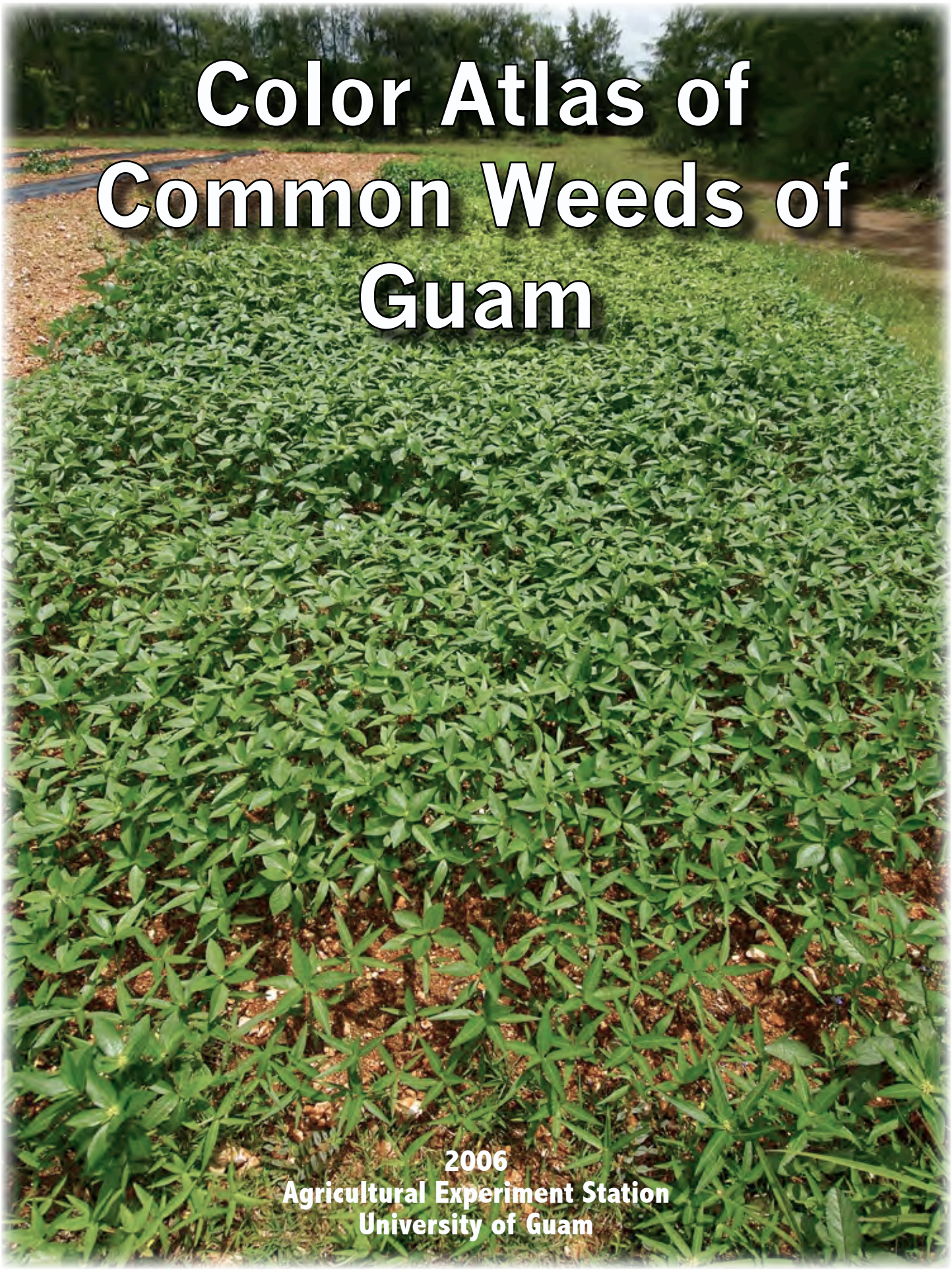
Color Atlas of Common Weeds of Guam



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Special thanks to Ross Miller for reviewing this guide.

About the Cover

This is a recently plowed vegetable field in Yigo, Guam. A natural infestation of *Euphorobia heterophylla* grew throughout the field.

Color Atlas of Common Weeds of Guam

Contents

INTRODUCTION

A weed is any plant growing in an area where it is not wanted. We try to control weeds because they compete with crops for light, moisture, space and nutrients. Certain weed species can harbor plant diseases and insect pests. Other species may be poisonous, allergenic or irritant to humans and/or livestock. Medical and economic problems such as illness, death, rashes, hay fever, or a reduction in quality of fur, meat and milk products may result.

Weeds have many unique characteristics which make them extremely difficult to control. Most produce a tremendous number of seeds. The seeds of some weed species may remain dormant for many years, with only a small percentage germinating each year. Weeds often mature earlier than the crop and often seeds will be dropped before or during crop harvest and remain in the field. Weeds are often more competitive than crops and can survive under unfavorable growing conditions.

The most effective, economical, and ecologically sound approach to managing invasive plants is to prevent them from invading. Early identification of emerged weed species is critical for choosing the best weed control method. Land managers often concentrate on fighting well-established infestations, at which point management is expensive and eradication is unlikely.

Infestations must be managed to limit the spread of invasive plants, but weed management that controls existing infestations while focusing on prevention and early detection of new invasions can be far more cost-effective. Successful weed management depends on:

- Proper identification of weeds
- Limiting the introduction of weed seeds
- Early detection and eradication of small patches of weeds
- Minimizing the disturbance of desirable plants along trails, roads, and waterways
- Maintaining desired plant communities through good management
- Monitoring high-risk areas such as transportation corridors and bare ground
- Replanting disturbed sites with desired plants
- Evaluating the effectiveness of prevention efforts and adapting plans for the next planting.

The best weed control program will not rely on one control method, but rather will integrate several methods of weed control. Prevention is the most practical and economical form of weed control. Always use certified seed, clean off farm implements when travelling from field to field, control weeds in fence lines, right-of-ways, irrigation ditches, etc. Be alert for new weeds on your farm, so they can be controlled before they become a serious problem. Mechanical control may utilize hoeing, timely cultivation (excellent for seedlings and annuals), and mowing to prevent seed production. Cultural control may utilize techniques such as proper grazing management, good soil fertility practices, proper drainage, rotation and choosing good competitive crop varieties to encourage maximum crop competition. Biological control is the control of weeds with plant pathogens or insects. Chemical control utilizes various herbicides to control weeds. Weeds must be correctly identified in order to select a herbicide that will be effective. Herbicides will be most effective on weeds during the seedling stage or just prior to flowering (bud stage). Remember to always read the label of the herbicide to determine crops registered, weeds controlled and safety precautions.

ABOUT THIS GUIDE

The weeds in this guide are grouped into three categories: Broadleaf, Vines, Sedges/Grasses. Within a category, the weeds are arranged alphabetically, by Genus. Each weed has two pages containing photographs of identifying characteristics of the weed at various stages of growth. The front page has

a table covering names and origin of the plant. The back page includes a table with descriptions of vegetative and floral characteristics, any information on the propagation of the plant which may help to control it, and fungal pathogens identified in Guam. The information included for a specific plant may vary, depending on available information. The appendices follow the main section and contains several sections. First, is a glossary of botanical terms. The next is a collection of drawings of plant parts to help in understanding the botanical terms. The third section contains photographs of herbarium specimens. Some plants have than one specimen, to show variation in habit and leaves and to show root growth. The remaining sections are tables. First is a list of common names, second is a list of the weeds identified by flower color. Grasses are excluded from this list due to their small flower size. The last two tables are summaries of surveys conducted on farms and nurseries in various villages in Guam.

DESCRIPTION OF WEED PAGES

Below are descriptions of the content of the tables on the front and back of the weed pages. The next two pages show a labeled sample of the weed descriptions.

SCIENTIFIC NAME:	*Genus species* (Author)
ROOT WORD:	The origins of the name.
COMMON NAME:	Common names found in Guam. The name “masigsig” refers to weeds generally.
SYNONYM:	Other scientific names associated with this species.
ORIGIN:	Where the species was originally found.

(FRONT TABLE)

FORM:	A description of the growth habit of a mature plant.
ROOT:	A description of underground structures, with an emphasis on vegetatively propagated organs.
STEM:	A description of the immature and mature supportive structure..
LEAVES:	A description of the vegetative characteristics of the leaves such as the leaf margins and presence (absence) of hair.
INFLORESCENCE:	A description of the flowering part of the plant, including the arrangement of the individual flowers.
FLOWER:	A description of the reproductive organ of the plant. This is often a key component in taxonomic keys.
FRUIT:	A description of the type of structure that holds seeds including color and other characteristics of the mature fruit
SEED:	A description of the mature seed. There is also a photograph of the seed with the relative size.
HABITAT:	A description of the environments in which the weed was commonly found.
PROPAGATION:	Noteworthy means by which the weed increases its numbers.
USES:	Descriptions of ways people may use this plant.
FUNGAL PATHOGENS:	Scientific names of fungal organisms that were observed to infect weeds in Guam.
MISCELLANEOUS:	Any additional notes on the weeds such as distribution, dates and locations first reported in the Pacific Islands.

(BACK TABLE)

Weed Category	Letter Code	Color Code
Broadleaves	A	
Vines	B	
Sedges/Grasses	C	

Weed Number
A=Broadleaves
B=Vines
C=Sedges/Grasses
The number is a sequential number in this collection of weeds.

Genus

Species

Family

WEEDS OF GUAM

Amaranthus viridis

Amaranthaceae

Weed #A4

Inflorescence branched, often tinged red

Alternate leaf arrangement

Closeup of male and female flowers intermixed throughout inflorescence

SCIENTIFIC NAME: *Amaranthus viridis* L.
ROOT WORD: amarantos = unfading, viridis = green
COMMON NAME: Slender Amaranth, Green Amaranth
VERNACULAR: Kilites Apaka
SYNONYM: *Amaranthus gracilis* Desf. ex Poiret.
SIMILAR SPECIES: *Amaranthus spinosus* L.
ORIGIN: probably native to Old World tropics, early introduction to Pacific Islands

Weed Category	Letter Code	Color Code
Broadleaves	A	
Vines	B	
Sedges/Grasses	C	

Genus

Species

Amaranthus viridis

Leaves simple with conspicuous venation

A. viridis seedlings

Stems are often reddish maroon and striated

Leaf apex has a short spiny tip

Seed (left), fruit (right)

FORM:	erect, branched (often) herb
ROOT:	long, thick taproot, fleshy
STEM:	green to reddish (often), grooved lengthwise, glabrous or pubescent
LEAVES:	alternate, simple, ovate to rhombic; surfaces glabrous (mostly), lower surfaces pilose along veins (often); margins entire; leaf tip mucronate (short spiny tip); petioles pink (often)
INFLORESCENCE:	in lower axils compact cymose clusters, in upper axils and terminating plant apex with spike like panicles
FLOWER:	green, minute, unisexual, monoecious, both sexes intermixed on spikes with pistillate flowers more numerous; corolla absent; sepals 3-4 subtended by 2 tiny bracteoles, bracts and bracteoles whitish and membranous with short pale or reddish awns; female flowers: style 1, stigmas 2-3; male flowers: stamens 3
FRUIT:	utricle, subglobose, rugose (wrinkled surface), ruptures irregularly, beaked, one seeded
SEED:	dark brown to black, shiny, compressed slightly; 230,000-500,000 seeds per large plant, can seed when 1 cm. in height; seed dispersed by wind, water, birds, insects, manure, farm machinery; crop seed contaminant
HABITAT:	disturbed areas, croplands, roadsides, landscaped areas, waste areas, ditch banks, facultative upland, exposed/sunny areas, moist areas; ability to survive arid conditions
PROPAGATION:	seeds; optimum soil depth of 1 cm.; high moisture results in best responses; variable germination; regrowth from lower nodes reduces the effectiveness of hand, mechanical weeding if root system not completely removed
USES:	edible, among oldest food crops of New World, leaves cooked, eaten like spinach; herbal
FUNGAL PATHOGENS:	*Colletotrichum*
MISCELLANEOUS:	tree sparrows *(Passer montanus)* feed on; contains betalain pigment instead of anthocyanins found in most angiosperms; reported to have nodule-like structures on root/stem (unknown microorganisms, possibly nitrogen fixing); illness/death reports as result of Slender Amaranth ingestion (oxalates: sheep, hogs, young calves), toxic; "in Pacific as of 1954, not specific to Guam, generic to Pacific"(Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world.* The MacMillan Co., NY.

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Weeds of Guam

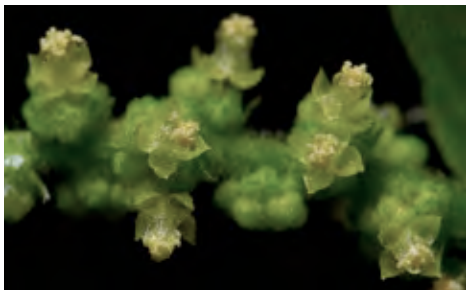
Acalypha indica

Euphorbiaceae

Weed #A1

Leaf margins are serrate. Venation is prominent on leaf underside

Axillary inflorescence showing toothed bracts that enclose female flowers



Male flowers located on upper section of inflorescence

Developing fruit in bracts

Abnormal female flower located at tip of inflorescence

SCIENTIFIC NAME: *Acalypha indica* L.

ROOT WORD: acalypha = nettle; indica = plants originating from India, East Indies, China

COMMON NAME: Acalypha

VERNACULAR: Hierba Del Cancer

SIMILAR SPECIES: *Acalypha lanceolata* Willd.

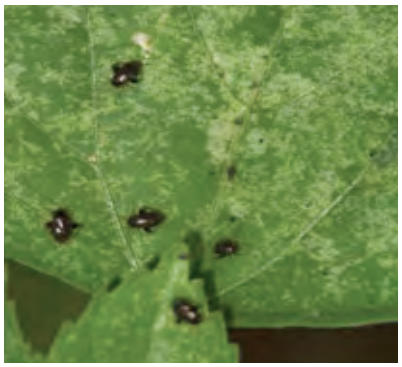
ORIGIN: Paleotropical

Acalypha indica

Root system is fibrous and has a powerful catnip appeal to cats

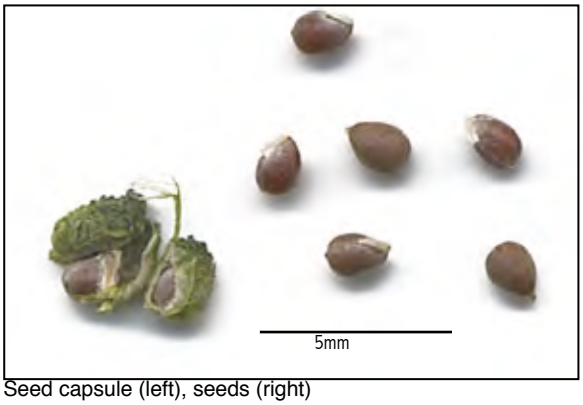
Stems grooved lengthwise

Alternate leaf arrangement with long petioles



Leaf stippling by flea bugs cause the leaves to look whitish silver

A. indica seedlings



Seed capsule (left), seeds (right)

FORM:	small, erect herb with ascending branches
ROOT:	fibrous, easily removed by hand weeding
STEM:	longitudinally grooved, pubescent, base becoming woody
LEAVES:	alternate, simple, ovate; margins serrate; surfaces glabrous; nerves pubescent, 3-5 at base then pinnately arranged, veins prominent on leaf underside; leaf topside dark green, leaf underside pale green; stipules minute; petioles long, pubescent
INFLORESCENCE:	flowers sessile on erect axillary spikes
FLOWER:	apetalous, unisexual; female flowers: on lower inflorescence axis, subtended by a toothed green bract, one abnormal female flower also located distally on a long filament; styles: 3, divided into filiform stigmas; male flowers: minute, crowded distally**,** stamens 8
FRUIT:	schizocarp, hispid, 3-lobed
SEED:	ovoid, light brown to tan
HABITAT:	waste ground, yards, landscaped areas, facultative upland; tolerates some shade, common on limestone soils, ability to survive arid conditions
PROPAGATION:	seed; regrowth results if root system not completely removed
USES:	herbal, catnip (roots)
FUNGAL PATHOGENS:	*Septoria*
MISCELLANEOUS:	toxic

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Weeds of Guam

Alysicarpus vaginalis

Fabaceae

Weed #A2

Subfamily: Papilionoideae

A pair of persistant, papery stipules subtend each leaflet

Inflorescence is an erect raceme

Standard petal is large with yellow markings at its base

The wings and keel petals open to expose the reproductive organs

SCIENTIFIC NAME: *Alysicarpus vaginalis* (L.) DC.

ROOT WORD: halysis = chain; carpus = fruited; vaginalis = sheathed

COMMON NAME: One Leaf Clover, White Moneywort, Alysicarpus

SYNONYM: *A. nummularifolius* sensu Merrill, *Hedysarum vaginale* L.

ORIGIN: Native to tropical America

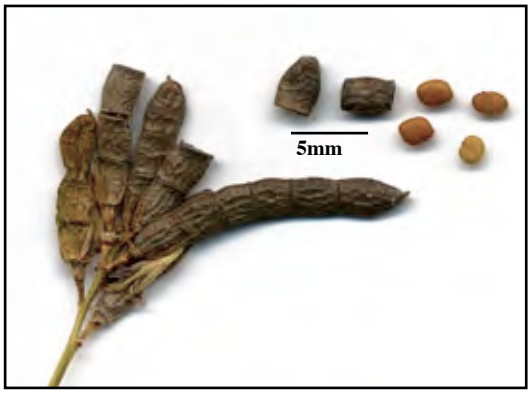
Alysicarpus vaginalis

Alternate leaf arrangement. Leaves slightly fold inward from midrib

Leaflet size and shape is variable

Growth habit in turf when frequently mowed

Cylindrical seed pods mature green to brown in erect clusters



Pods break into segments each enclosing a single seed

FORM:	prostrate, low, mat forming
ROOT:	taproot, difficult to remove by hand
STEM:	pubescent when young, becoming woody at base
LEAVES:	alternate, unifoliolate (appears simple), leaflet obovate to oblong, lanceolate (sometimes); apex rounded to subretuse (notched slightly); leaflet size and shape variable; margins entire; lower surface with scattered hairs; stipules 2, persistent, papery
INFLORESCENCE:	terminal or axillary leaf opposed racemes
FLOWER:	perfect; calyx: sepals 5, tubular, papery, lanceolate lobed, persistant in fruit; corolla: reddish pink to reddish purple; standard (largest petal): obovate to orbicular with yellow markings, wing (two lateral petals): adherent to incurved keel, keel (2 connate petals): with membranous appendages on each side; stamens: 10, diadelphous (in 2 bundles, upper stamen distinct, the other 9 connate into a tube); pistil: style 1
FRUIT:	compressed, jointed cylindrical pod (1 - 8 segmented), each segment contains 1 seed; pods clustered on erect stalks; both margins of joints symmetrical; green maturing dark brown to black
SEED:	subglobose or ellipsoid; pale brown to yellowish
HABITAT:	lawns, roadsides, disturbed areas, turf, sunny exposed areas, ditches, dry areas, facultative upland; tolerates mowing, grazing and some shading
PROPAGATION:	seed; regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora, Colletotrichum, Gleosporium*
MISCELLANEOUS:	**"**First recorded from the Pacific Islands (Fiji) in 1900" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Amaranthus spinosus

Amaranthaceae

Weed #A3

Arrangement of male and female flowers on terminal inflorescence

Closeup of male flowers

Closeup of female flowers

Male flowers at apex of terminal inflorescence

Female flowers at base of terminal inflorescence

SCIENTIFIC NAME: *Amaranthus spinosus* L.

ROOT WORD: amarantos = unfading, spinosus = spiny

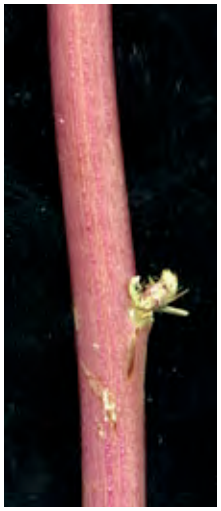
COMMON NAME: Spiny Amaranth, Pigweed

VERNACULAR: Kulites

SIMILAR SPECIES: *Amaranthus viridis* L.

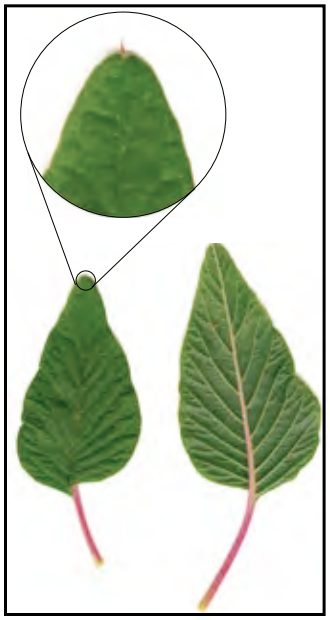
ORIGIN: probably native to tropical America

Amaranthus spinosus



Stems often red

Alternate leaf arrangement



Leaf apex has a short, spiny tip

Branched inflorescence

Leaves often damaged by loopers (*Hymeria recurvialis)*

Stem shows longitudinal lines and paired spines at leaf base

Seeds (left), enclosed in persistant calyx (right)

FORM:	erect, branched herb
ROOT:	thick taproot, fleshy, pinkish red (often)
STEM:	green, brown or red (often), angled or with longitudinal lines; paired axillary spines at nodes; glabrous or pubescent
LEAVES:	alternate, simple, entire, ovate to oblanceolate; apex emarginate (notched), mucronate (short spiny tip); petioles reddish (often); upper surface glabrous, lower surface veins sparsely pilose, conspicuously veined beneath
INFLORESCENCE:	monoecious; clustered in lower/upper axils and terminal spikes, spikes simple or branched; flowers in lower axils mostly female, flowers in upper third of terminal spike male, in lower two-thirds female
FLOWER:	green, minute, unisexual; corolla absent; male flowers: stamens 5 opposite sepals; female flowers: stigmas 2, filiform (slender), subtended by a membranous, persistent bract (translucent) and two similar bracteoles tipped with a pale or reddish awn
FRUIT:	utricle, opening by a line around the center, enclosed by persistent calyx (often), one seeded
SEED:	ovoid, compressed, reddish brown to black, shiny; dispersed by wind or water; 235,000 seeds per plant
HABITAT:	roadsides, lawns, abandoned fields, disturbed areas, forest edges, landscaped areas, facultative upland; tolerates mowing
PROPAGATION:	seed; viability of 19 years, germinates in both light and dark; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system and stem not completely removed
USES:	herbal, toxic; leaves used as vegetable greens
FUNGAL PATHOGENS:	*Cercospora, Colletotrichum, Gleosporium, Phoma*
MISCELLANEOUS:	points of spines break off in skin easily; livestock poisoning, toxic; "First recorded from the Pacific Islands (Hawaii) in 1928" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954); ranks 15th in *The Worlds Worst Weeds, Distribution and Biology* (Holm et al., 1977)

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.
Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
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Amaranthus viridis

Amaranthaceae

Weed #A4

Inflorescence branched, often tinged red

Alternate leaf arrangement

Closeup of male and female flowers intermixed throughout inflorescence

SCIENTIFIC NAME: *Amaranthus viridis* L.

