative passion fruit species are found in Guam and the Northern Mariana Islands. None have the tubular pink flower and oblong yellow fruit like banana poka.



VINE

BANANA POKA

Passiflora tarminiana

FAMILY: Passifloraceae

General Description: Banana poka is an aggressive woody vine in the passion fruit family that can grow up to 60' high. It has conspicuous tubular pink flowers (2.4-4.5" across) that hang down from the vine and oblong yellow fruits (3-5" long) filled with an orange pulp and black seeds. Leaves of this vine have 3 deep lobes and are hairy underneath and hairless on top.

Impacts: Banana poka vine can grow into the forest canopy where it may smother vegetation and prevent sunlight from reaching the forest floor, potentially affecting natural regeneration and native diversity. It can also grow over man-made structures and archaeological sites. Its seeds have high rates of germination (up to 220,000 seedlings per acre), both in sunny, open areas and shady, forested areas. Feral pigs may cause damage beneath plants while foraging for banana poka fruits.

Dispersal Mechanism: The fruits of banana poka are eaten by feral animals, such as pigs, and many types of birds that can carry the seeds long distances.

Origin, Distribution, and Habitat: Banana poka is native to the Andes Mountains and has been spread throughout the tropics as a garden plant. It is considered one of the worst invasive pests of New Zealand and Hawaii. It is widely naturalized on Guam but has not yet spread throughout the Northern Mariana Islands. It can grow in a wide variety of climates and to over 7,000' elevation in its home range.

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

Don't confuse with:

Many nonnative passion fruit (*Passiflora* spp.) species are found in Guam and the Northern Mariana Islands, some of which are considered invasive. Banana poka can be distinguished by its tubular pink flowers and oblong yellow fruit. **SOME SPECIES ARE ALSO INVASIVE.**

AGALIYA *Ricinus communis*



Ton Rulkens



seeds (.2-.6")

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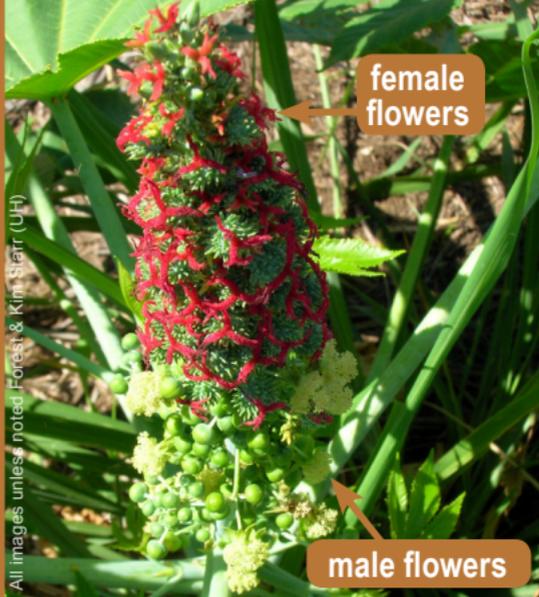
fruits (.4-.8")



3-15'



Wilfredo Rodriguez



female flowers

male flowers



up to 16"

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

All images unless noted Forest & Kim Starr (UH)

SHRUB

AGALIYA

Ricinus communis

FAMILY: Euphorbiaceae

General Description: Agaliya (castor bean) is a shrub that can grow to tree-like heights (3-15' tall). It has large (up to 16" long) palmate-shaped leaves with 7-9 pointy lobes that all radiate from one point. Plants have different colored male and female 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: Agaliya 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: Agaliya 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, agaliya was spread around the world as an oil-producing crop and an ornamental. It can be commonly observed in Guam and all the Northern Mariana Islands in disturbed areas, such as vacant urban lots, forest edges, roadsides, and waste areas.

Cultivation: Agaliya 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 called yucca or tapioca, is another nonnative in the Euphorbiaceae family that has similarly shaped leaves. 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 agaliya).