

INVASIVE SPECIES

THREATS TO WAR IN THE PACIFIC NATIONAL HISTORICAL PARK & AMERICAN MEMORIAL PARK



National Park Service
U.S. Department of the Interior



2013 CALENDAR



**Pacific
Ocean**

WWII Valor in the Pacific
National Monument (VALR)

Kalaupapa NHP
Moloka'i (KALA)

Haleakalā NP
Maui (HALE)

Pu'ukoholā Heiau NHS
Hawai'i (PUHE)

Kaloko-Honokōhau NHP
Hawai'i (KAHO)

Pu'uhonua o Hōnaunau NHP
Hawai'i (PUHO)

Ala Kahakai NHT
Hawai'i (ALKA)

Hawai'i
Volcanoes NP
Hawai'i (HAVO)

American
Memorial Park
Saipan
(AMME)

War in the Pacific NHP
Guam (WAPA)

National Park of
American Samoa
(NPSA)

PACIFIC ISLAND NETWORK

(PARK UNITS IN RED;
NOT TO SCALE)

Invasive Plant Species: a Threat to Our Islands

ISLAND ECOSYSTEMS are vulnerable to invasion because of the unique species and habitats that evolved in isolation from the rest of the world. Most nonnative plants introduced by people pose no significant threat to native ecosystems, but some nonnative species can establish, spread and permanently alter our coastlines and forests. Plants that become established and spread into native habitats are called invasive.

Invasive plants may reduce native plant diversity and abundance, alter vegetation structure, and can lead to significant economic and cultural costs. In Hawaii alone, invasive species are estimated to have cost \$500 million through lost agriculture and property damage. Once established, invasive plants are difficult to control, making prevention and early detection our best hope for protecting our parks.

This calendar features 12 invasive plants. These species are likely to severely impact the native plant communities if they become established. **You can help stop the spread of invasive species by:**

- **being vigilant with new and unusual plants that you do not recognize, start by learning these 12 invaders**
- **cleaning boots, gear and vehicles to stop the spread of invasive seeds, especially in native plant communities**
- **planting and restoring native species and habitats**
- **properly disposing of compost, agricultural, and garden waste that may contain nonnative seeds**
- **never planting or transporting invasive species**

Please use the information in this calendar to help spread the word on the problems invasive species present to the park. An engaged, informed and alert park staff and public remains one of the best ways to detect and prevent the spread of invasive species, and protect our island home.

The Pacific Island Network Inventory and Monitoring Program assists national parks in locating nonnative plants as part of its mission to monitor selected park resources.

TO REPORT AN INVASIVE SPECIES:

Within War in the Pacific National Historical Park (Guam) & American Memorial Park (Saipan):

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Pacific Island Network Inventory & Monitoring Program

PO Box 52
Hawaii National Park, HI 96718
(808) 985-6185 phone
(808) 985-6111 fax
<http://science.nature.nps.gov/im/units/pacn/>

FOR MORE INFORMATION ON INVASIVE SPECIES:

SPREP – PEIN: Guam & Northern Mariana Islands
<http://www.sprep.org/Guam/guam-pein>

[http://www.sprep.org/Northern-Mariana-Islands/
pein-country-profile-and-virtual-environment-library](http://www.sprep.org/Northern-Mariana-Islands/pein-country-profile-and-virtual-environment-library)

Western Micronesia Regional Invasive Species Council
http://www.guaminsects.net/gisac/index.php?title=Main_Page

Micronesia Regional Invasive Species Council (RISC) Report
[http://guammces.info/files/17thSummitPresentations/Regional%20
Invasive%20Species%20Council%20%28RISC%29.pdf](http://guammces.info/files/17thSummitPresentations/Regional%20Invasive%20Species%20Council%20%28RISC%29.pdf)

Front Cover Photo:
Forest & Kim Starr (UH)
Lantana (*Lantana camera*)

Back Cover Photo:
Forest & Kim Starr (UH)
Sourgrass (*Digitaria insularis*)



cogongrass

Imperata cylindrica

Be on the lookout for this
INVASIVE SPECIES



PHOTO: John Tann

► Fuzzy flower/seed head has a cotton-like appearance.



PHOTO: Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, Bugwood.org

▲ Off-center whitish midrib.

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.