ROOT WORD: amarantos = unfading, viridis = green

COMMON NAME: Slender Amaranth, Green Amaranth

VERNACULAR: Kulites Apaka

SYNONYM: *Amaranthus gracilis* Desf. ex Poiret.

SIMILAR SPECIES: *Amaranthus spinosus* L.

ORIGIN: probably native to Old World tropics, early introduction to Pacific Islands

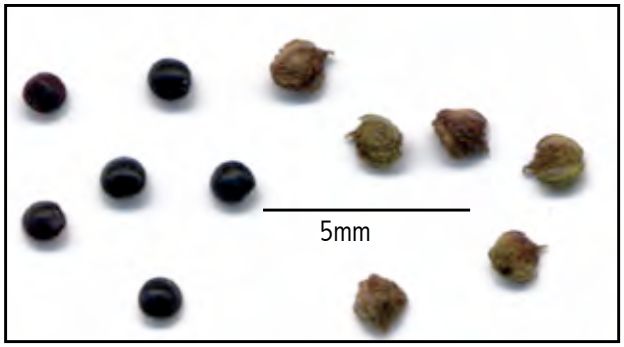
Amaranthus viridis

Leaves simple with conspicuous venation

A. viridis seedlings

Stems are often reddish maroon and striated

Leaf apex has a short spiny tip



Seed (left), fruit (right)

FORM:	erect, branched (often) herb
ROOT:	long, thick taproot, fleshy
STEM:	green to reddish (often), grooved lengthwise, glabrous or pubescent
LEAVES:	alternate, simple, ovate to rhombic; surfaces glabrous (mostly), lower surfaces pilose along veins (often); margins entire; leaf tip mucronate (short spiny tip); petioles pink (often)
INFLORESCENCE:	in lower axils compact cymose clusters, in upper axils and terminating plant apex with spike like panicles
FLOWER:	green, minute, unisexual, monoecious, both sexes intermixed on spikes with pistillate flowers more numerous; corolla absent; sepals 3-4 subtended by 2 tiny bracteoles, bracts and bracteoles whitish and membranous with short pale or reddish awns; female flowers: style 1, stigmas 2-3; male flowers: stamens 3
FRUIT:	utricle, subglobose, rugose (wrinkled surface), ruptures irregularly, beaked, one seeded
SEED:	dark brown to black, shiny, compressed slightly; 230,000-500,000 seeds per large plant, can seed when 1 cm. in height; seed dispersed by wind, water, birds, insects, manure, farm machinery; crop seed contaminant
HABITAT:	disturbed areas, croplands, roadsides, landscaped areas, waste areas, ditch banks, facultative upland, exposed/sunny areas, moist areas; ability to survive arid conditions
PROPAGATION:	seeds; optimum soil depth of 1 cm.; high moisture results in best responses; variable germination; regrowth from lower nodes reduces the effectiveness of hand, mechanical weeding if root system not completely removed
USES:	edible, among oldest food crops of New World, leaves cooked, eaten like spinach; herbal
FUNGAL PATHOGENS:	*Colletotrichum*
MISCELLANEOUS:	tree sparrows *(Passer montanus)* feed on; contains betalain pigment instead of anthocyanins found in most angiosperms; reported to have nodule-like structures on root/stem (unknown microorganisms, possibly nitrogen fixing); illness/death reports as result of Slender Amaranth ingestion (oxalates: sheep, hogs, young calves), toxic; "in Pacific as of 1954, not specific to Guam, generic to Pacific"(Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world.* The MacMillan Co., NY.

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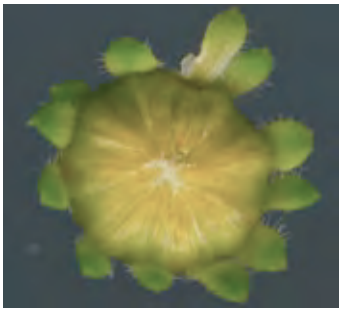
Weeds of Guam

Weed # A5

Bidens alba

Asteraceae

Tribe: *Heliantheae*



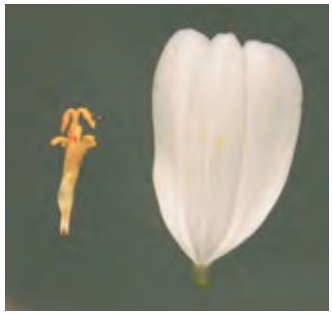
Unopened flower head

Opening head displaying bracts (green leaf like structures)

Opened flower head showing ray florets (white) and disc florets (yellow)

Closeup of yellow disc florets

Opposite leaf arrangement



Disc floret a perfect floret (left), ray floret a sterile floret (right)

SCIENTIFIC NAME: *Bidens alba* (L.) DC.

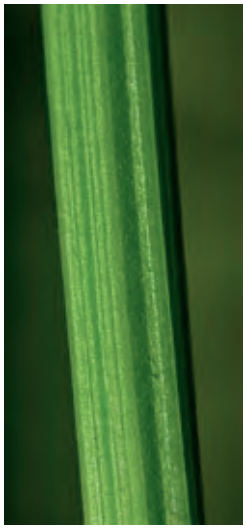
ROOT WORD: alba = white, bis = twice, dens = tooth, in reference to two barbs on fruit

COMMON NAME: Beggers Tick, Hairy Beggartick, Guam Daisy

SYNONYM: *Coreopsis alba* L., *B. pilosa* L. var. *radiata* Schultz-Bip.

ORIGIN: Native to tropical America

Bidens alba



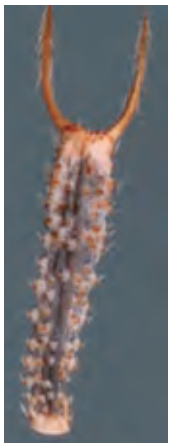
Stem is square shaped and ribbed

Lower leaves on stem may be simple

Upper portion of stem displaying adventitious roots and trifoliate leaves

Upper leaves on stem may be trifoliate or unequally pinnate with a single terminal leaflet

B. alba seedling



Close-up of achene

Disc florets produce achenes with two terminal barbed awns

Leaf stippling caused by fleahoppers (*Halticus tibialis*)

FORM:	erect, branched herb
ROOT:	taproot with numerous secondary roots
STEM:	glabrous, longitudinally ribbed, often fasciate (flattened, bilateral expansion of stem), adventitious roots on stems (sometimes)
LEAVES:	opposite; lower stem leaves simple, ovate; upper stem leaves trifoliate or imparipinnate (unequally pinnate with a single terminal leaflet), ovate or ovate-oblong leaflets; surfaces glabrous (mostly); margins serrate; when crushed gives off a pungent odor
INFLORESCENCE:	heads 3-18 in terminal or axillary compound cymes
FLOWER:	ray floret: sterile, white, 5-8 per head; disc floret: perfect, tubular, yellow, 26-69 per head, pappus of two awns
FRUIT:	achene, black, longitudinally ribbed, straight or curved, 2 barbed terminal awns (bidens = two toothed**),** covered with bristles
HABITAT:	roadsides, lawns, abandoned fields, disturbed areas, forest edges, landscaped areas, facultative upland; tolerates mowing
PROPAGATION:	seed; regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora, Corynespora*
MISCELLANEOUS:	**"**First recorded in the Pacific Islands (Hawaii) in 1958 " (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

 Funding for this publication was provided by the USDA, CSREES, TSTAR grant no: 2003-34135-14076.

Blechum pyramidatum

Acanthaceae

Weed #A6

Stacked bracts of inflorescence

Opposite leaf arrangement

Funnel shaped corolla

SCIENTIFIC NAME: *Blechum pyramidatum* (Lam.) Urb.

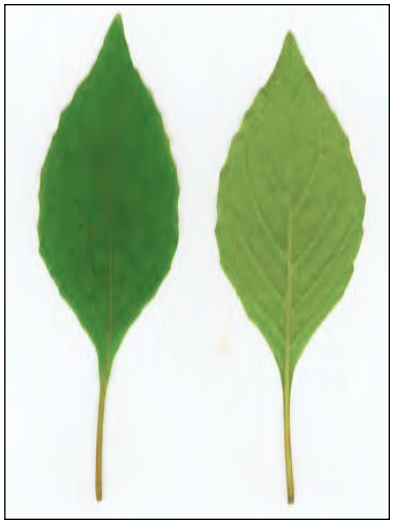
ROOT WORD: pyramidatum = pyramid-shaped

VERNACULAR: Yerbas Babui

SYNONYM: *Blechum brownei* forma *puberulum* Leonard

ORIGIN: native to tropical America

Blechum pyramidatum



Leaves conspicuously veined

Rooting at nodes

Small brown capsule

B. pyramidatum seedlings

Seed (left), capsule (right)

Nodes swollen, maroon (often)

FORM:	prostrate to erect branched herb
ROOT:	fibrous, rooting at nodes
STEM:	pubescent, nodes (especially lower) swollen, marooned colored (often)
LEAVES:	opposite, simple, ovate to elliptic; surfaces slightly appressed pubescent to glabrous; margins wavy, ciliate, weakly toothed
INFLORESCENCE:	terminal erect spike, flowers concealed by pubescent overlapping leafy bracts, bracts appear stacked
FLOWER:	small, perfect; calyx: linear, 5-lobed; corolla: funnel-shaped, white to pale violet, 5-lobed; stamen: 4 in two pairs; pistil: style 1, subulate (tapers from base to apex)
FRUIT:	capsule, brown, spindle-shaped, splits into two halves longitudinally
SEED:	4-6 per capsule, discoid, compressed
HABITAT:	disturbed areas, pastures, roadsides, marshland boundaries, croplands, forest clearings, lawns, waste ground, landscaped areas; tolerates mowing and shading
PROPAGATION:	seeds, stem fragments; breaks easily at lower nodes reducing effectiveness of hand, mechanical weeding
USES:	herbal
FUNGAL PATHOGENS:	*Pythium, Mycosphaerella, Puccinia, Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Fiji) in 1929" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Boerhavia erecta

Nyctaginaceae

Weed #A7

Branching inflorescence with white or pale pink flowers

Closeup of lobed flower petals

Conspicous stamens of flower

SCIENTIFIC NAME: *Boerhavia erecta* L.

ROOT WORD: erecta = erect /upright, nyctaginaceae (nyctos) = night, in reference to some flowers in the family closing at dusk

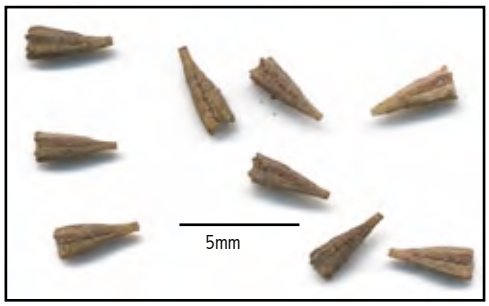
COMMON NAME: Erect Spiderling, Erect Boerhavia

SIMILAR SPECIES: *B. mutabilis* R. Brown, *B repens* L.

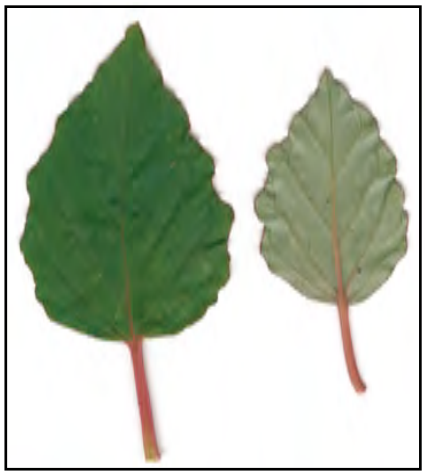
ORIGIN: Unknown

Boerhavia erecta

Stem base becomes woody with age



Wedge-shaped anthocarp contain a single seed



In a set of opposite paired leaves one of the pair is smaller than the other

Opposite leaf arrangement

Petioles are often a bright reddish pink color

B. erecta seedling

Decumbant regrowth results if plant is cut or broken at lower nodes

FORM:	erect, branching herb
ROOT:	taproot, long, fleshy, tuberous
STEM:	smooth, reddish pink, semiwoody at base
LEAVES:	opposite (one of each pair smaller), ovate, variable size/shape; top surface green, beneath light green to whitish; margins wavy; main veins tinged red (often); petioles tinged red (often)
INFLORESCENCE:	axillary or terminal, highly branched cyme, leafy only at base
FLOWER:	occur as 2 or 3 together, perianth constricted in midsection, apical part campanulate, white or pale pink, lobed (lobe emarginate often); stamens 2-5; style filiform; flowers throughout the year
FRUIT:	5 ribbed, wedge-shaped, anthocarp (one seeded fruit enclosed by persistant calyx)
SEED:	achene, brown
HABITAT:	croplands, roadsides, pastures, waste areas, facultative upland; tolerates shading (some), adapted to sandy soils, ability to survive arid conditions; invasive often
PROPAGATION:	seeds; seed coat removal enhances germination, germination improved with up to 12 months of storage; breaks easily at lower nodes reducing effectiveness of hand, mechanical weeding
USES:	medicinal, edible (whole plant), herbal
FUNGAL PATHOGENS:	*Ascochyta*
MISCELLANEOUS:	calcium oxalate in all plant parts, toxic

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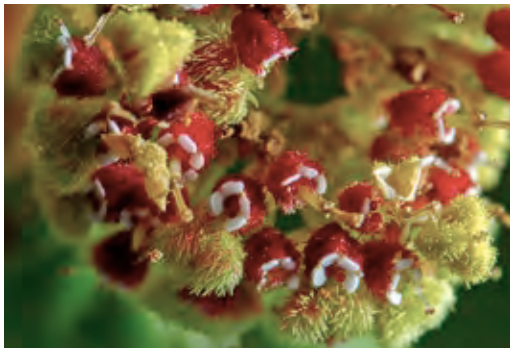
Weeds of Guam

Chamaesyce hirta

Euphorbiaceae

Weed #A9

Leaves are often a purple maroon color



Cyathia: involucre are red with white appendages

Inflorescence of subglobose congested cymes

SCIENTIFIC NAME: *Chamaesyce hirta* (L.) Millsp.

COMMON NAME: Garden Spurge, Red Milkweed, Pillpod, Asthma Plant, Hairy Spurge

VERNACULAR: Golondrina

SYNONYM: *Euphorbia hirta* L.

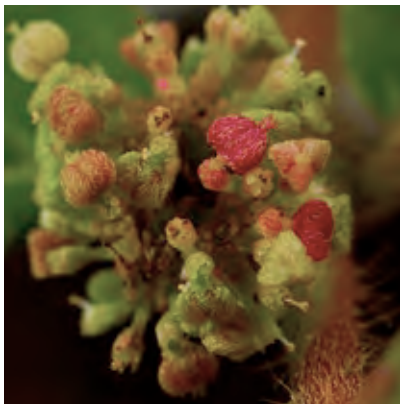
SIMILAR SPECIES: *Chamaesyce hypericifolia* (L.) Millsp.

ORIGIN: native to tropical America (probably)

Chamaesyce hirta

Stem displays yellow tinged hairs and secretes a milky sap when broken

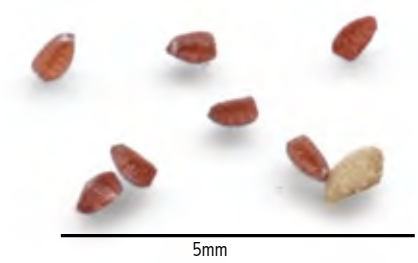
Opposite leaf arrangement



Green 3-lobed hairy fruit matures red

Asymmetrical shape of leaves with finely serrate margins

This catepilar is common on many Euphorbiaceae plants



Seeds 4-angled, portion of capsule (bottom right)

FORM:	prostrate to decumbent, scarcely to many branched herb
ROOT:	taproot, deeply rooted, difficult to remove
STEM:	tomentose, hairs yellow, sap milky, much branched from base (mostly)
LEAVES:	opposite, simple, ovate to lanceolate or oblong, slightly asymmetrical; upper side green, often tinged or spotted red to maroon, lower side pale green; surfaces appressed pubescent; margins finely serrate; stipules linear lanceolate, ciliate
INFLORESCENCE:	cyathia congested in few flowered cymes, 1 or 2 globose axillary cymes, on short stalks
FLOWER:	monoecious, small, in cyathia; involucre strigose (straight hairs) to glabrate (nearly hairless), appendages white, 4-5 lobed, glabrous or absent; male flowers: minute, 2-8 per cyathium, stamen 1; female flowers: 1 per cyathium, styles 3
FRUIT:	3-lobed, pubescent subglobose capsule, splits into 3 one seeded segments
SEED:	ovoid, light brown to red brown, 4-angled, sickle-shaped; 2,990 seeds per plant, seed capsules explode
HABITAT:	disturbed areas, roadsides, waste areas, crop lands, grasslands, pastures, lawns, turf, landscaped areas, facultative upland; ability to survive arid conditions, colonizers of bare ground, tolerates mowing
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	herbal, medicinal
MISCELLANEOUS:	toxic; “First recorded in the Pacific Islands (Hawaii) in 1826” (Whistler, 1995), “in Pacific as of 1954, not specific to Guam, generic to Pacific” (Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Chamaesyce hypericifolia

Euphorbiaceae

Weed #A10

Opposite leaf arrangement

Involucre appendages white to pink

Stem base becomes woody with age

Membranous stipule

SCIENTIFIC NAME: *Chamaesyce hypericifolia* (L.) Millsp.

COMMON NAME: Graceful Spurge

SYNONYM: *Chamaesyce glomerifera* Millsp., *Euphorbia glomerifera* (Millsp.) Wheeler, *Euphorbia hypericifolia* L.

SIMILAR SPECIES: *Chamaesyce hirta* (L.) Millsp.

ORIGIN: native to tropical America

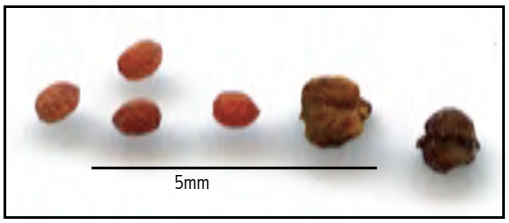
Chamaesyce hypericifolia

Stem often reddish especially when growing in full sun

Stems green when growing in shade

Inflorescence of globose cymes

Leaves with serrrated margins; leaf base is oblique



Seeds (left), 3-lobed capsules (right)

FORM:	erect to ascending herb
ROOT:	taproot, easily removed
STEM:	glabrous, sap milky, maroonish pink (often), loosely branched, base becoming woody
LEAVES:	opposite, simple, oblong to oblong-lanceolate; margins serrate; surface glabrous, conspicuously veined; stipules connate (united), membranous
INFLORESCENCE:	lateral or terminal 1 or 2 globose cymes, subtended by 2 tiny bracts, on long stalks
FLOWER:	monoecious, small, in cyathia; involucre glabrous (hairless), appendages white to pink or absent; male flowers: minute, 2-20 per cyathium, stamen 1; female flowers: 1 per cyathium, styles 3
FRUIT:	glabrous, 3-lobed capsule, subglobose, splits into 3 one seeded segments
SEED:	ovoid, brown, four angled, faces wrinkled
HABITAT:	disturbed areas, roadsides, abandoned land, waste areas, landscaped areas, facultative upland; ability to survive arid conditions
PROPAGATION:	seed, regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Macrophoma*
MISCELLANEOUS:	**"**First recorded in the Pacific Islands (Hawaii) in 1913" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Chamaesyce prostrata

Euphorbiaceae

Weed #A11

Female flowers and hairy 3-lobed fruit capsules

Conjested solitary flowers on short lateral shoots

SCIENTIFIC NAME: *Chamaesyce prostrata* (Aiton.) Smal.

ROOT WORD: prostrata = flat on the ground

COMMON NAME: Prostrate Spurge, Hairy Creeping Milkweed, Prostrate Sandmat

VERNACULAR: Bodulagas Chaca

SYNONYM: *Euphorbia prostrata* Aiton.

SIMILAR SPECIES:: *Chamaesyce thymifolia* (L.) Millsp.

ORIGIN: native to tropical America

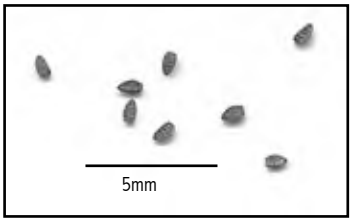
Chamaesyce prostrata

Opposite leaf arrangemnent

Leaves simple with serrate to subentire margins

Male flower amongst cyathia

C prostrata seedlings



Seeds minute and 4-angled

FORM:	prostrate, mat forming, branching herb
ROOT:	taproot, difficult to remove
STEM:	glabrate to finely pubescent, purple, sap milky
LEAVES:	opposite, simple, oblong to obovate; margins serrate to subentire; surface glabrate to sparsely pubescent; stipules linear, ciliate
INFLORESCENCE:	solitary at nodes of short lateral shoots, not stalked
FLOWER:	monoecious, small, in cyathia; involucre purple, appendages minute, pinkish white; male flowers: 2-5 per cyathium, stamen 1; female flowers: 1 per cyathium, styles 3
FRUIT:	ovoid capsule, 3-lobed, splitting into 3 each one seeded segments
SEED:	reddish, grayish or tan, grooved, 4-angled
HABITAT:	disturbed areas, lawns, homes, landscaped areas, turf, facultative upland; ability to survive arid conditions, tolerates mowing
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/ mechanical weeding if root system is not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Phyllosticta*
MISCELLANEOUS:	**"**First recorded in the Pacific Islands (Samoa) in 1894" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Chromolaena odorata

Asteraceae

Weed #A12

Tribe: *Eupatoriae*

Herbaceous young plant

Leaves often tinged maroon when young

Opposite leaf arrangement

SCIENTIFIC NAME: *Chromolaena odorata* (L.) King & Robinson

ROOT WORD: odorata = fragrant, chromo = color

COMMON NAME: Siam Weed, Masigsig

SYNONYM: *Eupatorium odoratum* L.

ORIGIN: native to tropical America

Chromolaena odorata

Distorted young leaves caused by aphids (*Aphis gossypii*)

Disc florets with long styles

Inflorescence of white circular heads

Achenes (left), cylindrical heads of achenes (right)

FORM:	subshrub with long rambling branches, thicket forming
ROOT:	deep taproot, massive
STEM:	pubescent, opposite spreading branches, brittle (break easily resulting in regrowth), base becoming woody
LEAVES:	opposite, simple, deltoid-ovate; surfaces appressed-pubescent; 3 veined; lower side with tiny yellow glands; margin coarsely toothed; when crushed emits pungent smell
INFLORESCENCE:	erect, axillary and terminal corymbs; heads cylindrical, subtended by 3-5 narrow bracts, flowering controlled by photoperiod (November and December on Guam)
FLOWER:	ray floret: absent; disc floret: 30 or more, involucre (bracts underneath a flower): 4-5 series of bracts; corolla: lavender to white, trumpet-shaped, style long, exserted
FRUIT:	achene, black, linear, pappus of white hairs
SEED:	dispersed by wind
HABITAT:	disturbed areas, waste areas, roadsides, pastures, croplands, abandoned fields, landscaped areas, forest trails, scrub forest, facultative upland; ability to survive arid conditions, tolerates a variety of soil types; invades clearings rapidly, invasive often
ECOLOGY:	full sun to partial shade, rapid growth rate, large plants may be a fire hazard, very competitive, heavy feeder, nutrients locked up in slow rotting litter
PROPAGATION:	seeds; regenerates from taproot (slashing/burning)
USES:	herbal, medicinal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Guam) prior to 1963" (Whistler, 1995); toxic, Invasive Plants of Micronesia List

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Commelina benghalensis

Commelinaceae

Weed #A13

Alternate leaf arrangement

Leaves parallel veined

Closeup of flowers

SCIENTIFIC NAME: *Commelina benghalensis* L.

ROOT WORD: commelina = name of two Dutch botanists, benghalensis = of Bengal, India

COMMON NAME: Wandering Jew, Tropical Spiderwort

SYNONYM: *C. prostrata* Regel

SIMILAR SPECIES: *Commelina diffusa* Burm. f.

ORIGIN: native to tropical Asia and Africa

Commelina benghalensis

Adventitious roots at nodes

Flowers with three petals and three sepals. Lateral petals are larger. Note green spathe of inflorescence

Membranous leaf sheath

Seeds (top), spathe surrounding capsule (bottom)

FORM:	fleshy creeping herb, weak stemmed, branching from base
ROOT:	rooting at nodes
RHIZOME:	white, burrowing, can produce subterranean flowers and seeds
STEM:	ascending or prostrate, striate, densely pubescent
LEAVES:	alternate, simple, ovate to suborbicular, pubescent; margins entire; petioles with red hairs on margin; veination parallel; sheath pillose, rust colored, membranous
INFLORESCENCE:	few flowered cymes opposite a leaf or terminal, surrounded by a green spathe; flowers open in the early morning and close at midday
FLOWER:	perfect; calyx: sepals 3 (one being shorter); corolla: petals 3, violet to pale blue, 2 lateral petals larger, clawed; stamens: 3, fertile with 2-3 staminoids above them; pistil: style 1
FRUIT:	capsule, 2-3 celled, contains 5 seeds
SEED:	ribbed, wrinkled, grayish brown, appearing sugar coated; 1600 seeds per plant
HABITAT:	disturbed areas, croplands, roadsides, waste areas, field borders, greenhouses, gardens, facultative upland; tolerates a variety of soil types but grows best in high fertility soils, dry or moist areas; dense stands smother out other plants
PROPAGATION:	seed, rhizome, stem fragments, regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Samoa) in 1904" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific"(Merrill, 1954), Federal Noxious Weed List 09-12-02

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Conyza canadensis

Asteraceae

Weed #14

Tribe: *Astereae*

Faciated stems occur often

Upper stem leaves are linear

Lower rosette leaves with toothed margins

Conyza as a weed in a farm habitat. Growth habit varies from tall and slender to bushy especially when in bloom

SCIENTIFIC NAME: *Conyza canadensis* (L.) Cronq.

ROOT WORD: canadensis = Canadian, also of the Northeastern United States

COMMON NAME: Horseweed Fleabane

SYNONYM: *Erigeron pusillus* Nuttall, *Conyza parva* Cronquist, *Erigeron canadensis* L., *Conyza canadensis* (L.) Cronquist var. *pusilla* (Nutt.) Cronquist

ORIGIN: native of North America

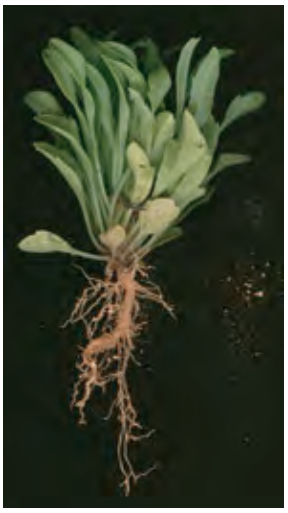
Conyza canadensis

Alternate leaf arrangement

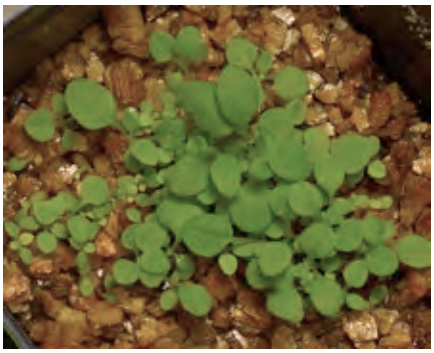
Mature seed heads with yellowish brown pappus

White ray florets surrounding yellow disc florets

Rosette leaf arrangement of an immature plant



Taproot with basal leaves



C. canadensis seedlings

Seeds with parachute like pappus

FORM:	erect herb, size variable, unbranched (mostly)
ROOT:	taproot, long
STEM:	pubescent, glabrous to hirsute, many plants fasciate stemmed (flattened, bilateral expansion of stem)
LEAVES:	alternate, simple, sessile; margins entire to toothed; basal leaves oblanceolate, upper leaves linear, ciliate at base
INFLORESCENCE:	terminal and upper axillary clusters of heads in a panicle; subtended by bracts, bracts glabrous or with scattered hairs, with purplish apical spots; faint odor of carrots when crushed
FLOWER:	ray florets: 25-40 per head, pistillate, fertile, corolla cream colored, 5-toothed, pappus yellowish to yellow brown; disc florets: marginal disc florets pistillate, central disc florets bisexual, perfect, fertile, style branched/ flattened; pappus of bristles; flowers day neutral
FRUIT:	achene, compressed, smooth, cylindrical
SEED:	dispersal by wind/ water; seed bank to 30 cm.; 50,000-250,000 seeds per large plant
HABITAT:	waste areas, roadsides, ditches, greenhouses, abandoned areas, faculative uplands; ability to survive arid conditions; pioneer species, especially on limestone; not very competitive, high populations in no till systems (low competition)
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	medicinal (leaves-oil), herbal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	may cause cows milk to be foul tasting, allelopathy (inhibits growth of neighboring species)

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Corchorus aestuans

Tiliaceae

Weed #A15

Decumbant regrowth results if plant is cut or broken at lower nodes

Leaves conspicuously veined on both sides

SCIENTIFIC NAME: *Corchorus aestuans* L.

COMMON NAME: Jute

SYNONYM: *C. acutangulus* Lam.

ORIGIN: Unknown

Corchorus aestuans

Stems often red when growing in full sun

Alternate leaf arrangement

Solitary small flower

Green capsules mature to dark brown

Seeds (top), capsule (bottom)

FORM:	small, erect herb, branched stems (often)
ROOT:	taproot, difficult to remove
STEM:	reddish often, becoming woody at base
LEAVES:	alternate, simple, ovate; margins serrate, red tinged (often), stipulate
INFLORESCENCE:	solitary or clustered, leaf opposed, clusters of 1-3 flowers
FLOWER:	small, sepals 5; petals 5 (sepals/ petals: yellow, translucent); stamens 10-8
FRUIT:	capsule, linear, cylindric, hexagonal, many seeded
SEED:	blackish brown, angular, rough, truncate at both ends
HABITAT:	waste ground, facultative upland; ability to survive arid conditions, especially on limestone: tolerates mowing
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora*

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Weeds of Guam

Cyanthillium cinereus

Asteraceae

Weed #A32

Tribe: *Vernoniaeae*

Branched inflorescence with small cauline leavess

Flower head of many disc florets

The center flower of inflorescence is the youngest

Tubular corolla of disc florets

SCIENTIFIC NAME: *Cyanthillium cinereus* (L.) H. Robinson

ROOT WORD: vernonia = named for William Vernon, cinerea = ashes or ash colored

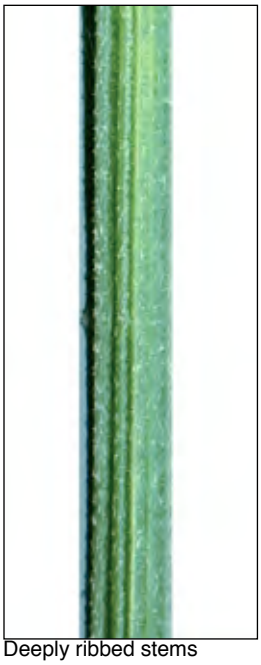
COMMON NAME: Little Ironweed, Ironweed, Vernonia

VERNACULAR: Cha'guan Santa Maria

SYNONYM: *Conyza cinerea* L., *Vernonia parviflora* Reinw.

ORIGIN: native to tropical America

Cyanthillium cinereus

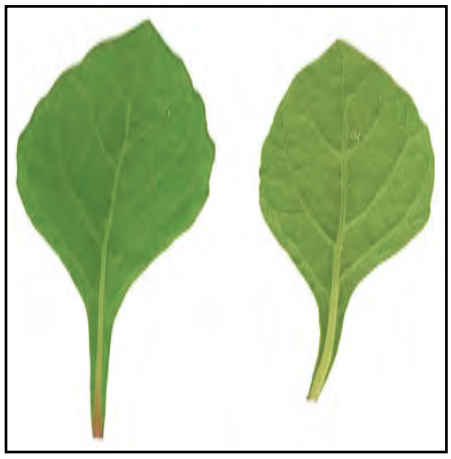


Deeply ribbed stems

Mature seed heads white

Alternate leaf arrangement

V. cineria seedlings



Basal leaves

Seed head (left) seeds (right)

FORM:	loosely branching herb, erect or decumbent
ROOT:	deeply rooted, difficult to remove
STEM:	finely pubescent, ribbed
LEAVES:	alternate, simple, obolanceolate to obovate, smaller on upper portion of stem (upper leaves sub-sessile, surfaces gland dotted, margin irregularly toothed); lower leaves with petioles 1-3 cm long, upper surface pubescent (T-shaped hairs), lower surface pubescent/glandular punctate
INFLORESCENCE:	loose corymbose cymes
FLOWER:	ray florets: absent; disc florets: corolla tubular, 20-25, 5-lobed, violet to pinkish-violet
FRUIT:	achene, cylindrical, pubescent, pappus of white bristles
SEED:	wind dispersed, long pappus aids in seed dispersal; light enhances germination, germination increases on soil surface, germination very low at deeper than 4 cm.
HABITAT:	disturbed areas, waste areas, gardens, croplands, roadsides, landscaped areas, lawns, facultative upland; ability to survive arid conditions, tolerates mowing and shade
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	medicinal, herbal
FUNGAL PATHOGENS:	*Cercospora*, downy mildew
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1871" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

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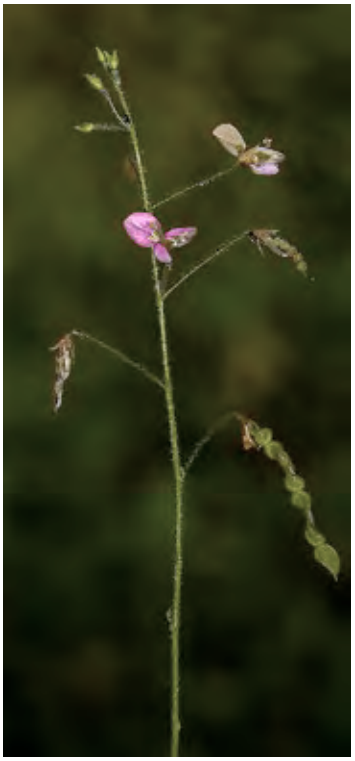
Weeds of Guam

Desmodium tortuosum

Fabaceae

Subfamily: Papilionoideae

Weed #A16



Branching inflorescence

Closeup of flower

Alternate leaf arrangement

Thin red stipules

Compact emerging leaves

SCIENTIFIC NAME: *Desmodium tortuosum* (Sw.) DC.

ROOT WORD: desmos = chain, in reference to jointed pods

COMMON NAME: Florida Beggarweed

SYNONYM: *Hedysarum tortuosum* Sw.

SIMILAR SPECIES: *Desmodium incanum* DC.

ORIGIN: native to tropical America

Desmodium tortuosum

Axillary racemes with green pods

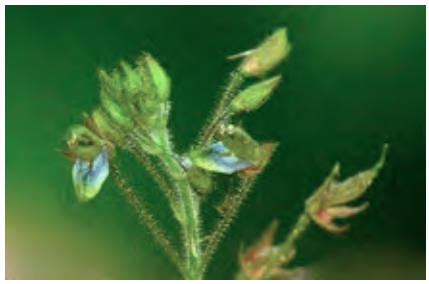
Terminal leaflets larger than lateral leaflets; petioles red (often)

Woody stem base

Pods mature green to brown

D. tortuosum seedling

Seed pod (left) seeds (right)



Emerging tip of inflorescence

FORM:	erect, branching herbs to subshrubs
ROOT:	robust tap root with smaller lateral roots
STEM:	densely pubescent, becoming woody at base
LEAVES:	alternate, trifoliate: leaflets ovate to narrowly elliptic; margins ciliate; surfaces subglabrous to pubescent (hooked hairs); stipules membranous, striate
INFLORESCENCE:	branching, terminal or axillary many flowered raceme with solitary or paired flowers; rachis pilose
FLOWER:	calyx deeply 5-lobed; corolla: pink to purple; standard: obovate to suborbicular; wings: oblong, dark colored (usually); keel: petals clawed; stamens 10, diadelphous; bracts subtending flowers
FRUIT:	straight or twisted pod; both margins equally/ deeply notched into 4-7 round 1-seeded segments, pubescent
SEED:	ovoid, compressed
HABITAT:	pastures, roadsides, disturbed areas, greenhouses, waste areas, facultative upland; ability to survive arid conditions
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1913" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Desmodium triflorum

Fabaceae

Weed #A17

Subfamily: Papilionoideae

Clusters of 2-5 flowers

Standard petal notched in the middle

Closeup of flower

SCIENTIFIC NAME: *Desmodium triflorum* (L.) DC.

ROOT WORD: tri = three, florum = flowered

COMMON NAME: Three Flower Beggarweed, Creeping Tick Clover

SYNONYM: *Hedysarum triflorum* L.

SIMILAR SPECIES: *Desmodium heterophyllum* (Willd.) DC.

ORIGIN: native to old world tropics

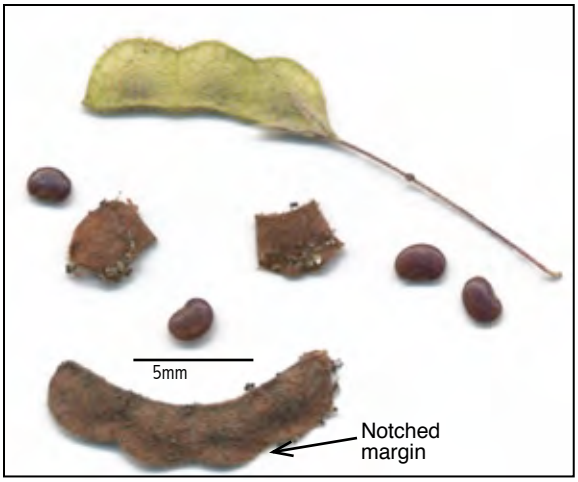
Desmodium triflorum

Alternate leaf arrangement

Trifoliate leaves

Stipules membranous

Leaves fold slightly inward from midrib



Green and mature brown, pods break into one seeded segments

FORM:	prostrate, creeping, many branched herb, mat forming
ROOT:	deep taproot; difficult to remove
STEM:	pubescent
LEAVES:	alternate, trifoliate, leaflets obovate to obcordate, tips emarginate; margins entire, red (often); lower surfaces appressed pubescent along midribs, upper surfaces glabrous; stipules persistent, reddish (often)
INFLORESCENCE:	fascicles (condensed clusters) of 2-5 flowers opposite a leaf, pedicels pubescent
FLOWER:	calyx: campanulate 5-lobed; corolla: reddish purple to violet or pink, standard: broadly obovate to suborbicular with a distinct claw, emarginate; wings: oblong, darker colored; keels: long clawed; stamens: 10, diadelphous
FRUIT:	flattened, slightly curved, membranous pod, pubescent, notched on one margin into 3-5 one-seeded segments
SEED:	ovoid, compressed, brown
HABITAT:	sunny, disturbed areas, lawns, roadsides, waste areas, turf, facultative upland; tolerates mowing
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1864 " (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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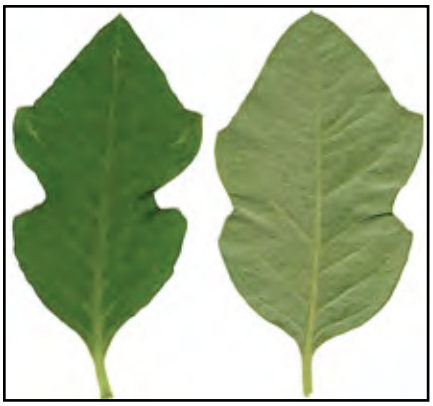
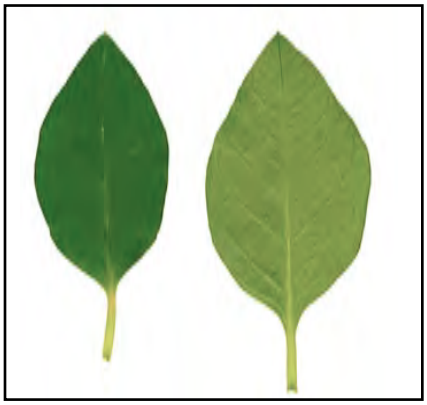
Euphorbia cyathophora

Euphorbiaceae

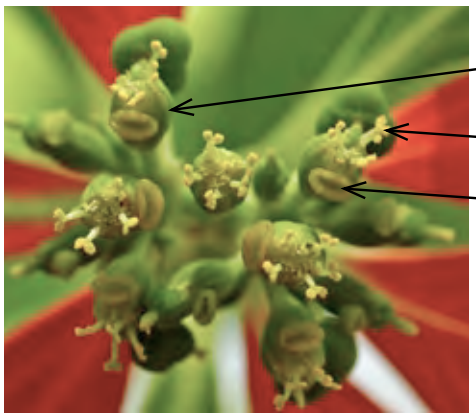
Weed #A18



Fiddle-shaped leaf (panduriform)



Lower leaves differ from upper fiddle-shaped leaves



Floral anatomy

Alternate leaf arrangement with axillary branching at nodes

SCIENTIFIC NAME: *Euphorbia cyathophora* J.A. Murray

ROOT WORD: cyathodes = cup-like, euphorbus = a physician to the king of Mauretania

COMMON NAME: Dwarf Poinsettia, Wild Poinsettia

SYNONYM: *Euphorbia heterophylla* L. var. *cyathophora* (J.A. Murray) Boiss., *Poinsettia cyathophora* (J.A. Murray) Klotzsch & Garcke

ORIGIN: native of tropical America

Euphorbia cyathophora

E. cyathophora often grows in large groupings

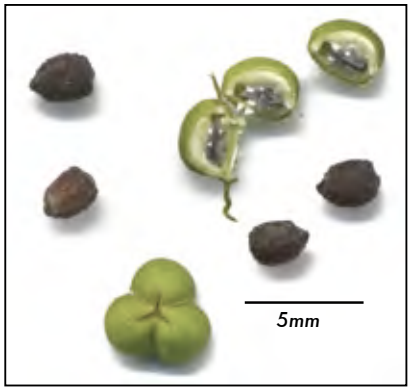
Stem often maroon especially at base

Terminal inflorescence is a flat topped cluster of flowers

Closeup of inflorescence showing immature green fruit, flowers and red floral bracts

E. cyathophora seedling

Milky sap of stem



3-lobed fruit (bottom) contains rough textured seeds

FORM:	erect, slightly branching, herb
ROOT:	taproot, easily removed
STEM:	hollow, pubescent (somewhat), angular ribbed, sap milky
LEAVES:	alternate at base of stem, opposite on upper stem; linear or panduriform; margins entire to coarsely dentate; stomata on both leaf surfaces
INFLORESCENCE:	terminal cyme, subtended by green and red-orange floral leaves (bracts)
FLOWER:	monoecious, minute, in cyathia; involucre glabrous, gland 1, bilabiate, flattened without an appendage; perianth absent; staminate flowers surrounding one female flower; female flowers terminal, styles 3
FRUIT:	capsule, ovoid, 3-lobed
SEED:	ovoid-cylindrical, ends truncate or rounded, surface tuberculate, ecarunculate; germination over extended periods in fields, seeds explode from capsules; produces 4500 per plant over growing season; lack dormancy; not light sensitive
HABITAT:	crop land, pastures, waste areas, landscaped areas, both conventional and no till systems, facultative upland
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if roots/stems not completely removed
USES:	medicinal
FUNGAL PATHOGENS:	*Botrytis*
MISCELLANEOUS:	allelopathic (perhaps water soluble inhibitors), toxic, latex all parts

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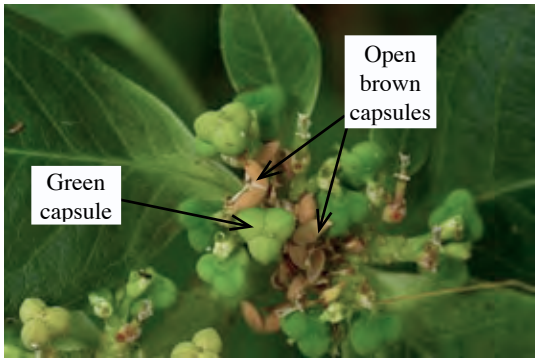
Euphorbia heterophylla

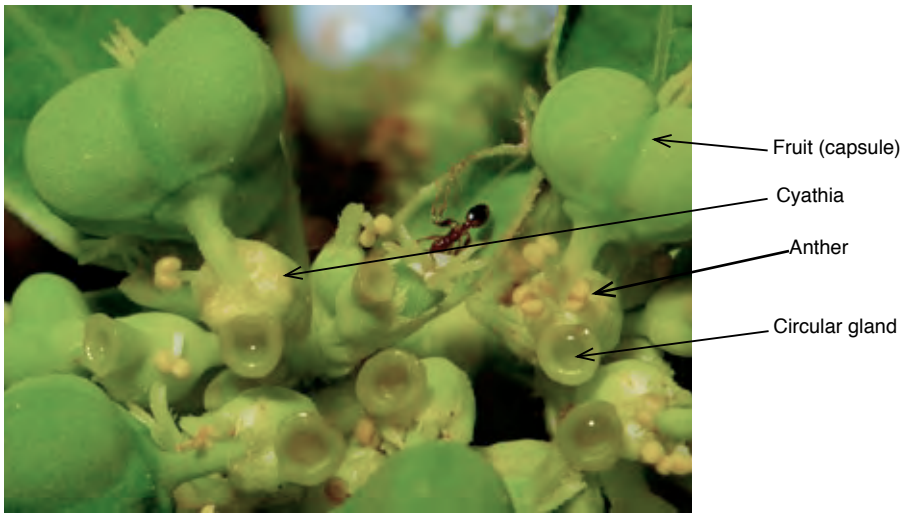
Euphorbiaceae

Weed #A19



3 lobed fruit capsules

Terminal inflorescence is a flat topped cluster of flowers



Floral anatomy of *Euphorbia heterophylla*

SCIENTIFIC NAME: *Euphorbia heterophylla* L.