PHOTO: Ahmad Fuad Morad

cogongrass

Imperata cylindrica

January 2013



SPECIES TYPE & ORIGIN: Cogongrass is a perennial grass native to Southeast Asia, Philippines, China, and Japan.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

HOW TO HELP: Report potential sightings within War in the Pacific National Historical Park (Guam) or American Memorial Park (Saipan):

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 <i>New Year's Day</i>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21 <i>Martin Luther King, Jr. Day</i>	22	23	24	25	26
27	28	29	30	31		



sourgrass

Digitaria insularis

Be on the lookout for this
INVASIVE SPECIES



◀ Seed head.

PHOTO: Forest & Kim Starr (UH)



PHOTO: Forest & Kim Starr (UH)

▲ Long flat leaves.

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.

PHOTO: Forest & Kim Starr (UH)



sourgrass

Digitaria insularis

February 2013



SPECIES TYPE & ORIGIN: Sourgrass is a perennial grass in the crabgrass genus. It is native to tropical America.

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.

LOCAL DISTRIBUTION & HABITAT: Sourgrass occurs 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.

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.

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.

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 <i>Groundhog Day</i>
3	4	5	6	7	8	9
10	11	12	13 <i>Ash Wednesday</i>	14 <i>Valentine's Day</i>	15	16
17	18 <i>President's Day</i>	19	20	21	22	23
24	25	26	27	28		



rubber vine

Cryptostegia grandiflora

Be on the lookout for this
INVASIVE SPECIES



◀ Paired seed pods are rigid and appear at the end of the stalk.

PHOTO: Tatiana Gerus



PHOTO: Jayesh Patil

▲ Funnel-shaped 5-petaled flowers.

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.

PHOTO: Forest & Kim Starr (UH)

rubber vine

Cryptostegia grandiflora

March 2013



SPECIES TYPE & ORIGIN: Rubber vine is a woody vine native to Madagascar.

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.

LOCAL DISTRIBUTION & HABITAT: Rubber vine 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.

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%).

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.

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10 <i>Daylight Savings Time Begins</i>	11	12	13	14	15	16
17 <i>St. Patrick's Day</i>	18	19	20 <i>Spring Begins</i>	21	22	23
24 <i>Palm Sunday</i>	25	26	27	28	29 <i>Good Friday</i>	30
31 <i>Easter</i>						



lantana

Lantana camara

Be on the lookout for this
INVASIVE SPECIES



► Distinctive multi-colored florets.

PHOTO: Forest & Kim Starr [UH]



PHOTO: Forest & Kim Starr [UH]

▲ Thorny stems, tear-shaped leaves, and small spherical fruits.



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.

PHOTO: Forest & Kim Starr [UH]

lantana

Lantana camara

April 2013



SPECIES TYPE & ORIGIN: Lantana is a shrub native to southern Mexico, Central America, northern South America, and the Caribbean.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