ROOT WORD: hetero = diverse/ differing, phyllon = leaf, euphorbus = a physician to the king of Mauretania

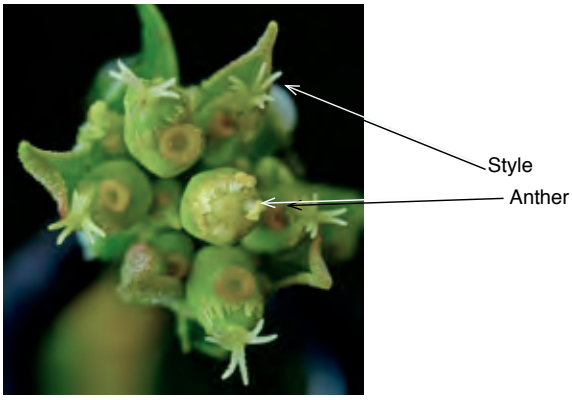
SYNONYM: *Euphorbia geniculata* Ort., *Poinsettia geniculate* (Ort.) Klotzsch & Garcke, *Poinsettia heterophylla* (L.) Klotzsch & Garck

ORIGIN: native to tropical or subtropical America

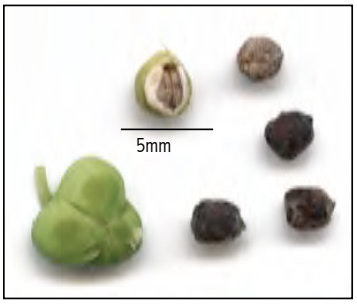
Euphorbia heterophylla

Diverse leaf shape of species lends itself the name heterophylla meaning differing leaves

Conspicuous venation on lower leaf surfaces



Floral anatomy



Fruit (left), seeds (right)

FORM:	erect, branching (sometimes) herb
ROOT:	taproot, easily removed
STEM:	hollow, glabrous to pilose, sap milky
LEAVES:	alternate on lower part of stem, opposite on upper part of stem; simple, elliptic to obovate or linear; surfaces glabrous or pilose; margins entire (mostly) to serrate; stipules gland-like or absent
INFLORESCENCE:	compact, terminal cyme, subtended by white or green floral leaves (bracts); bracts: glaucous beneath, ovate or oblong-rhomboidal
FLOWER:	monoecious, minute, in cyathia; involucre glabrous, gland 1, cup-shaped with circular opening, without an appendage, 5-7 oblong to lanceolate lobes; staminate flowers many; pistilate flowers: terminal, solitary, styles 3
FRUIT:	3-lobed, subglobose capsule
SEED:	gray to black or mottled (sometimes), angled, tuberculate; 7000 seeds per plant with no competition, 720 seeds per plant with competition; viable for long periods in the soil, emergence greater from seeds three cm in soil than on surface, light stimulates germination of fresh seed, deep burial does not induce enforced dormancy of seeds, fruits collected in milk stage do not produce viable seeds, seeds in green fruit can germinate soon after maturing
HABITAT:	disturbed areas, roadsides, waste places, landscaped areas; abundant during rainy season, adaptable to a variety of soils (rich/poor), dry or moist areas, facultative upland
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	none found
FUNGAL PATHOGENS:	*Botrytis*
MISCELLANEOUS:	allelopathic (perhaps water soluble inhibitors), toxic, latex all parts; bees seriously affected by nectar/pollen, semi-paralyzed/ frequently die; "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954), "First recorded in the Pacific Islands (Hawaii) in 1871" (Whistler, 1995)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world.* The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Malvastrum coromandelianum

Malvaceae

Weed #A20

Thin, yellow petals of flower

Congested apical flower buds

Persistant, pointed calyx of fruit

SCIENTIFIC NAME: *Malvastrum coromandelianum* (L.) Garcke

ROOT WORD: malva = mallow, coromandelianum = Coromandel Coast, Indian Peninsula

COMMON NAME: False Mallow, Prickly Malvastrum, Threelobe False Mallow

SYNONYM: *Malva coromandeliana* L., *Sida fauriei* H. Lev., *Malvastrum tricuspidatum* (R.Br.) A. Gray

SIMILAR SPECIES: *Sida acuta* Burman f.

ORIGIN: native to tropical America, native of North America (South USA, Mexico, Central America)

Malvastrum coromandelianum

Schizocarp with fruit segments

Leaves conspicuously veined on both upper and lower surfaces

Alternate leaf arrangement

M. coromandelianum seedling

Fruit segments (left), seed (right)

FORM:	subshrub, woody base with herbaceous shoots, branching widely
ROOT:	thickened taproot, woody, difficult to remove
STEM:	appressed-pubescent with four branched hairs, tinged red (often)
LEAVES:	alternate; lanceolate to broadly ovate, simple to 3-lobed (sometimes); stipules linear; surfaces appressed-pubescent; margins coarsely toothed; veins conspicuous
INFLORESCENCE:	1-3 flowers in short clusters or conjested apically, axillary or terminal; subtended by lanceolate involucral bracts
FLOWER:	calyx: 5-lobed, persistant in fruit; corolla: rotate, five irregularly obovate petals, yellow to yellowish orange; stamens: monadelphous (stamens united in a column), shorter than corolla, terminated by filaments; styles: branched, many, stigmas terminal
FRUIT:	schizocarp, reddish brown, 10-15 one seeded segments; each segment with a spine at one end and two sharp pointed tips at the other end
SEED:	reniform, compressed, glabrous
HABITAT:	disturbed areas, roadsides, lawns, waste areas, landscaped areas, facultative upland; especially on limestone soils
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of mechanical/hand weeding if root not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1864" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Mimosa pudica

Fabaceae

Weed #A21

Subfamily: Mimosoideae

Showy purple filaments of inflorescence

Stalked axillary flower head

Clusters of bristly seed pods

SCIENTIFIC NAME: *Mimosa pudica* L.

ROOT WORD: mimos = mimic, pudica = bashful

COMMON NAME: Sleeping grass, Sensitive plant, Touch-me-not, Mimosa, Shame Weed

ORIGIN: native to tropical America

Mimosa pudica

In shaded habitats *M. pudica* is more erect

Curved prickles

Pinnae 4 with 10-26 pairs of leaflets

Same leaf as at left, exhibiting closing response when touched

M. pudica seedling

Alternate leaf arrangement

Seeds (top) and persistent pod skeleton (bottom)

FORM:	low, decumbent, loosely branching subshrub
ROOT:	taproot, deep, woody, difficult to remove
STEM:	reddish (often), scattered or densly covered with curved prickles, hispid to glabrate, base becoming woody
LEAVES:	alternate, bipinnately compound, pinnae: 1-2 pairs (reddish often), leaflets: 10-26 pairs, elliptic; surfaces appressed-hairy; margins bristly; fold by pulvini if touched
INFLORESCENCE:	solitary in mimosaceous (puff ball like) stalked axillary heads, globose to ovoid
FLOWER:	corolla: tubular, red in upper part; stamen: 4-6, filaments pink to lavender, exserted
FRUIT:	flat, oblong, bristly pod, margins entire, 2-4 one-seeded segments in clusters, seeded segments fall leaving persistent replum (skeleton)
SEED:	ovoid to sub-globose, pale brown to brown
HABITAT:	disturbed areas, sunny places, lawns, pastures, wet areas, waste areas, landscaped areas; tolerates mowing
PROPAGATION:	seed, regrowth from lower nodes reduces effectiveness of wechanical/hand weeding if root not completely removed
USES:	herbal, toxic
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Samoa) in 1839" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Oxalis corniculata

Oxalidaceae

Weed #A22

Petals notched, bright yellow

Alternate leaf arrangement

SCIENTIFIC NAME: *Oxalis corniculata* L.

ROOT WORD: oxys = acid, sour/sharp, corniculata = with small horns

COMMON NAME: Yellow Wood Sorrel, Sourgrass

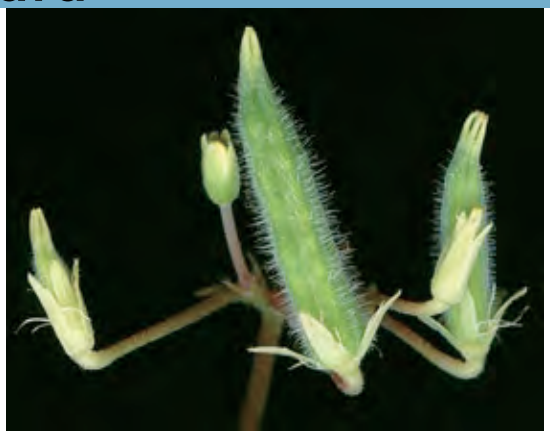
VERNACULAR: Agsom

SYNONYM: *O. repens* Thunb.

ORIGIN: uncertain origin, ancient introduction to Pacific Islands

Oxalis corniculata

Palmately trifoliate leaves



Hairy capsules mature green to light yellow

Rooting at nodes

O. corniculata seedlings

5-angled capsule opens explosively

Ridged, compressed seeds

FORM:	creeping, semi erect perennial herb, branching at base
ROOT:	fibrous, long narrow taproot, rootstocks of older plants may become woody, roots at nodes
STEM:	several from main root, widely branching, pubescent, trailing stems
LEAVES:	alternate, palmately trifoliolate, leaflets broadly obocordate, lobes rounded; surfaces glabrous to villous; margins entire to ciliate; at night leaves fold down around leaf stalk; sour taste
INFLORESCENCE:	1-12 flowers in axillary umbellate cymes, subtended by 2 to several bracts; flowers year round
FLOWER:	sepals: 5, lanceolate; corolla: petals 5, yellow, spatulate, rounded to emarginate; stamens: 5 short and 5 longer; styles: 5
FRUIT:	cylindrical to ellipsoid capsule, 5 angled, pubescent
SEED:	reddish brown, compressed, ridged, explosively ejected; may be dispersed by birds
HABITAT:	disturbed areas, croplands, lawns, greenhouses, gardens, landscaped areas, pastures, facultative upland; ability to survive arid conditions, pioneer species; tolerates shade and mowing
CONTROL PROBLEMS:	often resistant to hormone type herbicides
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of mechanical/hand weeding if root not completely removed
USES:	medicinal, edible in salads
FUNGAL PATHOGENS:	*Colletotrichum*
MISCELLANEOUS:	First collected in Guam 1819 (Stone, 1970), in Pacific as of 1954, not specific to Guam, generic to Pacific (Merrill, 1954); toxic, may cause poisoning of cattle; serves as ground cover in preventing soil erosion in tea/coconut crops

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.
Stone, Benjamin C. 1970. The Flora of Guam, Micronesica, 6: 1-659.

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Weeds of Guam

Phyllanthus amarus

Euphorbiaceae

Weed #A23

Alternate leaf arrangement

Axillary flowers and fruit capsules along stem

Flowers hidden under leaves

SCIENTIFIC NAME: *Phyllanthus amarus* Schum. & Thonn.

ROOT WORD: phyllon = leaf, anthos = flower, amarus = bitter

VERNACULAR: Maigo-lalo

SYNONYM: *P. niruri* sensu Merrill

SIMILAR SPECIES: *Phyllanthus debilis* Klein ex Willd., *P. tenellus* Roxb., *P. urinaria* L.

ORIGIN: native to tropical America

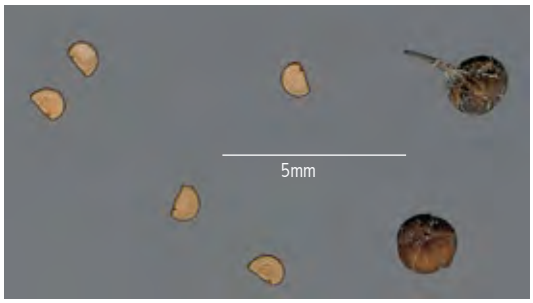
Phyllanthus amarus

Leaves simple, small

Top view: stems white (often)

Woody stem base

Ribbed stem and leaf stipules



Seeds (left), capsules (right)

FORM:	erect herb, branching with age
ROOT:	fibrous, easy to remove
STEM:	longitudinally ribbed, base becoming woody (sometimes)
LEAVES:	alternate, simple, distichous (2 ranked), 15-35 leaves, appear compound, oblong to oblanceolate; margins entire; surfaces glabrous; stipules lanceolate
INFLORESCENCE:	monoecious, axillary, unisexual flowers in mixed pairs; flowers hidden under leaves, minute
FLOWER:	small; male flowers: calyx: 5-lobed, reflexed, petals absent; female flowers: calyx: 5-lobed, oblong, petals absent
FRUIT:	green to yellow brown, depressed, globose to three angled capsule, splitting explosively into six each one-seeded segments
SEED:	5-7 in each capsule, ribbed, angled, pale yellowish brown
HABITAT:	roadsides, disturbed areas, waste areas, cropland, greenhouses, landscaped areas, facultative upland; tolerant of partial shade
PROPAGATION:	seed, regrowth reduces effectiveness of mechanical/hand weeding if root not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Tahiti) in 1847 "(Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

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Weeds of Guam

Physalis angulata

Solanaceae

Weed #A24

Inflated calyx surrounds fruit

Berry matures green to yellow

Shallow 5-lobed flower with 5 brownish throat spots

SCIENTIFIC NAME: *Physalis angulata* L.

ROOT WORD: physa = bladder, agulata = angular stem

COMMON NAME: Wildcape Gooseberry, Groundcherrry

VERNACULAR: Tomates Chaka

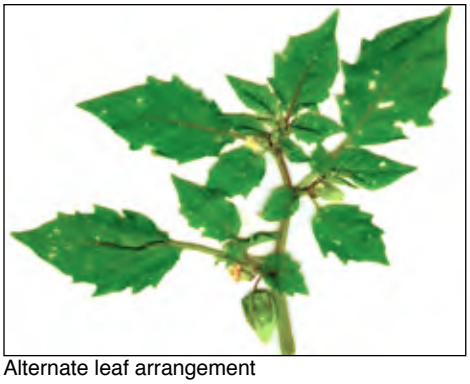
SYNONYM: *Physalis minima* L.

ORIGIN: native to tropical America and may be native to Pacific Islands

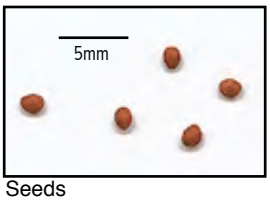
Physalis angulata

Young *Physalis* growth habit

Irregularly toothed margins



Alternate leaf arrangement



Seeds

FORM:	erect, many branched annual herb
ROOT:	shallow taproot
STEM:	angled, ribbed, hollow, glabrous mostly
LEAVES:	alternate, simple, ovate to elliptic; surfaces glabrous mostly; pubescent (slightly) on young leaf buds ;margins entire to irregularly toothed; asymmetric at base (somewhat)
INFLORESCENCE:	solitary, in leaf axils, slightly pendulous
FLOWER:	calyx: 5-lobed, corolla: petals united (tubular), rotate, shallowly 5-lobed, pale yellow to yellow green; 5 brownish spots located in interior of tube; stamens 5; style 1
FRUIT:	subglobose succulent berry surrounded by membranous, inflated, urn-shaped calyx, pale yellow with maroon venation
SEED:	reniform, flat, yellowish; disseminated by birds/cattle, fruits can float; germinates in both light and dark, no germination of seeds at 10 cm depth, germination greatest at pH 6-8, seeds viable two weeks after anthesis, maximum viability at four weeks
HABITAT:	disturbed areas, roadsides, fallow areas, waste areas, cropland, greenhouses, moist areas, fertile soils; ability to survive arid conditions; tolerant of partial shade; germination higher on tilled land versus no till
BIOLOGY:	C3 photosynthetic pathway
CONTROL PROBLEMS:	shows resistance to herbicides
PROPAGATION:	seed
USES:	medicinal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	herbal, toxic, contains alkaloids poisonous to cattle; “First recorded in the Pacific Islands (Tahiti) in 1769” (Whistler, 1995), “in Pacific as of 1954, not specific to Guam, generic to Pacific” (Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

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Pilea microphylla

Urticaceae

Weed #A25

Pilea microphylla growing through a one inch drainage hole of a one gallon pot.

Axillary clusters of flowers

SCIENTIFIC NAME: *Pilea microphylla* (L.) Liebm.

ROOT WORD: pileus = cap (shape of female flowers), micro = small, phylla = leaf

COMMON NAME: Gunpowder Plant, Artillery Plant, Rockweed

SYNONYM: *Parietaria microphylla* L., *Pilea muscosa* Lindl.

ORIGIN: native from tropical South America to Florida

Pilea microphylla

Seeds mature red to brown

Leaves of a pair unequal in size

Compact growth form when growing in full sun

P. microphylla seedling

Seeds minute

FORM:	prostrate herb, reddish tinged (sometimes), branched
ROOT:	fibrous, dense fine network, many branched
STEM:	succulent, glabrous; rooting from nodes; slightly woody at base (sometimes)
LEAVES:	opposite, leaves of a pair unequal in size, obovate to oblong (variable), crowded throughout stem; surfaces glabrous; margins entire; one nerved; upper surface with crowded cysoliths; stipulate
INFLORESCENCE:	monoecious or diocious, axillary cymes or sessile clusters
FLOWER:	unisexual; green to white; petals absent; male flowers: calyx: 4-lobed, glabrous, each lobe with a short pointed appendage, stamens: 4; female flowers: calyx: 3-lobed, appendages inconspicuous, stigma: sessile
FRUIT:	achene, ellipsoid, compressed
SEED:	ejected from fruit forcefully, prolific seed producer
HABITAT:	disturbed areas, rock walls, sidewalks, potted plants, lawns, croplands landscape areas, greenhouses, facultative upland; tolerant of shade, naturalized on limestone; prefers high moisture environments
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Phytophthora*
MISCELLANEOUS:	“First recorded in the Pacific Islands (Marquesas, Hawaii, Samoa) in 1920” (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Portulaca oleracea

Portulacaceae

Weed #A26

Notched yellow petals

Seeds spilling out of opened fruit capsule

SCIENTIFIC NAME: *Portulaca oleracea* L.