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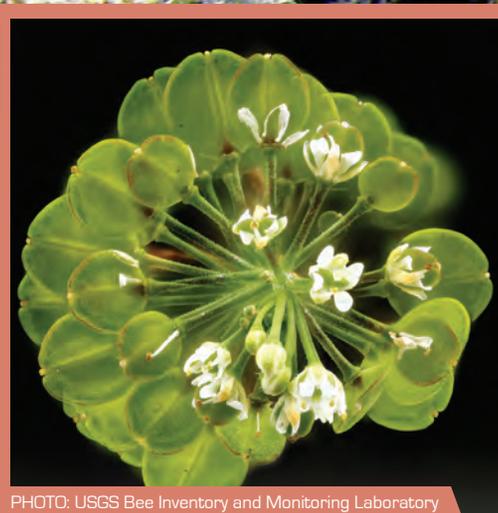
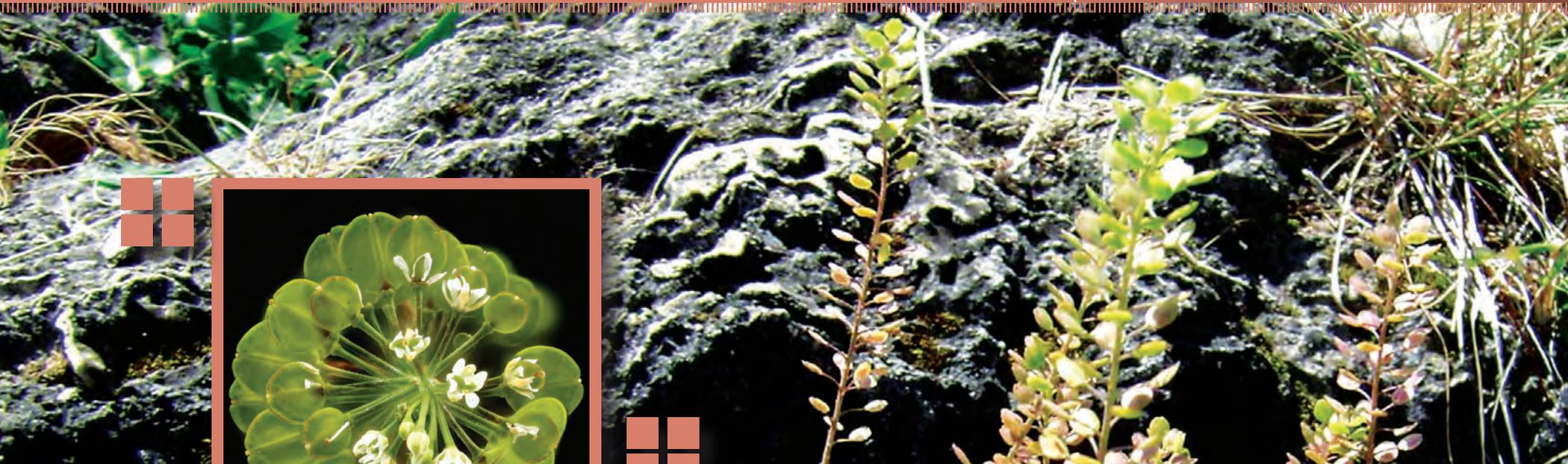
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22 <i>Earth Day</i>	23	24	25	26 <i>Arbor Day</i>	27
28	29	30				



peppergrass

Lepidium virginicum

Be on the lookout for this
INVASIVE SPECIES



► Seeds and white flowers.

PHOTO: USGS Bee Inventory and Monitoring Laboratory

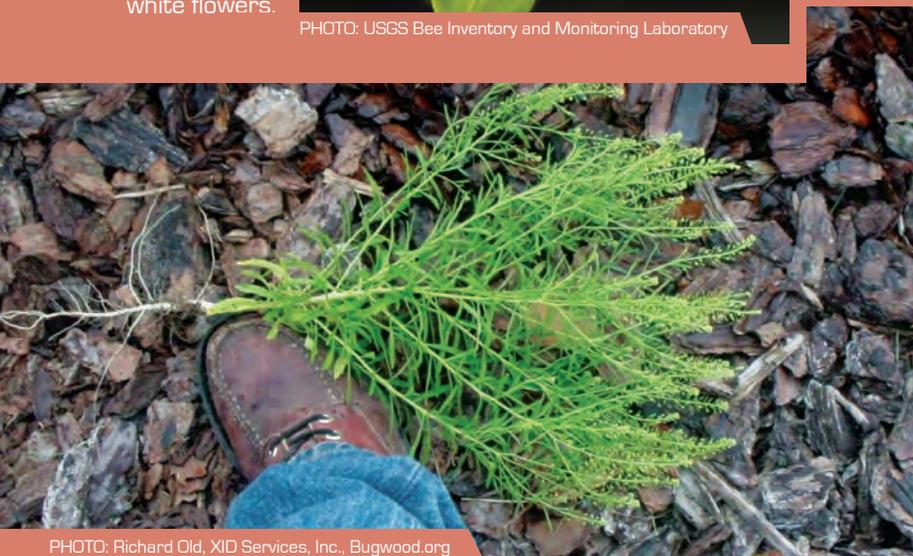


PHOTO: Richard Old, XID Services, Inc., Bugwood.org

▲ Branching habit.



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.

PHOTO: Tau'olunga

peppergrass

Lepidium virginicum

May 2013



SPECIES TYPE & ORIGIN: Peppergrass is an annual or biennial grass in the mustard family. It is native from the eastern United States down to Central America.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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

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.

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 <i>May Day</i>	2	3	4
5	6	7	8	9	10	11
12 <i>Mother's Day</i>	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27 <i>Memorial Day</i>	28	29	30	31	



water hyacinth

Eichhornia crassipes

Be on the lookout for this
INVASIVE SPECIES



► Showy purple flowers form in clusters.