ROOT WORD: portulaca = purslane, oleracea = of the vegetable garden/ potherb

COMMON NAME: Purslane

VERNACULAR: Bodulagas Donkulu

ORIGIN: uncertain

Portulaca oleracea

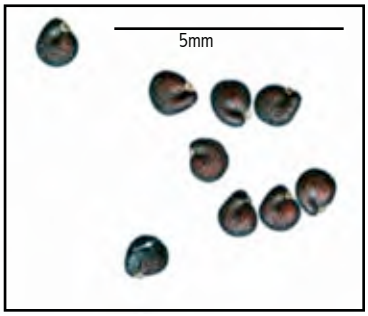
Stems succulent, reddish maroon often

Wedge-shaped leaves

Leaves congested at stem tips

Flowers clustered at branch tips

P. oleracea seedling



Glossy black seeds

FORM:	prostrate to ascending succulent herb, fleshy, forms mats
ROOT:	taproot, fleshy
STEM:	glabrous except at axils, succulent, branching at base, red (often)
LEAVES:	alternate to subopposite, simple, obovate to cuneate (wedge-shaped), slightly notched at apex (sometimes), sessile to subsessile; surfaces glabrous; margins entire; tuft of hairs in axils
INFLORESCENCE:	cymose cluster of 2-6 sessile flowers at branch tips
FLOWER:	calyx: 2, green, ovate, keeled; petals: 4-5, yellow, notched at tip; stamens: 7-10; style: 5 branched; one month to flowering, flowers year round, flowers open morning till noon, day neutral; under adverse conditions may be cleistogamous (pollination/fertilization occurs within unopened flower)
FRUIT:	ovoid, circumsissile capsule opening by terminal cap; capsule maturation 7-12 days
SEED:	numerous, lens-shaped, black, slightly roughened, glossy; fresh seeds germinate well in light but not in dark, older seeds germinate in light and dark, viable for 19 years; plants continue to ripen seeds even with no root system; dispersed by wind/ water/ birds; 10,000 seeds per plant
HABITAT:	disturbed areas, gardens, turf, roadsides, croplands, driveways, waste areas, greenhouses, landscaped areas, facultative upland; tolerates a variety of soil types, prefers rich, moist soil; ability to survive arid conditions; pioneer species
PROPAGATION:	seed; stem fragments, stem fragments root on contact with soil; entire plants lifted from soil can survive long periods and may re-root
ECOLOGY:	prostrate in full sun, more upright/ decreased growth in shade
USES:	edible, parboiled, leaves: cultivated forms "have superior flavor to common weedy forms" (Brown, 1995), "rich source of omega-3 fatty acids" (Brown, 1995), herbal, medicinal
FUNGAL PATHOGENS:	*Pythium*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Tonga) in 1840" (Whistler, 1995), toxic, "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954); ranks 9th in Worlds Worst Weeds (Holm et al., 1977); pig food; leaves/ stems accumulate toxic levels of oxalates causing sickness/death to livestock

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.
Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands*. Isle Britannica, Hawaii.
Brown, Deni. 1995. *Encyclopedia of Herbs & Their Uses*. Dorling Kindersley Publishing, NY.

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Weeds of Guam

Sida rhombifolia

Malvaceae

Weed #A27

Numerous dark yellow stamens and a stigma in center of flower

Long flower stalks

SCIENTIFIC NAME: *Sida rhombifolia* L.

ROOT WORD: sida = Greek name for a water plant transferred to this genus, rhombifolia = rhombic (diamond)-shaped leaves

COMMON NAME: Broomweed, Cuba jute, Arrowleaf Sida, Common Sid**a**

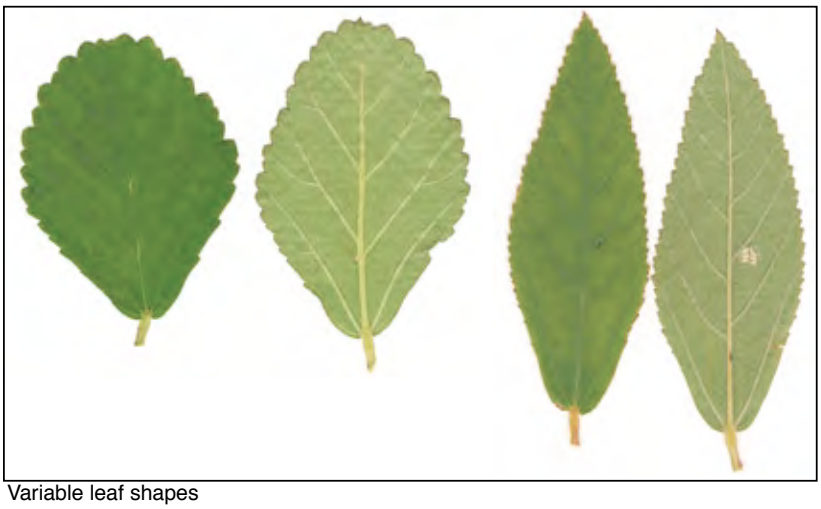
VERNACULAR: Escobilla Dalili, Escobilla Apaka, Escobilla Adumelon

SIMILAR SPECIES: *Sida acuta* Burm. f.

ORIGIN: native place uncertain, probably native to islands, now pantropical

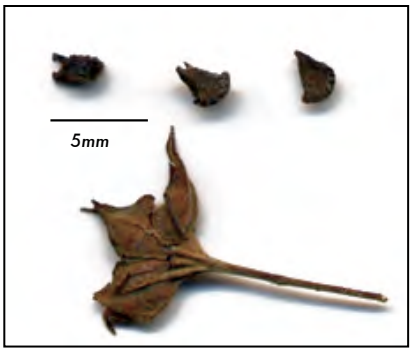
Sida rhombifolia

Alternate leaf arrangement



Variable leaf shapes

Lower surface of leaves gray white



Schizocarp (top), persistant calyx (bottom)

FORM:	branched semiwoody subshrub
ROOT:	strong taproot, difficult to remove
STEM:	finely pubescent, fibrous, tough
LEAVES:	alternate, simple, rhomboid to elliptic to ovate (variable shape); margins serrate near tip and entire near base; lower surfaces pubescent; stipules linear, paired; fold inwards exposing lower surfaces, unfold at dawn and follow sun at a right angle during daylight hours
INFLORESCENCE:	solitary, axillary, subterminal, on long pedicels (stalk), pedicel pointed
FLOWER:	calyx: deeply 5-lobed, ribbed; petals: rotate, 5-unequally bilobed, pale yellow to pale orange; stamens: numerous, monodelphous (united); style: branched; flowers open for 2-5 hours and expire by the next day
FRUIT:	flattened globose to wedge-shaped schizocarp; 9-12 segments bearing a terminal spine (awn); wrinkled or nearly smooth mericarp; persistent calyx around schizocarp
SEED:	flattened, dark brown to black; fresh seed dormant, germinates in either light or dark, 50 percent germination on soil surface; 4,000 to 11,600 per plant, can float for long periods
HABITAT:	waste areas, roadsides, disturbed areas; ability to survive arid conditions, tolerates a variety of soil types, does well on limestone soils; no till systems; facultative uplands
PROPAGATION:	seed, regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	cordage, broom heads, herbal, leaves used in tea, medicinal, source of hemp, fiber of good quality from stems called Cuba jute or Australian hemp
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	awned mericarps contaminate grain, injure livestock when used in rations; “in Pacific as of 1954, not specific to Guam, generic to Pacific” (Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.

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Weeds of Guam

Spermacoce assurgens

Rubiaceae

Weed #A28

Terminal flower cluster

Petals often pink tinged

SCIENTIFIC NAME: *Spermacoce assurgens* Ruiz & Pavon

ROOT WORD: Assurgens = ascending, rising upwards, sperma = seed, kokkos = grain or berry

COMMON NAME: Buttonweed

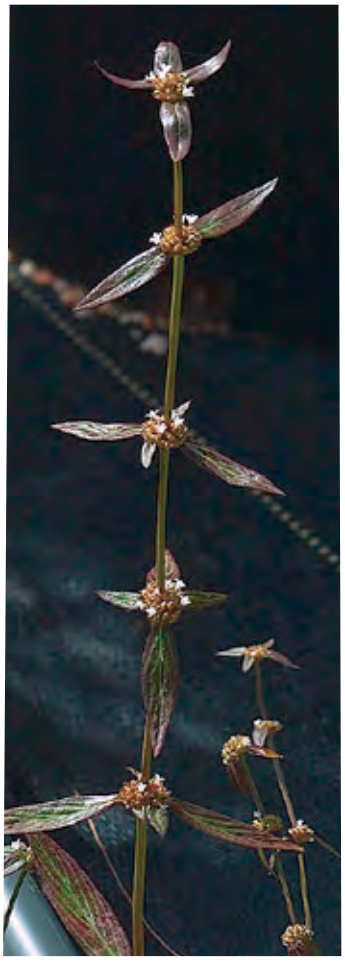
SYNONYM: *Borreria laevis* (Lam.) Griseb., *S. laevis* Lam.

SIMILAR SPECIES: *Spermacoce ernstei* Fosberg & Powell

ORIGIN: native to tropical America

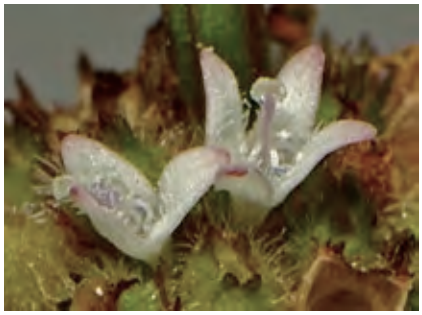
Spermacoce assurgens

Stipules are fused to the petioles



Sessile clusters of flowers along stem. Opposite leaf arrangement

S. assurgens seedlings



Stigma protruding from flower

Grooved, brown seeds

FORM:	erect, branching (sometimes) herb
ROOT:	taproot, deep, difficult to remove
STEM:	glabrous to finely pubescent; round to four angled, base becoming semiwoody; purple tinted (often)
LEAVES:	opposite, simple, narrowly elliptic; surfaces glabrous, maroon colored (often); margins entire; stipules adnate (fused) to petioles
INFLORESCENCE:	axillary and terminal sessile clusters, subtended by bract-like leaves
FLOWER:	perfect; calyx: 4-lobed ciliate; corolla: funnelform, petals: white to pink tinged, 4-lobed, triangular; stamens: 4, do not protrude from corolla
FRUIT:	ellipsoid capsule
SEED:	2, dull brown with a groove on one side, oblong
HABITAT:	disturbed areas, roadsides, lawns, landscaped areas, greenhouses, facultative upland; tolerates partial shade
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1929" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Stachytarpheta jamaicensis

Verbenaceae

Weed #A29

Flowers on spike

Closeup of flower

Mounding habit

SCIENTIFIC NAME: *Stachytarpheta jamaicensis* (L.) Vahl

ROOT WORD: stachys = spike, tarphys = thick, jamaicensis = Jamaican

COMMON NAME: Jamaican Vervain, False Verbena

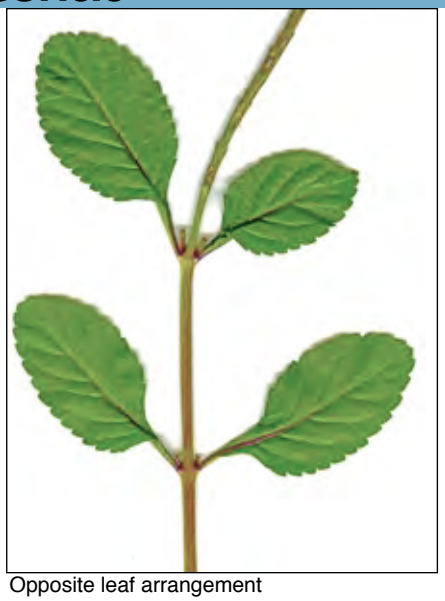
SYNONYM: *Verbena jamaicensis* L.

SIMILAR SPECIES: *Stachytarpheta urticifolia* (Salisb.) Sims

ORIGIN: native to tropical America

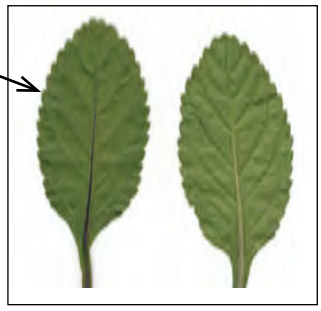
Stachytarpheta jamaicensis

Woody stem base



Opposite leaf arrangement

Plants affected often by powdery mildew (*Oidium stachytarphetae*)



Main veins maroon colored often

S. jamaicensis seedling

Seeds (left), nutlet (right)

FORM:	erect, sparsely branched subshrub
ROOT:	taproot, strong, woody with white laterals
STEM:	woody base with herbaceous shoots, young stems slightly 4-angled becoming round, purplish (sometimes); dichotomously branched; nodes pilose (sparsly)
LEAVES:	opposite, simple, elliptic to obovate; surfaces glabrous (mostly); margins serrate; pale green to bluish or grayish green; veins depressed above, prominent below, puckered (bullate) between secondary lateral veins
INFLORESCENCE:	upright, stiff terminal spike indeterminate, flowers solitary, sessile subtended by a lanceolate bract (persistant), flowers year round; only a few flowers at a time (2,3)
FLOWER:	calyx: 5-lobed, embedded in rachis furrows; corolla: 5-lobed, salverform, tube curved, lavender to pale violet; stamen 2, epipetalous; style: filiform, style base persists in fruit
FRUIT:	oblong nutlet, splits into two segments, enclosed within persistant calyx
SEED:	linear, shiny, black; 2000 seeds per plant; viable buried for 6.5 years
HABITAT:	disturbed areas, roadsides, waste areas, croplands, pastures, vacant lots, landscaped areas, facultative upland; indicator of poor soils (low in nitrogen); dry or wet areas
PROPAGATION:	seed, regrowth from lower nodes if root system not completely removed
USES:	herbal, medicinal
FUNGAL PATHOGENS:	*Corynespora, Oidium stachytarphetae*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1913" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954); herbal; toxic

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Synedrella nodiflora

Weed #A30

Asteraceae

Tribe: *Heliantheae*

Winged petioles

Opposite leaf arrangement

SCIENTIFIC NAME: *Synedrella nodiflora* (L.)

ROOT WORD: Synedrella = seated together in reference to inflorescence, nodiflora = presence of flowers in nodes of leaf axils

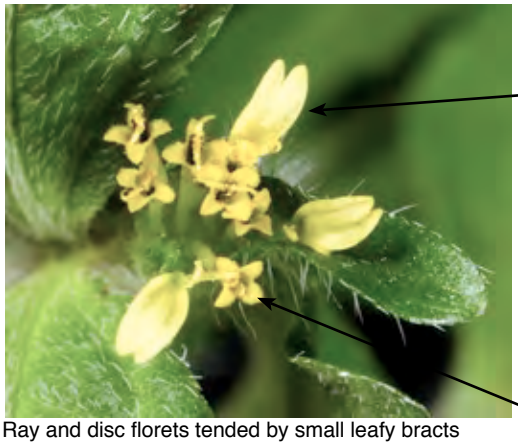
COMMON NAME: Nodeweed, Syndrella

SYNONYM: *Verbesina nodiflora* L.

SIMILAR PLANT: *Calyptocarpus vialis* Less

ORIGIN: native to tropical America

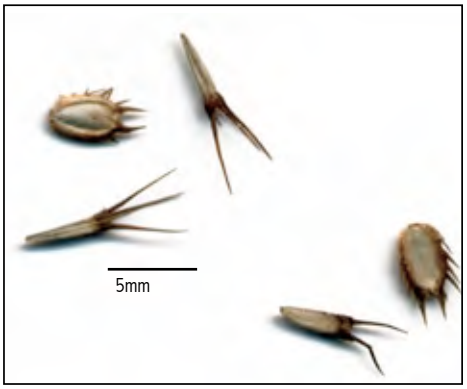
Synedrella nodiflora



Ray and disc florets tended by small leafy bracts

Axillary flower heads

Four lobed disk floret with tubular corolla



Ray floret seed: flat, oval: disc floret seed: cylindrical

FORM:	branched, erect herb
ROOT:	branched taproot
STEM:	ribbed, dichotomously branched, subangular, smooth to sparsely hairy
LEAVES:	opposite, simple, ovate to elliptic, sub-sessile; surfaces with hairs forming white dots at their base; margins sub-entire to crenate; pubescent on both surfaces; three prominent veins; strigose
INFLORESCENCE:	axillary heads, subtended by lanceolate bracts
FLOWER:	ray floret: 3-5, yellow, 3 lobed; disc floret: 8-9, corolla tubular, 4 lobed, yellow
FRUIT:	achene 2 types, ray floret: flat, oval, spiny edged, two short terminal awns, disc floret: cylindrical, two terminal awns
SEED:	dispersed by wind/water/animals, form of dispersal varies with disc or ray florets (disc seed detach earlier than ray seed), ray seeds often lack dispersal structures; fresh seed germinates quickly, germinate in wide range of conditions, both ray and disc seeds germinate in light and dark conditions; both ray and disc florets produce viable seeds, viable for one year and to 10cm. in depth; 6330 seeds per plant
HABITAT:	lawns, roadsides, plantations, facultative upland; adapted to many environments; best in moist areas; tolerant of partial shade
PROPAGATION:	seed, regrowth results if root system not completely removed
USES:	herbal, medicinal, leaves edible
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Samoa) in 1905" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Tridax procumbens

Asteraceae

Weed #A31

Tribe: *Heliantheae*

Opposite leaf arrangement

Close-up of flower head differentiating ray florets (cream) and disc floret (yellow)

Margins irregularly toothed or lobed

SCIENTIFIC NAME: *Tridax procumbens* L.

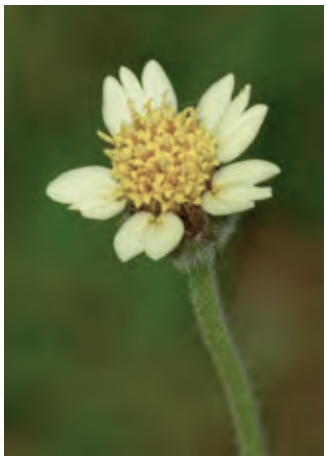
ROOT WORD: tridax = three lobes of the ray florets, procumbens = prostrate habitat, trailing stems

COMMON NAME: Coat Buttons, Wild Daisy, Tridax Daisy, Tridax

ORIGIN: native to tropical America

Tridax procumbens

Pubescent bracts of flower head

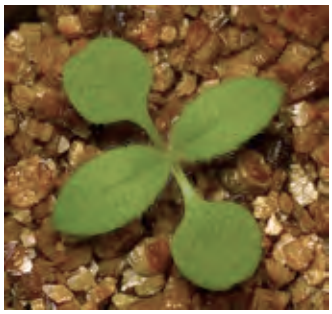


Solitary flower head

Seed head with bristles at maturity

Pappus closeup

Disc floret (left), ray floret (right)



T. procumbens seedling

Pubescent achenes dispersed by wind and water

FORM:	low growing, ascending to procumbent herb
ROOT:	taproot, slender with many lateral branches
STEM:	base woody (somewhat), hirsute, ribbed
LEAVES:	opposite, simple, ovate to lanceolate, entire or 3-lobed to pinnately lobed; margins irregularly toothed or lobed; surfaces hispid, rough textured; petiole hairy
INFLORESCENCE:	terminal or axillary solitary heads, heads campanulate (bell-shaped), heads tended by bracts; peduncle long, erect, pilose
FLOWER:	ray florets: 3-6, corolla strap-shaped, 3-lobed, white or pale yellow to cream, pistillate, pappus shorter than disc florets; disc florets: many, perfect, corolla tubular, 5 lobed, yellow, palea membranous (encloses floret), style branched, pubescent
FRUIT:	achene, black, cylindrical, pubescent, pappus of unequal plumose bristles
SEED:	germination over prolonged periods, variable pattern, fresh seed requires light to germinate, older seeds (2 months) germinate in darkness, seeds from 2 cm. to 4 cm. depth do not emerge, best germination at pH 6-8; 500-2500 seeds per plant
HABITAT:	disturbed areas, waste areas, roadsides, facultative upland, especially on limestone, adapts to many environments, pioneer species, coarse textured soils; ability to survive dry conditions, less competitive but adaptable to micro habitats (enhances survival in mixed plant community), tolerates mowing, tolerates some shade
BIOLOGY:	cross/self pollinated, pollinators: thrips, butterflies, beetles, bees
PROPAGATION:	seed, stems break easily when mechanically pulled and plants regrow from lower nodes
USES:	herbal, green feed for poultry, medicinal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Fiji) in 1906" (Whistler, 1995); Federal Noxious Weed List 09-12-02; allelopathic properties

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

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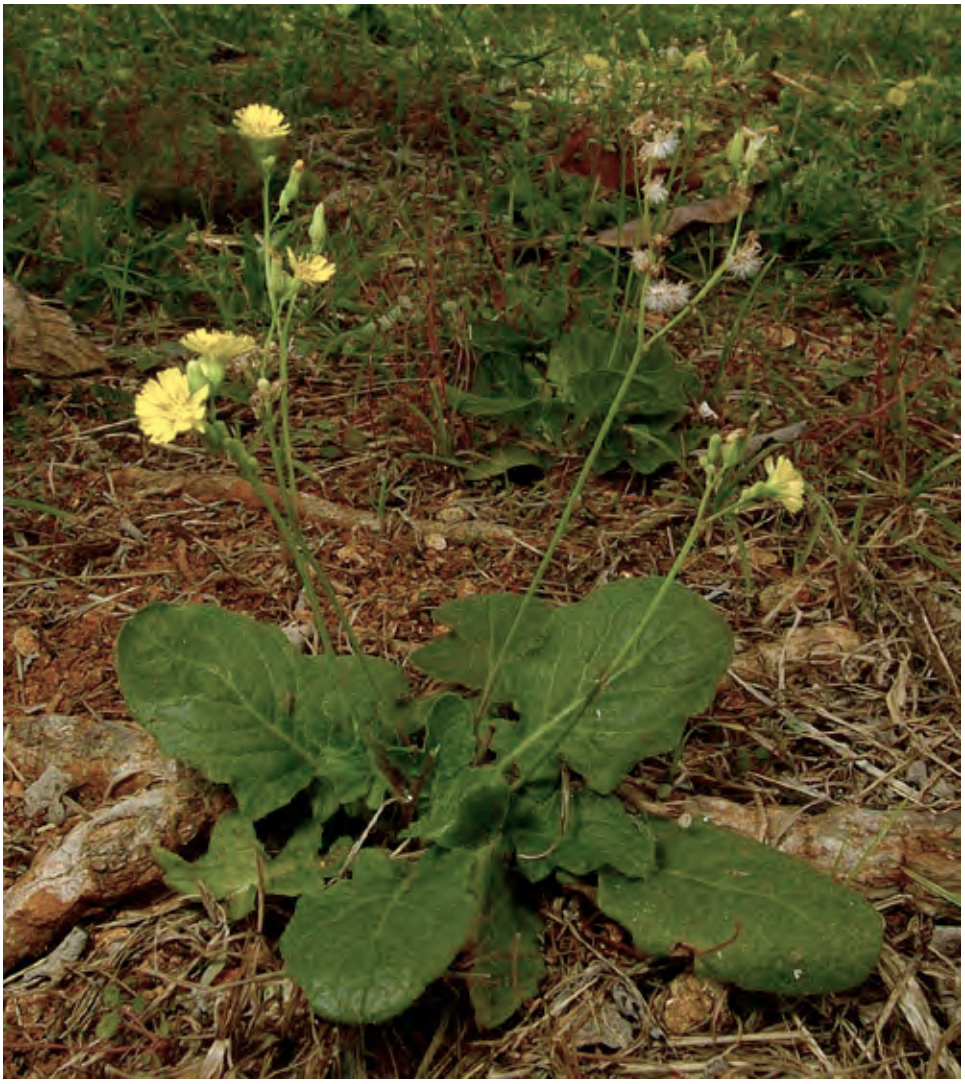
Weeds of Guam

Youngia japonica

Asteraceae

Weed #A33

Tribe: *Lactuceae*



Close-up of ligulate flower head

Ray floret closeup

Bracts tending flower head

Closeup of opened and unopened flower heads

SCIENTIFIC NAME: *Youngia japonica* (L.) DC.

ROOT WORD: Named for Edward and Thomas Young

COMMON NAME: Oriental Hawksbeard

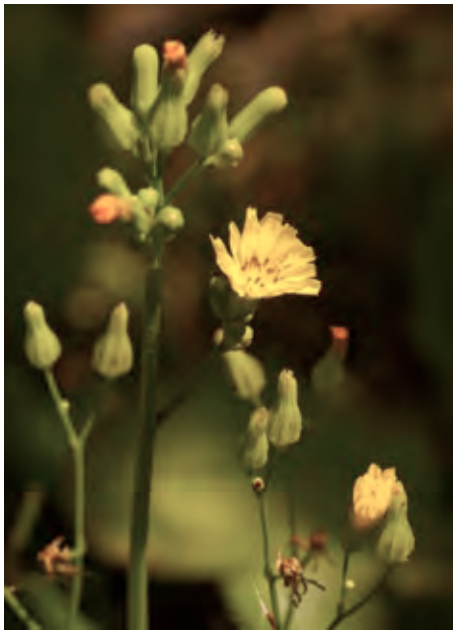
SYNONYM: *Crepis japonica (L.) Benth, Prenanthes japonica* L.

ORIGIN: native to Southeast Asia, East Asia, Malaysia, India to Australia and some Pacific Islands

Youngia japonica

Cauline leaves on upper portion of the plant

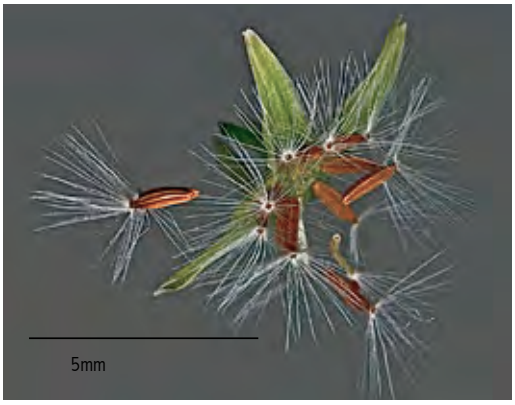
Indentation of veins on upper leaf surface, produces a puckering of the leaves



Panicle of flower head

Aphids (*Uroleucon formosanum*) on inflorescence

Seedlings often form dense mats covering the ground



Small, ribbed achene with white pappus

FORM:	small, subscapose herb
ROOT:	taproot
STEM:	glabrous to barely pubescent, ribbed, sap milky, few cauline (belonging to stem) leaves
LEAVES:	basal (mostly) those rosette, simple, obolanceolate to lyrate-pinnatifid; surfaces glabrous (minutely pubscent, scarcely visible); margins subentire to pinnately lobed, terminal lobe largest; cauline leaves (few) alternate, sub-sessile, small
INFLORESCENCE:	terminal panicle of ligulate heads
FLOWER:	ray florets: 10-20, yellow, 4-5 toothed, subtended by whorl of bracts (glabrous), perfect, ligulate (strap-shaped); disc florets: absent
FRUIT:	achene (1 seeded), brown, linear, ribbed, pappus white, slender hairs (soft), persistent
SEED:	dispersed by wind
HABITAT:	moist, disturbed areas, sidewalks, roadsides, greenhouses, pots, landscape areas; tolerates shade
PROPAGATION:	seed
USES:	herbal
FUNGAL PATHOGENS:	rust
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1864" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Antigonon leptopus

Polygonaceae

Weed #B1

Leaves with conspicuous veins

Alternate leaf arrangement. young leaves red colored

Pink tepals and yellow reproductive organs in center

Inflorescence of pink flowers

Inflorescence of white flowers

SCIENTIFIC NAME: *Antigonon leptopus* Hooker & Arnot

ROOT WORD: anti = in place of, polygonon = knotweed in reference to affinity to Polygonum (poly=many, gonu=joint)

COMMON NAME: Chain of Love, Love vine, Mexican Creeper, Coral Vine

VERNACULAR: Cadena De Amor

ORIGIN: native of Mexico

Antigonon leptopus

Forms massive root systems

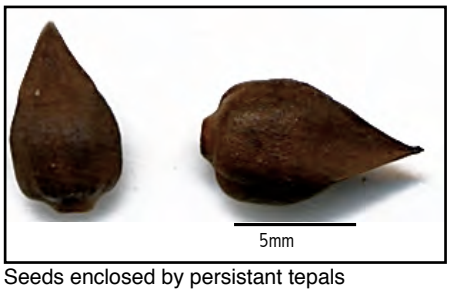
Swollen tuber-like thickenings of root system

Coiled axillary tendril

A. leptopus seedling

Red stems of seedlings

Panicle of many small flowers



Seeds enclosed by persistant tepals

FORM:	climbing vine with axillary tendrils
ROOT:	reddish brown, thickened, tuber-like
STEM:	angled, lower stem reddish brown, thickened
LEAVES:	alternate, angular, ovate, triangular somewhat, heart-shaped; entire; veins conspicuous, puberlent along veins; tendrils branched
INFLORESCENCE:	racemes, many flowered
FLOWER:	perfect; tepals: 5-6, membranous, pink to deep pink or white; stamens: 7-9; styles: 3, stigmas capitate
FRUIT:	achene, angled; enclosed by persistant petals
SEED:	prolific seed producer
HABITAT:	disturbed areas, roadsides, landscaped areas, facultative uplands; climbs high in trees; ability to survive arid conditions
PROPAGATION:	seed; regrowth from tuber reduces effectiveness of hand/mechanical weeding if tuber not completely removed
USES:	edible underground tubers, herbal
FUNGAL PATHOGENS:	*Colletotrichum, Pestalotia*
MISCELLANEOUS:	aggressive weed; Invasive Plants of Micronesia List

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Weeds of Guam

Coccinia grandis

Cucurbitaceae

Weed #B2

Leaves 5-lobed with a short spiny leaf tip

Alternate leaf arrangement

Fruit in different stages of ripening

SCIENTIFIC NAME: *Coccinia grandis* (L.) Voigt

ROOT WORD: coccineus = scarlet in reference to fruit, grandis = big/ showy

COMMON NAME: Ivy gourd, Scarlet Fruited Gourd

SYNONYM: *Bryonea grandis* L.

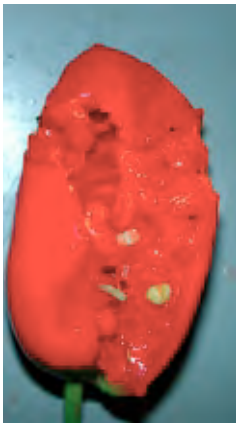
ORIGIN: native from Tropical Africa to Australia

Coccinia grandis

Stem base thickens and becomes white with age

Staphylinidae (insect family) on flower (often)

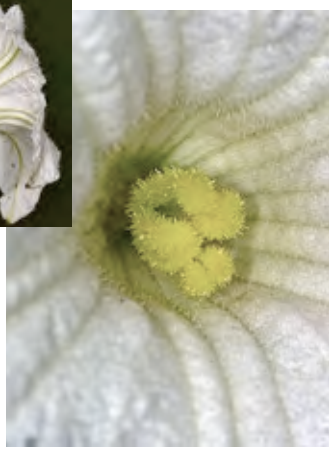
Tendrils unbranched, simple

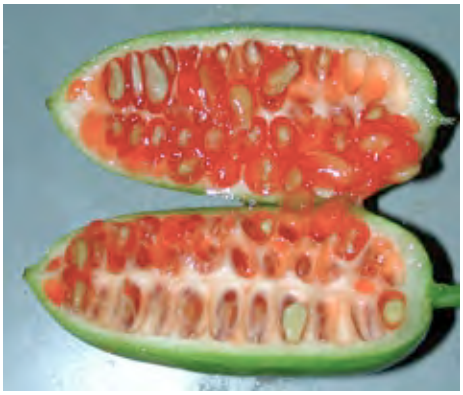


Ripe berry is bright red

Male flower

Female Flower





Cut green fruit shows seeds in pulp

FORM:	herbaceous high climbing vine
ROOT:	tuberous, white, fleshy, becoming extremely thickened and white colored with age
STEM:	glabrous, tendrils simple, axillary
LEAVES:	alternate, simple, broadly ovate in outline with a basal sinus, 5-angled to palmately 3-7 - lobed; mucronate; upper surface glabrate, lower surface hispid with 3-8 glands near petiole attachment; margins denticulate
INFLORESCENCE:	dioecious (separate male and female plants), solitary (usually), axillary
FLOWER:	male flower: solitary (mostly) on a stalk, calyx: 5-lobed, recurved; corolla 5-lobed, white, ovate; stamens 3; female flower: solitary on stalks; perianth (corolla and calyx) smaller than male flowers (usually); staminoids (sterile stamens) 3; stigma 3-lobed
FRUIT:	bright red ovoid to ellipsoid berry, smooth; pulp red; produced on female plants; need both male and female plants grown in near proximity to bear fruit
SEED:	ovate, tan, numerous
HABITAT:	waste areas, disturbed areas, roadsides, landscaped areas; ability to survive under arid conditions; faculative upland; climbs high in trees
PROPAGATION:	seed, stem fragments, tubers, regrowth results if tuber not completely removed
USES:	medicinal, edible (vine tips)
FUNGAL PATHOGENS:	*Colletotrichum*
MISCELLANEOUS:	"First recorded in the Pacific Islands in 1940 (Fiji)" (Whistler, 1995); in Hawaii & Caribbean birds eat fruit; Invasive Plants of Micronesia List

Reference: Whistler, Arthur, W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

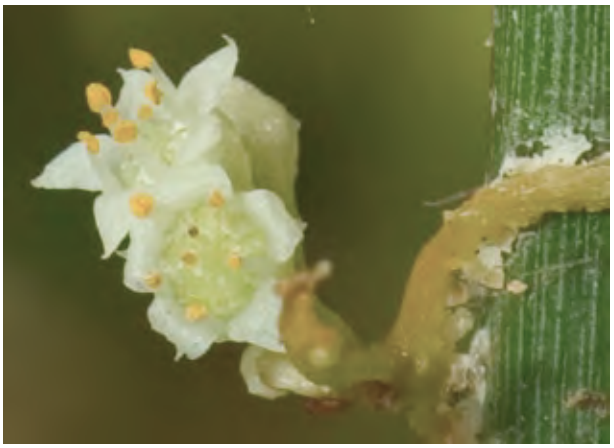
Cuscuta campestris

Cuscutaceae

Weed #B3

Stems form tangled masses that cover host plants

Stamens 5, deep yellow



Triangulate five lobed inflexed (often) petals

Regrowth of vine occurs if haustoria are not completely removed

SCIENTIFIC NAME: *Cuscuta campestris* Yunck.

ROOT WORD: cuscuta = medieval Latin for dodder, campestris = of the fields/ open plains

COMMON NAME: Field Dodder, Golden Dodder

SIMILAR PLANT: *Cassytha filiformis* L.: common near the beach and in savanas

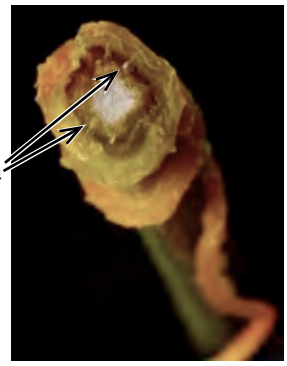
ORIGIN: Unknown

Cuscuta campestris

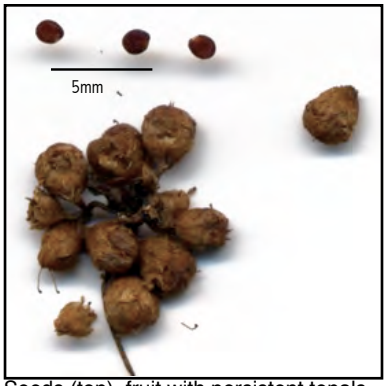
Cuscuta growing on host *Coccinia grandis*

C. campestris parasitizing Sunn Hemp (*Crotalaria juncea)*

Pe-tsai (*Brassica chinenesis*) with parasitic *Cuscuta* in a farming habitat



Haustoria (absorbing organs) tightly attach to host plant



Seeds (top), fruit with persistent tepals (bottom)

FORM:	parasitic twining vine
ROOT:	root system degenerates as plant matures
STEM:	terete (imperfectly cylindrical; tapers), slender, glabrous, yellow white; attachment to host by haustoria, not photosynthetic
LEAVES:	minute, reduced to tiny scales
INFLORESCENCE:	compact, globose clusters, cymose
FLOWER:	small, perfect; calyx: sepals 4 -5, almost enclosing corolla tubes; corolla: white or reddish, 5-lobed, lobes triangulate, tips inflexed (often); stamens 5, shorter than lobes, conspicuous scales below stamens, inserted on corolla tube alternate with lobes; styles 2, slender, free, terminal, stigmas dry, discoid
FRUIT:	capsules, subglobose with persistent membranous corolla, 1- 4 seeds per capsule
SEED:	subglobose, flattened (usually on one side), smooth, color varies; dispersed by crop seed contamination and animals (remain viable after passing through gut)
HABITAT:	cropland, landscaped areas, waste areas; seedling can survive for weeks without host if ground is moistened daily, upon emergence grows towards highest light source; in shaded environments growth and maturity delayed
BIOLOGY:	self pollinated, can be cross pollinated; dependent on host for moisture and inorganic nutrients, dies if connection to host severed
PROPAGATION:	seed, stem fragments; regrowth if haustoria not entirely removed from host plant; germinates in light and dark, fresh seed has highest germination; viability 10-20 years, seeds do not retain viability in working field for long (five years)
HOST PLANTS:	*Cucumis melo, Lycopersicon esculentum, Acalypha species, Russelia equisetiformis, Coccinia grandis, Canna indica,* young *Leucaena leucocephala, Euphorbia heterophylla, Jatropha integerrima, Crotalaria juncea, Brassica chinensis, Solanum melongena* and many other plants.
USES:	herbal
FUNGAL PATHOGENS:	*Phomopsis*
MISCELLANEOUS:	intestinal and blood disorders occur in cattle/horses when ingested (symptoms of toxicity, poisoning); conduit for the transmission of some plant viruses; Invasive Plants of Micronesia List

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Ipomoea triloba

Convolvulaceae

Weed #B4

Funnel-shaped corolla with dark purple throat

Closeup of flower

SCIENTIFIC NAME: *Ipomoea triloba* L.

ROOT WORD: ips = worm, bomoios = simular to, triloba = three lobed in reference to leaf

COMMON NAME: Little bell, Three Lobe Morning Glory

VERNACULAR: Fofgu-sabana

SYNONYM: *I. mariannensis* Choisy

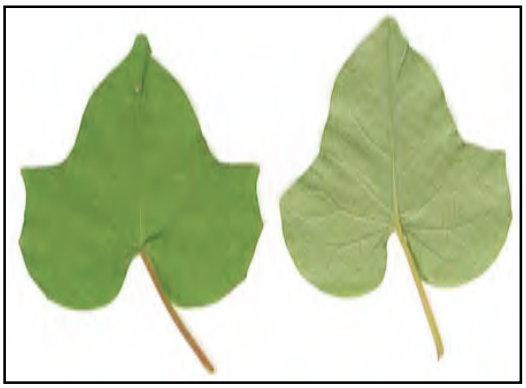
SIMILAR SPECIES: *Ipomea obscura* (L.) Ker-Gawl.

ORIGIN: native to West Indies, native of tropical American

Ipomoea triloba

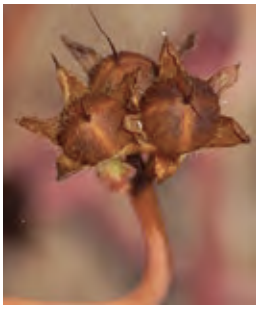
Alternate leaf arrangement

Flea bug causes stippling of the leaves



Three lobed heart-shaped leaves

I. triloba seedling



Fruit capsule with persistant calyx

Seed

FORM:	prostrate, twining herbaceous vine
ROOT:	taproot, fleshy, easy to remove
STEM:	glabrous or finely pubescent, twining at tips, milky sap, angled (somewhat), thickens at base with age
LEAVES:	alternate, simple, broadly ovate to orbicular or three lobed, heart-shaped; margins entire; surfaces glabrous or sparsely pilose
INFLORESCENCE:	axillary, few flowered cymes, solitary (rarely)
FLOWER:	calyx: 5, margins ciliate; corolla: funnel-shaped, purple with deep purple throats; stamens: 5, epipetalous
FRUIT:	subglobose capsule, brown, with bristly hairs and sharp points
SEED:	1- 4, dark brown, shiny; 180 seeds per plant; germinates in two weeks
HABITAT:	disturbed areas, waste areas, roadsides, croplands, pastures, landscaped areas, savannas, facultative upland; tolerates a variety of soil types; wet soils; low shrubs (not high climbing)
BIOLOGY:	self fertile
PROPAGATION:	seed; when stressed (drought) plant can produce seed when at a height of 6 inches
USES:	herbal, important honey bearing plant
FUNGAL PATHOGENS:	*Cercospora, Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1943" (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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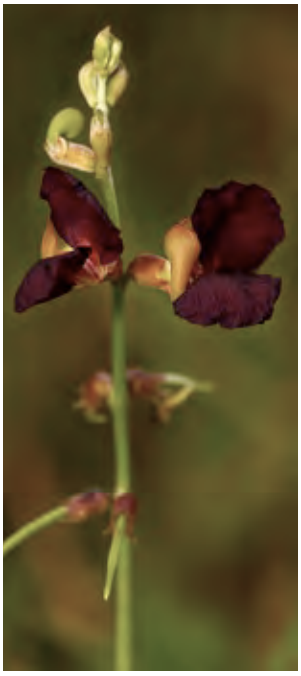
Weeds of Guam

Macroptilium atropurpureum

Fabaceae

Subfamily: Papilionoideae

Weed #B5



Pseudoraceme of flowers

Closeup of flowers

Keel exposed by visitor

SCIENTIFIC NAME: *Macroptilium atropurpureum* (DC.) Urb.

ROOT WORD: makros = long, ptilon = wing, meaning wings of flower are longer than standard and keel

SYNONYM: *Phaseolus atropurpureus* DC.

SIMILAR SPECIES: *Macroptilium lathyroides* (L.) Urb.

ORIGIN: Unknown

Macroptilium atropurpureum

Trifoliate leaves; lateral leaflets lobed

Alternate leaf arrangement

Fruits occur concurrently with flowering

M. atropurpureum seedlings

Opened pod with seeds

FORM:	climbing, twining herbaceous vine
ROOT:	thickened taproot, difficult to remove
STEM:	rooting at nodes, densely pilose, purple maroon color on side exposed to sun, young stems with long white hairs, matted (somewhat)
LEAVES:	alternate, trifoliate; leaflets ovate to rhombic, laterally lobed (usually), lateral leaflets oblique (slanting; unequally sided) with a single lobe on the outer side; surfaces: upper pubescent, lower densely, velvety white sericeous (silky); stipules strongly veined; petiole base swollen with golden hairs, deeply grooved
INFLORESCENCE:	in long pseudoracemes, arise at nodes, bracts caducous (fall off early)
FLOWER:	calyx: 5-lobed; corolla: maroon to dark purple to nearly black or crimson (when backlight); wings: longer than standard and keel, claws long, adnate to staminal tube; keel: twisted, claws long; stamens: 10, diadelphous; style: bent near base with a thickened apical part abruptly bent 90 degrees forming a squarish hook, stigma capitate; wing and keel petals tinged greenish
FRUIT:	cylindrical linear pods, pilose, apex beaked, tan
SEED:	12-15, marbled brown to black, oblong-ellipsoid
HABITAT:	disturbed areas, roadsides, waste areas, landscaped areas, facultative upland
PROPAGATION:	seed
FUNGAL PATHOGENS:	*Corynespora,* rust

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Mikania micrantha

Asteraceae

Weed #B6

Four disc florets per flower head with long exserted styles

Many flowered, flat topped inflorescence

SCIENTIFIC NAME: *Mikania micrantha* Kunth

ROOT WORD: mikania = named for Joseph G. Mikan, micranthus = small flowered

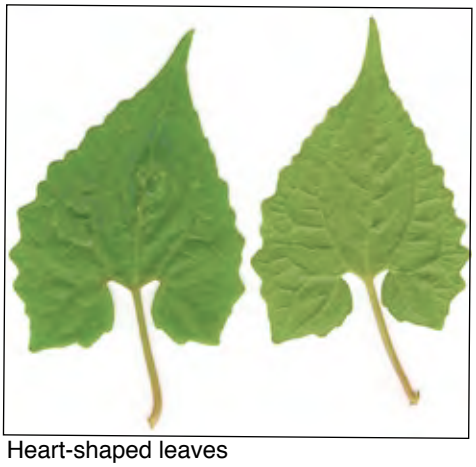
COMMON NAME: Mile-a-minute vine

SYNONYM: *Mikania scandens* (L) Willd.