PHOTO: Cayobo



PHOTO: Forest & Kim Starr (UH)

▲ Bladder-like stalk keeps plant afloat.

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.

PHOTO: Forest & Kim Starr (UH)

water hyacinth

Eichhornia crassipes

June 2013



SPECIES TYPE & ORIGIN: Water hyacinth is a perennial aquatic plant native to the Amazon Basin of South America.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

DISPERSAL MECHANISM: Plants are 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.

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.

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14 <i>Flag Day</i>	15
16 <i>Father's Day</i>	17	18	19	20	21 <i>Summer Begins</i>	22
23	24	25	26	27	28	29
30						



tuba-tuba (physic nut), cotton-leaved physic nut

Jatropha curcas, *Jatropha gossypifolia*

Be on the lookout for this
INVASIVE SPECIES



PHOTO: Marco Schmidt



◀ Dark red flower, fruit, and young leaves (*J. gossypifolia*).



PHOTO: Forest & Kim Starr [UH]

▲ Fruits split open to reveal 2-3 black seeds.

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.

tuba-tuba
(physic nut),
cotton-leaved
physic nut

Jatropha curcas,
Jatropha gossypifolia

SPECIES TYPE & ORIGIN: *Jatropha* are shrubs in the spurge family. They are native to tropical America.

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.

LOCAL DISTRIBUTION & HABITAT: *Jatropha* have been introduced throughout the tropics. They are naturalized throughout Guam and the Northern Mariana Islands.

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.

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.

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July 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4 Independence Day	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



Spanish needles

Bidens pilosa

Be on the lookout for this
INVASIVE SPECIES



◀ Flower and seed head.

PHOTO: John Poulakis



PHOTO: Forest & Kim Starr (UH)

▲ Seeds can hitchhike on clothing, fur, and feathers.

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.

PHOTO: Reinaldo Aguilar

Spanish needles

Bidens pilosa

August 2013



SPECIES TYPE & ORIGIN: Spanish needles is an annual herb native to the tropical Americas.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

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				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31



agaliya (castor bean)

Ricinus communis

Be on the lookout for this
INVASIVE SPECIES



► Flowers on upright spikes.

PHOTO: Forest & Kim Starr (UH)

PHOTO: Sedum

▲ Seeds contain ricin and are highly poisonous.

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).

PHOTO: Forest & Kim Starr (UH)

agaliya (castor bean)

Ricinus communis

September 2013



SPECIES TYPE & ORIGIN: Agaliya is a shrub in the spurge family. It is native to Asia and Africa.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

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1	2 <i>Labor Day</i>	3	4	5	6	7
8 <i>Grandparent's Day</i>	9	10	11	12	13	14
15	16	17	18	19	20	21
22 <i>Fall Begins</i>	23	24	25	26	27	28
29	30					



mongos halum-tano (Indian shot)

Canna indica

Be on the lookout for this
INVASIVE SPECIES



► Showy red lily-like flower.



PHOTO: Maja Dumat



PHOTO: Forest & Kim Starr (UH)

▲ Small black seeds resemble shotgun pellets and are heavy enough to sink in water.

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.

PHOTO: Forest & Kim Starr (UH)

mongos
halum-tano
(Indian shot)

Canna indica

SPECIES TYPE & ORIGIN: Mongos halum-tano is a perennial herb native to temperate and tropical America.

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).

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

HOW TO HELP: Report potential sightings within War in the Pacific National Historical Park (Guam) or American Memorial Park (Saipan):

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tel. 671-477-7278 x1010

Jenny Coffman Jenny_Coffman@nps.gov
tel. 671-477-7278 x1014

October 2013



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14 <i>Columbus Day</i>	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31 <i>Halloween</i>		



fountain grass

Cenchrus setaceus

Be on the lookout for this
INVASIVE SPECIES



PHOTO: Forest & Kim Starr (UH)



► Leaves do not form flat “blades” like most leaves; they are long and round like wire.



PHOTO: Forest & Kim Starr (UH)

▲ Grows in clumps with long purple to yellow “spikes” that are the flower / seed heads.

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.

PHOTO: Eric Guinther

fountain grass

Cenchrus setaceus

November 2013



SPECIES TYPE & ORIGIN: Fountain grass is a perennial bunch grass native to Africa.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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.

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.