ORIGIN: native to tropical America

Mikania micrantha

Opposite leaf arrangement



Heart-shaped leaves

A single seed

Mature seed heads

FORM:	twining, scrambling/climbing herbaceous vine, fast growing
ROOT:	roots at nodes
STEM:	glabrous, ribbed, branched, pubescent, slightly four angled, reddish (often); nodes swollen; travels large distances along ground
LEAVES:	opposite, simple, heart-shaped, cordate or deltoid; surfaces glabrous; margins wavy
INFLORESCENCE:	axillary or terminal corymbs, tended by ribbed bracts; flowers in November and December on Guam
FLOWER:	ray florets: absent, disc florets: perfect, 4 per head, corolla tubular, 5 lobed, white; style: branched, long, excerted
FRUIT:	achene, black, 5 angled, linear, pappus of many white bristles, resinous
SEED:	disseminated by wind
HABITAT:	disturbed areas, landscape areas, forest edges (climbs high in trees), roadsides, facultative wetland
PROPAGATION:	seed, fragments with a node root, regrowth if all stem parts not removed; fragments spread by water, humans
USES:	green fodder for cattle/livestock, medicinal
FUNGAL PATHOGENS:	*Cercospora, Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Fiji) in 1906" (Whistler, 1995), Federal Noxious Weed List 09-12-02, Invasive Plants of Micronesia List

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Weeds of Guam

Momordica charantia

Cucurbitaceae

Weed #B7

5-lobed calyx of flower

Female flower with swollen ovary

Closeup of female flower

Cut away of female flower

Closeup of male flower

Cup like bract on male flower stalk

SCIENTIFIC NAME: *Momordica charantia* L.

ROOT WORD: mordeo = to bite (jagged surface), charantia = beautiful flower

COMMON NAME: Balsam Pear, Bitter Gourd, Wild Bittermelon

VERNACULAR: Atmagosu

SYNONYM: *M. balsamina* L.

ORIGIN: native to tropical or subtropical Asia or Africa

Momordica charantia

Palmate, deeply lobed leaves

Alternate leaf arrangement with spirally coiled axillary tendrils

Young stem pubescent

Orange fruit contains bright red seeds

Berry matures green to bright orange

M. charantia seedling

Seeds pale brown with a ridged, pitted surface

FORM:	slender, climbing herbaceous vine
ROOT:	taproot
STEM:	pubescent; tendrils: simple, axillary, spirally coiled, situated at upper side of petiole base
LEAVES:	alternate, simple, deeply palmately 5-7 lobed, suborbicular broad sinus at base; surfaces glabrous; margins irregularly toothed, pubescent; pungent odor when crushed
INFLORESCENCE:	monoecious, solitary, axillary, flowers on a peduncle bearing a cordate bract
FLOWER:	unisexual; calyx 5-lobed on a hypanthium; petals 5; staminate flowers: on stalks with large green bracts, bract located halfway up peduncle, petals bright yellow, male flowers larger, develop sooner then female, more abundant than female flowers, stamens 5 (4 connate with fifth stamen standing apart); pistillate flower: stalked with small bract locacted near base of peduncle, in pistillate flowers stamens as staminodes; flowering can begin 30-35 days after planting, fruits mature 15-20 days later; flowers close in the early afternoon, flowers year round
FRUIT:	dehiscent, fusiform to ovoid berry, longitudinally ridged and warty, orange to dark yellow when ripe
SEED:	pale brown, ovoid, ridged, pitted surface; covered with a moist, sticky, fleshy bright red aril
HABITAT:	cropland, landscape areas, greenhouses, roadsides, disturbed areas, facultative upland; climbs over low vegetation; soil pH 4.3 to 8.7
PROPAGATION:	seed
USES:	medicinal, herbal, vegetable (young shoots/fruit); fruit, flowers used for flavoring, pulpy aril as sweets; high proportion of cartenoid lycopene (red pulp color); bitter substance-momordicine, rich in iron, phosphorous, ascorbic acid; soap substitute
FUNGAL PATHOGENS:	*Cercospora, Colletotrichum*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Fiji) in 1864" (Whistler, 1995); toxic

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Passiflora foetida

Passifloraceae

Weed #B8

Bracts fall away at maturity to expose the deep orange fruit

Bracts opened artificially to reveal floral anatomy

SCIENTIFIC NAME: *Passiflora foetida* L.

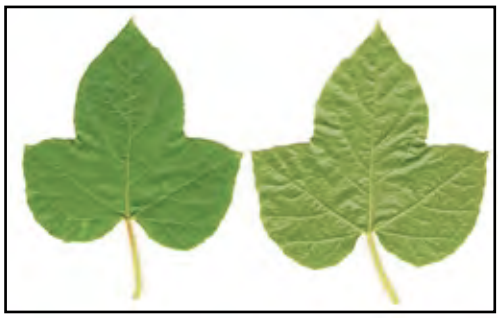
ROOT WORD: passio = passion, flos = flower, foetidus = bad smelling

COMMON NAME: Love in a Mist, Wild Passionfruit

SYNONYM: *Passiflora foetida* L. var *hispida* (DC.) Killip.

ORIGIN: native to tropical America

Passiflora foetida



Leaves are hairy and rough textured to the touch

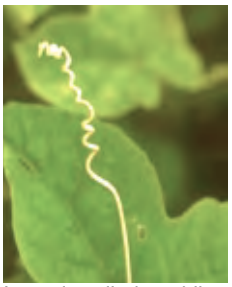
Alternate leaf arrangement

Showy appendage filaments white with pink bases

Opened flower starting to close inward at maturity

Delicate branching bracts open to display flower than closes to hide developing fruit

Opened flower amongst puffy balls of bracts enclosing the fruit



Loosely coiled tendrils

Seeds dark brown, pitted

FORM:	climbing herbaceous vine
ROOT:	taproot, easy to remove
STEM:	coiled axillary tendrils, densely hairy
LEAVES:	alternate, simple, ovate to deeply three lobed; both surfaces hispid to hirsute (short or long); margins wavy, margins and petioles with glandular hairs; pungent odor when crushed
INFLORESCENCE:	solitary, axillary
FLOWER:	bisexual, bracteate (gland tipped); calyx: with subterminal awn, tubular, 5-lobed, ciliate (often), sepals: white, persistent; corolla: white, petals 5, alternate with sepals; stamens: 5, alternate with petals; styles: 3; corona: ring-like in series with appendages, appendages white filaments with purple bases (many)
FRUIT:	thin, leathery skinned, globose to subglobose, glabrous or finely hirsute berry, dark yellow to orange, surrounded by pinnately branching bracts; edible, scanty pulp (sweet and tart)
SEED:	dark brown, in pulp surrounded by gelatinous sheath, many, compressed, pitted, apex with a distinct pointed outgrowth
HABITAT:	disturbed areas, pastures, roadsides, secondary thickets, waste areas, landscaped areas, greenhouses, facultative upland; grows over low vegetation
PROPAGATION:	seed
FUNGAL PATHOGENS:	*Pseudocercospora*
MISCELLANEOUS:	"First recorded in Pacific Islands (Hawaii) 1871 in" (Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954); toxic, herbal

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Prepared by James McConnell and Lauren Gutierrez in collaboration with Lynn Raulerson, Mari Marutani, Robert Schlub, Gregorio Perez, Jean-Marc Guedon, Karl Schlub and Linley Smith. 2006

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Weeds of Guam

Passiflora suberosa

Passifloraceae

Weed #B9

Flowers are small and hide amongst the foliage

Stem base thickened, deeply grooved and corky

Flower morphology

Coiled tendrils often tinged maroonish purple

SCIENTIFIC NAME: *Passiflora suberosa* L.

ROOT WORD: passio = passion, flos = flower, suberosa = cork barked

COMMON NAME: Indigo Berry

SYNONYM: *Passiflora minima* L.

ORIGIN: native to tropical America, naturalized in tropics

Passiflora suberosa

Leaves display a prominant midvein

Paired glands on petiole near base of leaf

Alternate leaf arrangement

Opened berry revealing seeds encased by a clear, thin fleshy membrane

Berries mature from green to dark purple and are coated with a white powdery film (glaucous)

Seeds subovoid with pointed ends

P. suberosa seedling

FORM:	herbaceous climbing vine
ROOT:	deep taproot, easily removed
STEM:	at base white, thickened, deeply grooved, corky (suberosa); younger stems grooved slightly, pubescent to glabrous, purplish (often); tightly coiled tendrils in axils, unbranched
LEAVES:	alternate, simple, ovate to shallowly three lobed (central lobe largest); surfaces subglabrous or pubescent on veins; margins entire, ciliate or glabrous; petiole bears pair of glands; stipules 2
INFLORESCENCE:	small, paired, axillary
FLOWER:	calyx: tubular, 5-lobed, sepals yellow green to greenish white, persistent; petals: absent; corona: inner series of filaments white with purple at base, filaments gland tipped, outer series of filaments longer, green at base turning yellow at apex; stamens: 5; styles: 3
FRUIT:	globose to ovoid, dark purple berry, glaucous (covered with a whitish substance), covering thin, smooth; stains clothes and skin
SEED:	dark brown, pitted, subovoid, pointed at both ends; each seed encased in a white to clear membrane; pulp fleshy, dark purple
HABITAT:	disturbed areas, shrublands, open native forest, landscape areas, greenhouses; tolerates shade, ability to survive arid conditions, aggressive weed
PROPAGATION:	seed; regrowth from lower nodes reduces effectiveness of hand/mechanical weeding if root system not completely removed
USES:	herbal
FUNGAL PATHOGENS:	*Colletotrichum*
MISCELLANEOUS:	"First recorded 1916 in Hawaii" (Whistler, 1995), "seems to have appeared on Guam after 1945" (Stone, 1970); toxic; fruit stains

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

Stone, Benjamin C. *1970. micronesica* 6: 1-659

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Cyperus brevifolius

Cyperaceae

Weed #C1

SCIENTIFIC NAME: *Cyperus brevifolius* (Rottb.) Hasskarl

ROOT WORD: cyperus = reed or sedge, brevifolius = short leaves

COMMON NAME: Globe Kyllinga

VERNACULAR: Cha'guan lemae, Botoncillo, cha'guan Umatac

SYNONYM: *Kyllinga brevifolia* Rottb. *Cyperus brevifolius* (Rottb.) Endl. ex Hassk. *Cyperus nemoralis* (Forst.)Dandy ex Hutchinson & Dalziel, *C. kyllingia* Endl., *Kyllinga cephalotes* (Jacq.) Druce, *K. monocephala* Rottb., *Kyllinga nemoralis* (J.R. & G. Fors.) Dandy ex Hutch. & Dalziel

SIMILAR PLANT: *Killinga nemoralis* (Forst.) Dandy ex Hutchinson and Dalziel

ORIGIN: native to old world tropics, native introduction to islands, European introduction to Hawaii

Cyperus brevifolius

Green terminal head of inflorescence

Culms spaced in a single row along rhizome

Bracts tending flower heads

C. brevifolius seedlings

Achenes pale brown, small

FORM:	mat forming, creeping sedge
ROOT:	fibrous
RHIZOMES:	reddish brown scales at base, culms spaced in a single row along rhizome
CULM:	tufted or spaced, erect, three angled
LEAVES:	linear, many; shorter than culm (usually), margins scabrous; leaf sheath brown to purple brown, near base
INFLORESCENCE:	greenish to paler, globose terminal head, sometimes with two or three smaller fused lateral ones, subtended by three or four unequal leafy bracts; flowers 10-12 weeks after germination
SPIKELET:	white, flat, tiny, two glumes
FRUIT:	achene, elliptic, pale brown to black, lens-shaped, flat
SEED:	fresh seeds not dormant; disseminated by wind, water; matures three weeks after flowering,
HABITAT:	moist, poorly drained areas, marsh edges, disturbed areas, lawns, pastures, plantations, landscaped areas, turf, greenhouses, facultative wetland
BIOLOGY:	C4 photosynthetic pathway
PROPAGATION:	seeds, rhizomes
USES:	herbal
FUNGAL PATHOGENS:	*Phoma*

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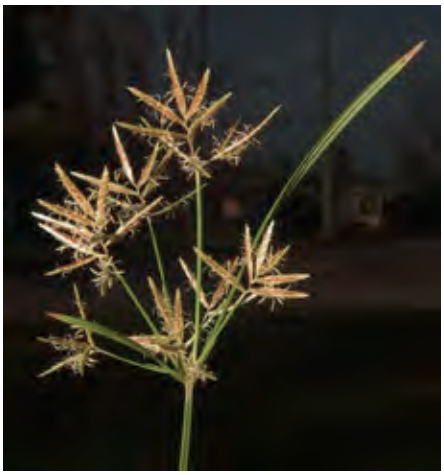
Cyperus rotundus

Cyperaceae

Weed #C2



Inflorescence is a loose umbel

SCIENTIFIC NAME: *Cyperus rotundus* L.

ROOT WORD: cyperus = Greek for sedge, rotundus = rounded

COMMON NAME: Nut Sedge, Purple Nutsedge, Nutgrass

VERNACULAR: Cahguan humatag

SYNONYM: *Chlorocyperus rotundus* (L.) Palla

ORIGIN: uncertain

Cyperus rotundus

Tubers connected by wiry stolons

Papery scales

FORM:	grass like erect sedge
ROOT:	fibrous, extensively branched, with bent hairs
RHIZOMES:	slender, white, fleshy scales when young turning brown, fibrous, wiry when old, give rise to tubers to form chains, 1-30 cm. long
TUBER:	white, succulent when young turning coarse fibrous brown almost black, papery scale leaves resulting in leaf scars, produced at ends of long wiry underground stolons; buds germinate to form new plants, tubers placed on soil surface in light or dark form basal bulbs, dormant tubers viable, usually in top 15 cm of soil, rarely below 30 cm., nothing known about effects of light or soil temperature for prolonged periods in tropics on tuber survival, tubers survive long periods in very wet soil (200 days under flood), tuber density highest in upper soil levels, those below 15 cm difficult to control, tuber sprouts more with light than in total darkness; high shade condition inhibits tuber formations, tubers in direct sun on soil surface die within four days, starvation of underground organs by constant removal of tops severely inhibits basal bulb formation/ reduces tuber numbers/tuber weight; apical bud of tuber inhibits buds below, tuber at morphological apex of rhizome tuber chain prevents sprouting in chain, separation of a tuber from a chain removes it from apical dominance, implications for tillage operations (tears units so that single tubers distributed)
CULM:	solitary (mostly), three angled, glabrous, arise on rhizome referred to as a basal bulb, (bulb or a corm that forms a swollen or thickened plant base)
LEAVES:	few, basal (mostly), linear, folded along midrib, smooth, shiny, dark green; upper leaf surface with a waxy cutin without stomates; lower surface: thinly cutinized with parallel rows of stomata; leaf sheath brown disintegrating into fibers
INFLORESCENCE:	loose umbel, terminal, simple or slightly compound, subtended by 2-4 leaf like unequal bracts
SPIKELET:	3-10 per ray, linear, laterally compressed, red brown; glumes several, folded, brown with green keel
FRUIT:	achene, three sided, oblong, brown
HABITAT:	disturbed areas, roadsides, lawns, croplands, waste areas, greenhouses, wet areas, landscaped areas, turf, facultative upland; ability to survive arid conditions, tolerates many soil types; does not tolerate shade (leaves yellow and die)
BIOLOGY:	soil moisture critical for aerial growth
PROPAGATION:	tubers
USES:	herbal, medicinal, soil binder (India), animal fodder (pig) during times of food scarcity
FUNGAL PATHOGENS:	*Puccinia*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1850" (Whistler, 1995); Invasive Plants of Micronesia List; ranks #1 in Worlds Worst Weeds (Holm et al., 1977); crop residues inhibit growth of barley

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Cenchrus echinatus

Poaceae

Weed #C3

Tribe: Paniceae

Zig zag axis of raceme

Flowering spikelet

SCIENTIFIC NAME: *Cenchrus echinatus* L.

ROOT WORD: echinatus = covered with prickles (spiklets)

COMMON NAME: Sandbur, Burgrass, Southern Sandspur

VERNACULAR: Laso' katu

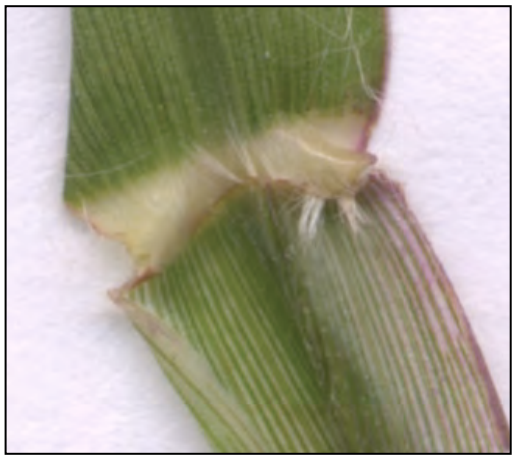
SYNONYM: *Cenchrus pungens* kunth, *C. brevisetus* Fourn., *C. echinatus var. hillebrandianus* (Hitchc.) F. Brown, *C. hillebrandianus* Hitchc.

SIMILAR SPECIES: *Cenchrus brownii* Roemer & Schultes

ORIGIN: native to tropical America

Cenchrus echinatus

Leaf sheath long, blade sharply pointed at tip



Conspicuous white collar

Spike like raceme of burs

Spiny burs contain 3-5 spikelets

FORM:	tufted grass (somewhat), erect or decumbent at base, branched
ROOT:	fibrous
CULM:	nodes reddish (often), prostrate rooting at nodes, compressed, basally branching
LEAF SHEATH:	keeled, glabrous or slightly hairy, compressed; collar conspicuous, whitish; ligule ciliate
LEAF BLADE:	flat, striate, lower surface smooth, upper surface slightly hairy near base; margins finely scabrous; midrib conspicuous
INFLORESCENCE:	dense, cylindrical spike-like raceme, 10-25 spiny burs along zigzag axis, burs purplish or straw colored with age, globular, burs well spaced (not crowded), sub-sessile
SPIKELET:	3-5 or more per bur, spines/bristles turn purple with age, straw-colored (sometimes)
SEED:	caryopsis, ovate; dispersed by humans, animals (fur), machinery, tires, feathers
HABITAT:	disturbed areas, croplands, pastures, roadsides, lawns, landscaped areas, facultative upland; ability to survive in arid or aqua conditions; tolerates poor soils, especially on limestone, soil binder (savannas); tolerates mowing, goodcompetitor
PROPAGATION:	seed
USES:	herbal, young plants provide cattle forage
FUNGAL PATHOGENS:	*Pyricularia*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1867" (Whistler, 1995); Invasive Plants of Micronesia List; spiny burs painful, contaminate feed/hay

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Chloris barbata

Poaceae

Weed #C4

Tribe: *Cynodonteae*

Digitate inflorescence

Slender awns produce a fuzzy appearance

Closeup of spikelets

SCIENTIFIC NAME: *Chloris barbata* (L.) Sw

ROOT WORD: chloris = named for Greek goddess of flowers “Chloris”, barbata = bearded, with long weak hairs

COMMON NAME: Swollen Fingergrass, Fingergrass, Plush grass

SYNONYM: *C. inflata* Link., *C. paraguayenois* Steud., *Andropogon barbatus* L.

SIMILAR SPECIES: *Chloris radiata* (L.) Swartz.

ORIGIN: native to tropical America, native of Central and South America or perhaps the East Indies

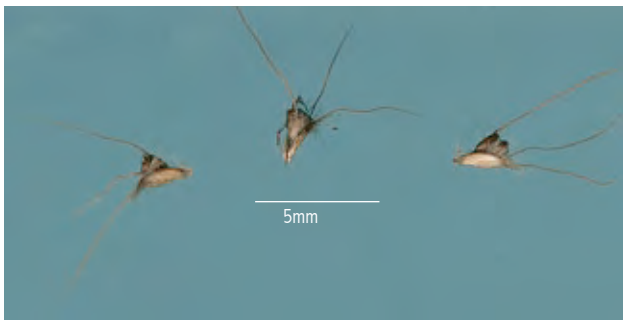
Chloris barbata

Growth habit

Throat of sheath pilose

Purple color of inflorescence

C. barbata seedlings



Seeds small, awned

FORM:	erect to decumbent grass
ROOT:	fibrous
CULM:	erect to decumbent, glabrous, rooting at lower nodes; nodes/basal sheaths reddish-purple (often)
LEAF SHEATH:	glabrous or with hairs at top, keeled, purplish (often), lower ones crowded, shorter than internodes, compressed
LEAF BLADE:	long, flat, lax; surfaces glaucous, glabrous or with long scattered hairs on upper surface near base; margins and lower midrib scabrous; upper blades decreasing in size
INFLORESCENCE:	whorl of 4-15 ascending to spreading racemes, digitate, purple, feathery spikes
SPIKELET:	purple, densely overlapping, arranged in two rows, glumes not falling with rest of spikelet
SEED:	caryopsis, brown, fusiform enclosed within persistent lemma and palea
HABITAT:	roadsides, waste areas, landscaped areas, facultative upland, especially on limestone; ability to survive arid conditions; tolerates mowing
USES:	herbal
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1902" (Whistler, 1995), Invasive Plants of Micronesia List

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Chrysopogon aciculatus

Weed #C5

Poaceae

Tribe: Andropogoneae

Sharp glumes of spikelets

Closeup of florets

Ligule densely ciliate

SCIENTIFIC NAME: *Chrysopogon aciculatus* (Retz.) Trin.

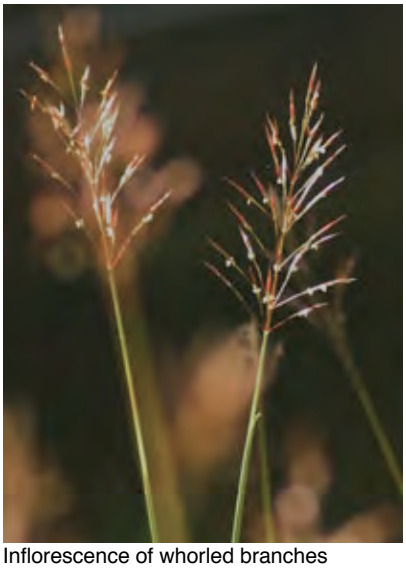
ROOT WORD: chrysos = gold, pogon = beard, aciculatus = needle-shaped

COMMON NAME: Golden Beardgrass, Inifuk

SYNONYM: *Andropogon aciculatus* Retz., *Rhaphis aciculata* (Retz.) Desv.