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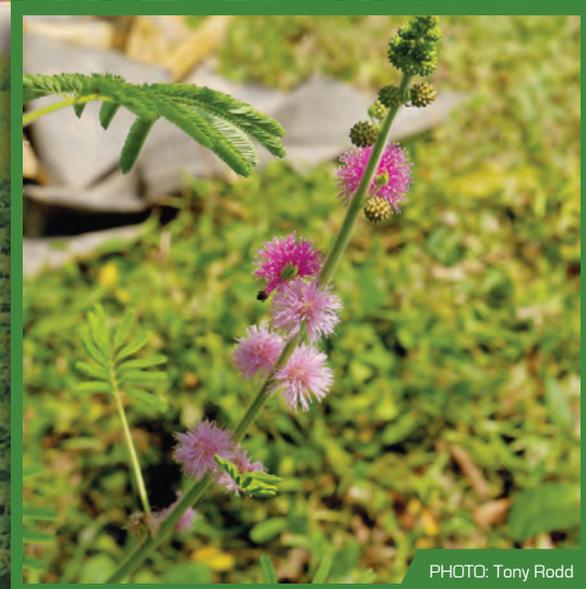
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3 <i>Daylight Saving Time Ends</i>	4	5	6	7	8	9
10	11 <i>Veteran's Day</i>	12	13	14	15	16
17	18	19	20	21 <i>Thanksgiving</i>	22	23
24	25	26	27	28 <i>Hanukkah Begins</i>	29	30



giant sensitive plant

Mimosa diplotricha

Be on the lookout for this
INVASIVE SPECIES



◀ Pink puff-ball flowers.

PHOTO: Tony Rodd



PHOTO: Challiyan

▲ “Sensitive” leaves will close when touched.

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.

PHOTO: Challiyan

giant sensitive plant

Mimosa diplotricha

December 2013



SPECIES TYPE & ORIGIN: Giant sensitive plant is a shrub in the legume family. It is native to Brazil.

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.

LOCAL DISTRIBUTION & HABITAT: 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.

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 per square foot). Plants can reproduce when only a few weeks old.

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

HOW TO HELP: Report potential sightings within War in the Pacific National Historical Park (Guam) or American Memorial Park (Saipan):

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tel. 671-477-7278x1010

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 Hanukkah	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21 Winter Begins
22	23	24	25 Christmas	26	27	28
29	30	31				



TO REPORT AN INVASIVE SPECIES:

Within War in the Pacific National Historical Park (Guam) & American Memorial Park (Saipan):

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FOR MORE INFORMATION ON INVASIVE SPECIES:

SPREP – PEIN: Guam & Northern Mariana Islands
<http://www.sprep.org/Guam/guam-pein>

[http://www.sprep.org/Northern-Mariana-Islands/
pein-country-profile-and-virtual-environment-library](http://www.sprep.org/Northern-Mariana-Islands/pein-country-profile-and-virtual-environment-library)

Western Micronesia Regional Invasive Species Council

[http://www.guaminsects.net/gisac/index.
php?title=Main_Page](http://www.guaminsects.net/gisac/index.php?title=Main_Page)

Micronesia Regional Invasive Species Council (RISC) Report

[http://guammces.info/files/17thSummit
Presentations/Regional%20Invasive%20
Species%20Council%20%28RISC%29.pdf](http://guammces.info/files/17thSummitPresentations/Regional%20Invasive%20Species%20Council%20%28RISC%29.pdf)

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Calendar Design: Hagadone Printing



▶ COGONGRASS



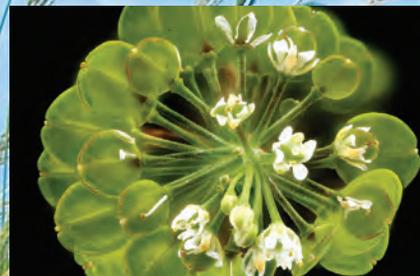
▶ SOURGRASS



▶ RUBBER VINE



▶ LANTANA



▶ PEPPERGRASS



▶ WATER HYACINTH



▶ TUBA-TUBA (PHYSIC NUT),
COTTON-LEAVED PHYSIC NUT



▶ SPANISH NEEDLES



▶ AGALIYA (CASTOR BEAN)



▶ MONGOS HALUM-TANO
(INDIAN SHOT)



▶ FOUNTAIN GRASS



▶ GIANT SENSITIVE PLANT