ORIGIN: native to tropical Asia and probably the Pacific Islands, tropical Malaysia and Pacific, South India, South China

Chrysopogon aciculatus



Inflorescence of whorled branches

Imbricate leaf sheaths

Seeds with bearded, barbed points

FORM:	creeping grass, forms mats by means of leafy stolons
ROOT:	fibrous
STOLON:	covered with imbricate scale-like old sheaths
CULM:	erect to ascending from a decumbent base, leaves mostly crowded near base
LEAF SHEATH:	striate, glabrous (mostly), old ones covering the stolons, purple tinged (sometimes), imbricate
LEAF BLADE:	linear, thin, glossy; surfaces glabrous; margins wavy (often), scabrous, sparsely serrate
INFLORESCENCE:	loose panicle, many erect to ascending whorled branches (mostly), reddish purple
SPIKELET:	three, purple, glumes sub-equal, sharp
SEED:	caryopsis, oblong
HABITAT:	lawns, stream beds, disturbed areas, facultative upland; tolerates poor dry soil, aggressive, tolerates mowing
PROPAGATION:	seed, stolon
USES:	herbal, soil binder
FUNGAL PATHOGENS:	*Curvularia*
MISCELLANEOUS:	spikelets attach to fur on animals; Federal Noxious Weed List 09-12-02

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Cynodon dactylon

Poaceae

Weed #C6

Tribe: *Cynodonteae*

Panicle of 3-7 racemes

SCIENTIFIC NAME: *Cynodon dactylon* (L.) Pers.

ROOT WORD: cynodon = dog tooth in reference to basal buds of stolons, dactylon = fingerlike

COMMON NAME: Bermuda grass, Couchgrass, Wiregrass, Devil's Grass

VERNACULAR: Gramaderu

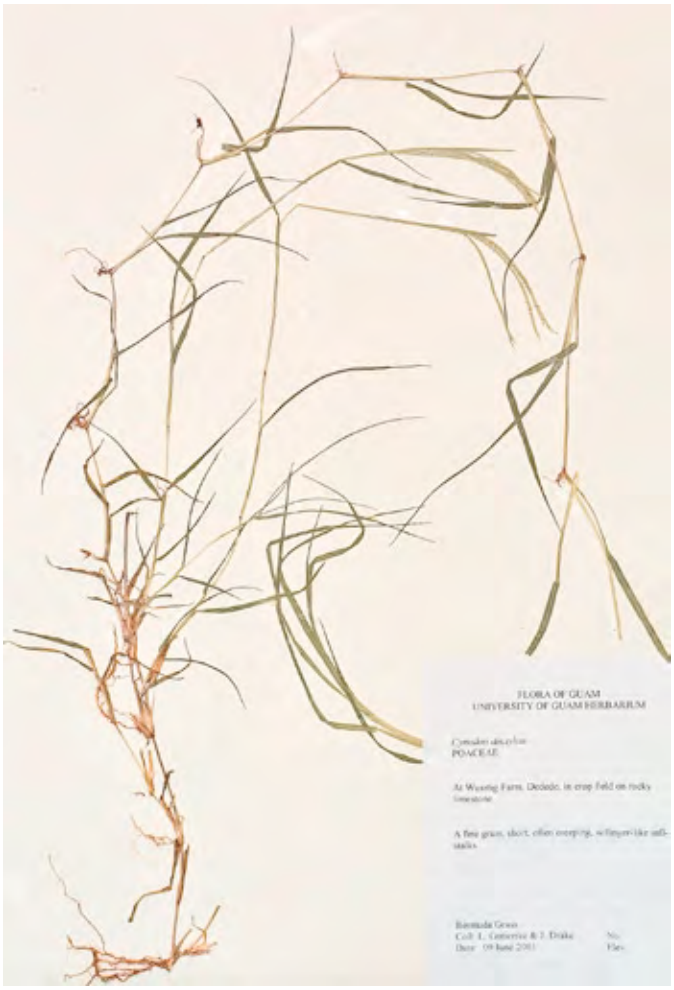
SYNONYM: *Panicum dactylon* L., *Capriola dactylon* (L.) Kuntze, *Digitaria dactylon* (L.) Scop., *Digitaria stolonifera* Schrad.

ORIGIN: tropical Africa (perhaps)

Cynodon dactylon

Roots forming at nodes

Long hairs on sheath throat



FORM:	low mat forming grass, rhizomatous or stoloniferous
ROOT:	fibrous
STOLON:	roots at nodes
CULM:	erect or ascending, wiry, smooth, reddish (sometimes), roots at nodes
LEAF SHEATH:	glabrous (mostly), margins scarious, shorter than internodes; ligule short, fringed membrane, long hairs on throat (sometimes)
LEAF BLADE:	flat, lax; gray green to bluish-green; glabrous to slightly hairy (upper surface); margins scaberulous
INFLORESCENCE:	panicle, 3-7 racemes in single whorl (two whorls sometimes), digitate, purplish (sometimes)
SPIKELET:	in two rows overlapping, sessile, one flowered
SEED:	caryopsis, ellipsoid, straw colored to orange-red
HABITAT:	lawns, turf, landscaped areas, roadsides, disturbed areas, croplands, coastal areas, facultative upland; tolerant of wide range of soil types, tolerates dry or wet areas, tolerates mowing; does not tolerate shade; pioneer weed
PROPAGATION:	seed (sparse seed producer), underground stolons, fragmented stem pieces (distributed by cattle, machinery, ship ballast)
USES:	pasture grass, soil erosion, lawns, playing fields
FUNGAL PATHOGENS:	*Helminthosporium*
MISCELLANEOUS:	"First recorded from the Pacific Islands in Hawaii, Samoa, Tonga before 1840" (Whistler, 1995); species highly polymorphic; develops hydrocyanic acid when stressed; ranks #2 in Worlds Worst Weeds (Holm et al., 1977)

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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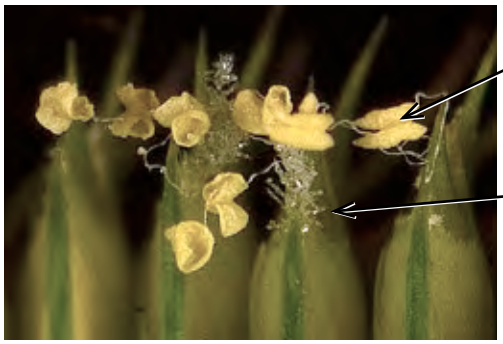
Dactyloctenium aegyptium

Weed #C7

Poaceae

Tribe: Eragrostideae



Radiating spikes of inflorescence

SCIENTIFIC NAME: *Dactyloctenium aegyptium* (L.) Willd.

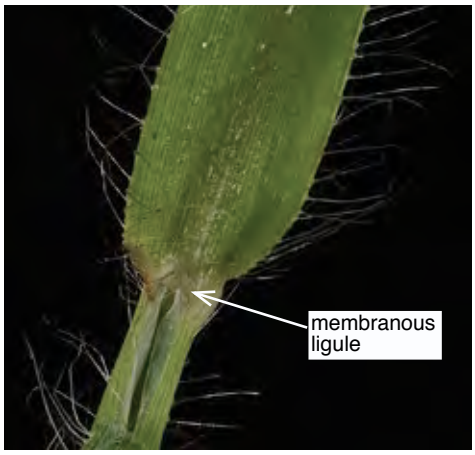
ROOT WORD: dactylos = finger, ktenion = little comb in reference to comb like, appearance to spikelets on inflorescence

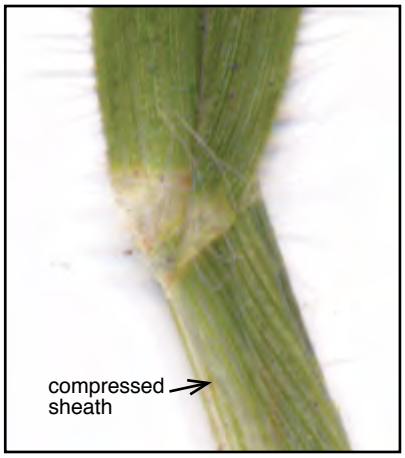
COMMON NAME: Beach Wire Grass, Crowfoot Grass, Buttongrass

SYNONYM: *Cynosurus aegyptius* L., *Eleusine aegyptia* (L.) Deaf.

ORIGIN: native to old world tropics

Dactyloctenium aegyptium





Seeds numerous, small

FORM:	grass, mat forming (often), ascending slightly, stoloniferous
ROOT:	roots at nodes
CULM:	prostrate to ascending, rooting at glabrous lower nodes, compressed
LEAF SHEATH:	glabrous (mostly), flattened, keeled; ligule membranous
LEAF BLADE:	surfaces with hairs (sparsely); swollen bases; margins scabrous
INFLORESCENCE:	terminal, 3-9 radiating spikes, umbellate, flat
SPIKELET:	several rows, 3-4 flowered
SEED:	caryopsis, orange brown, ovate to triangular, surface rugose; 66,000 seeds per plant; viability 19 years,
HABITAT:	disturbed areas, waste areas, croplands, landscaped areas, greenhouses, coastal areas, facultative upland; ability to survive arid conditions; tolerates light/dry soils
PROPAGATION:	seeds (mainly), stolon fragments
USES:	herbal; seeds edible in famine, cattle/chicken feed; medicinal
FUNGAL PATHOGENS:	*Cercospora*
MISCELLANEOUS:	“First recorded in the Pacific Islands (Hawaii) in 1909” (Whistler, 1995)

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Echinochloa colona

Poaceae

Weed #C8

Tribe: *Paniceae*

Inflorescence

SCIENTIFIC NAME: *Echinochloa colona* (L.) Link

ROOT WORD: echinos = hedgehog in reference to spikelets covered with hard bristles, chloe = grass

COMMON NAME: Jungle rice

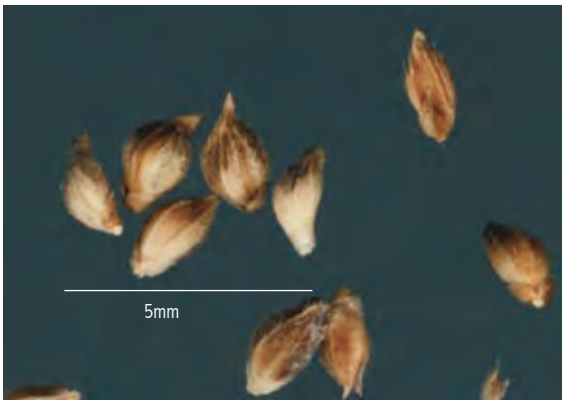
VERNACULAR: Cha'guan agaga'

SYNONYM: *Panicum colonum* L., *Echinochloa glabrescens* Kossenko

ORIGIN: native to old world tropics

Echinochloa colona

Hairs lacking on leaf sheath and leaf blade, ligule is absent



Seed whitish, flat on one side

FORM:	tufted, erect, descending or decumbent at base
ROOT:	fibrous
CULM:	erect or ascending, often decumbent, reddish at base, rooting at lower nodes, glabrous (mostly), nodes swollen (sometimes), compressed
LEAF SHEATH:	keeled, compressed, glabrous; ligule absent
LEAF BLADE:	surfaces glabrous, slightly hairy; margins smooth or scabrous (sometimes)
INFLORESCENCE:	panicle bearing many alternate racemes, green or purple tinged
SPIKELET:	short, hairy, crowded together, greenish or purplish
SEED:	caryopsis, whitish, flat on one side, ovate
HABITAT:	disturbed areas, wet areas, canals, rice fields, near marshes/ water pipes; ability to survive aqua conditions, facultative wetland
BIOLOGY:	grows during rainy season, dies out during dry season, grows all seasons if irrigated; growth more erect when in shade
PROPAGATION:	seed; light required for best germination, flooding prevents germination
USES:	fodder grass, herbal
FUNGAL PATHOGENS:	*Bipolaris*
MISCELLANEOUS:	sometimes misspelled as *E. colonum* (as in Stone, 1970), "First recorded in the Pacific Islands (Hawaii) in 1835" (Whistler, 1995), ranks 4th in Worlds Worst Weeds (Holm et al., 1977)

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.
Stone, Benjamin C. 1970. *Micronesica* 6: 1-659.

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Weeds of Guam

Eleusine indica

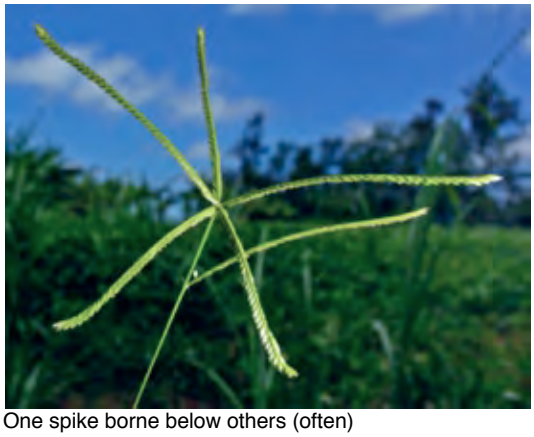
Weed #C9

Poaceae

Tribe: *Eragrostideae*

Seeds attached to spike

Florets on spike



One spike borne below others (often)

Base compressed, whitish

SCIENTIFIC NAME: *Eleusine indica* (L.) Gaertner

ROOT WORD: eleusine = the city of Eleusis in Greece, indica = of India, East Indies or China

COMMON NAME: Goosegrass

VERNACULAR: Umog

ORIGIN: native to old world tropics, ancient introduction to Pacific Islands

Eleusine indica

Blades glossy, fold inward from midrib

Long hairs are present along the margins of the leaf blade and leaf sheath

Side view of leaf blade and leaf sheath showing long hairs

E. indica seedlings

Seeds (top) from spike (bottom)

FORM:	erect or prostrate tufted grass
ROOT:	fibrous
CULM:	prostrate or ascending, flattened, glabrous, arising from short ascending rhizomes, pale green, branched at base (usually), base whitish to light green
LEAF SHEATH:	striate, conspicuously flattened, keeled, slightly hairy along margins and at base, striate, throat long pilose
LEAF BLADE:	keeled, surface glabrous (mostly); midrib and upper margins scabrous
INFLORESCENCE:	2-7 terminal one sided spikes, often with one spike attached below others; flowers year round if sufficient moisture; flowers in day lengths between 6-16 hours, optimum photoperiod 14 hours
SPIKELET:	glabrous, 3-8 flowered
SEED:	caryopsis, dark reddish brown, ridged longitudinally, striated with concentric rings; 40,000-135,000 seeds per plant; dispersed by wind, mud (animals), wild/domesticated animals, commerce of man
HABITAT:	disturbed areas, lawns, waste areas, roadsides, croplands, turf, landscaped areas, pastures, marshlands, irrigation canals, facultative upland; does best in moist sandy soil; tolerates mowing and compacted soils
BIOLOGY:	drought delays flowering and vegetative growth; prostrate habit in full sun, taller grown in shade, shade suppresses growth of all plant parts
ECOLOGY:	broad tolerance to various factors in environment
PROPAGATION:	seed, light beneficial for germination but germinates in dark; 6 day old seed have 90 percent germination
USES:	herbal, pasture (in some areas may become fibrous too early to be useful), edible (grain)
FUNGAL PATHOGENS:	*Drechslera*
MISCELLANEOUS:	toxic; Invasive Plants of Micronesia List; ranks 5th in Worlds Worst Weeds (Holm et al., 1977); young plants contain (sometimes) hydrogen cyanide leading to death of calves/sheep

Reference: Holm, LeRoy G., Donald L. Plucknett, Juan V. Pancho, James P. Herberger. 1977. *The worlds worst weeds, distribution and biology*. Univ. Press of HI, US.

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Weeds of Guam

Panicum maximum

Weed #C10

Poaceae
Tribe: Paniceae

Leaf blades large

Mealybug on inflorescence

mealybug

Blades large, flat

SCIENTIFIC NAME: *Panicum maximum* Jacq

ROOT WORD: panicum = Latin name for millet, maximum = largest

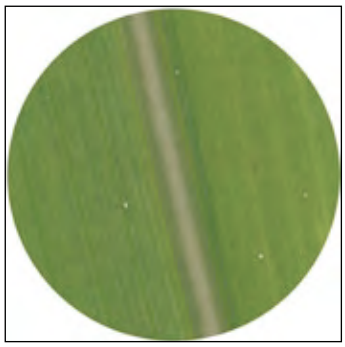
COMMON NAME: Guinea grass

ORIGIN: native to Africa

Panicum maximum


Sheath arrangement


Densely hairy behind ligule


Prominant white midrib


Florets on panicle


Lowest branches whorled


Inflorescence begining to open


P. maximum seedling

Seeds, many, small

FORM:	large, tufted, spreading by short rhizomes, variation in growth habits, cespitose (dense low tufts)
ROOT:	fibrous
CULM:	erect, nodes hairy
LEAF SHEATH:	striate, tubercle-based hairs (often), upper margins hairy (sometimes)
LEAF BLADE:	surface glabrous (nearly), yellow-green midrib prominent
INFLORESCENCE:	loose spreading panicle, lowest branches whorled
FLOWER:	flowers year round
SPIKELET:	green or purple, glabrous or pubescent
SEED:	caryopsis, 9,000 seeds per plant
HABITAT:	disturbed areas, roadsides, landscaped areas, facultative upland; shade tolerant, tolerates short periods of flooding, drought resistant, some strains prefer wet situations, ability to adapt to wide variations in soil, moisture, light
ECOLOGY:	some strains prefer wet situations, may withstand flooding/water logging for short periods, shade tolerant, does not tolerate continued close grazing
PROPAGATION:	seed, by short rhizomes, rooting of lower nodes to form large stools
USES:	forage grass, herbal
FUNGAL PATHOGENS:	*Corynespora*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1871" (Whistler, 1995); toxic, Invasive Plants of Micronesia List; young plants palatable, nutritious, important pasture grass, hay, silage, dies under continued close grazing

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Paspalum paniculatum

Poaceae

Tribe: Paniceae

Weed #C11

Emerging, young inflorescence

Flowers purple to deep pink

Racemes of inflorescence

SCIENTIFIC NAME: *Paspalum paniculatum* L.

ROOT WORD: paniculatum = with flowers arranged in panicles

COMMON NAME: Russell Rivergrass

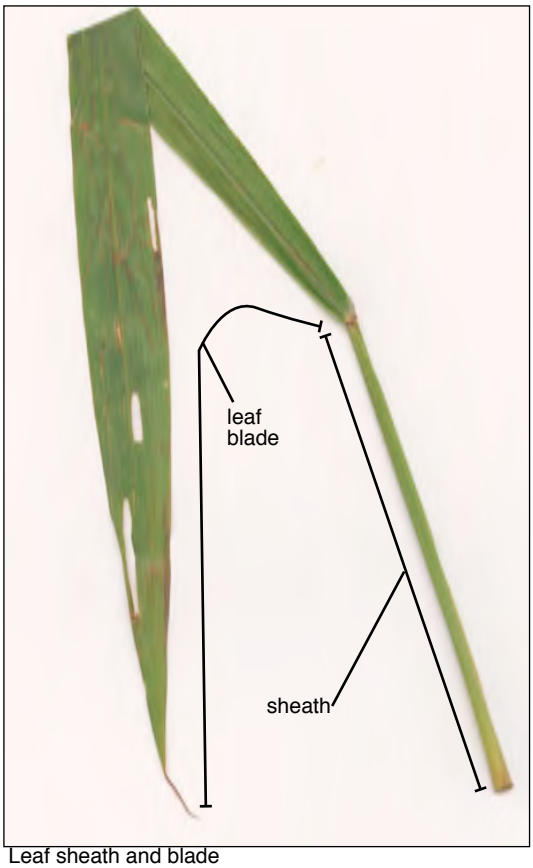
ORIGIN: native to tropical America

Paspalum paniculatum

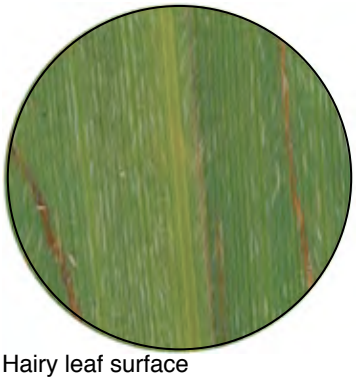
Long white hairs at base of blade

Closeup of hairy leaf sheath

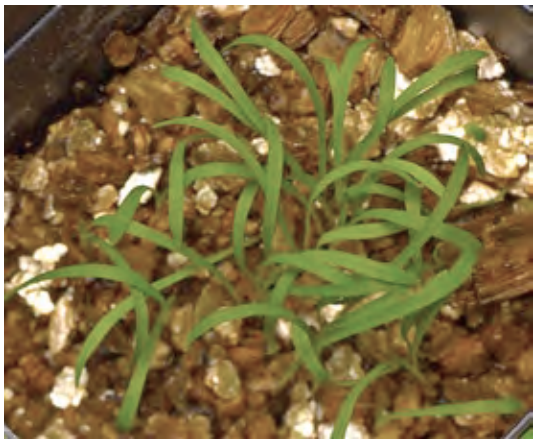
Arrangement of leaves and sheaths



Leaf sheath and blade



Hairy leaf surface



P. paniculatum seedlings

Seed flat on one side, rounded on other side

FORM:	erect large clumping grass
ROOT:	fibrous, deep, difficult to remove
CULM:	erect to ascending, rooting from lower node (sometimes), nodes long-hairy (often)
LEAF SHEATH:	long-hairy, striate, longer than internodes (often); ligule membranous
LEAF BLADE:	surfaces hairy, tuft of long white hairs at base; midrib prominent beneath; margins scabrous
INFLORESCENCE:	15-20 spreading drooping racemes
FLOWER:	tepals (membranous) purple, pink or white, (encloses fruit)
SPIKELET:	brown, crowded in pairs, round (almost)
FRUIT:	caryopsis, flattened on one side, suborbucular on other side
HABITAT:	sunny areas, disturbed areas, taro patches, roadsides, lawns not frequently mowed, cropland, wet or dry conditions but prefers moist habitats, facultative upland
FUNGAL PATHOGENS:	*Bipolaris*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Fiji) in 1920" (Whistler, 1995); introduced as pasture grass

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Pennisetum polystachion

Weed #C12

Poaceae
Tribe: Paniceae

Closeup of spikelets

Inflorescence is a cylindrical panicle

SCIENTIFIC NAME: *Pennisetum polystachion* (L.) Schultes

ROOT WORD: penna = feather, seta = bristle in reference to flower having long feathery bristles (bristles feathery surrounding spikelets), poly = many, stacys = spike

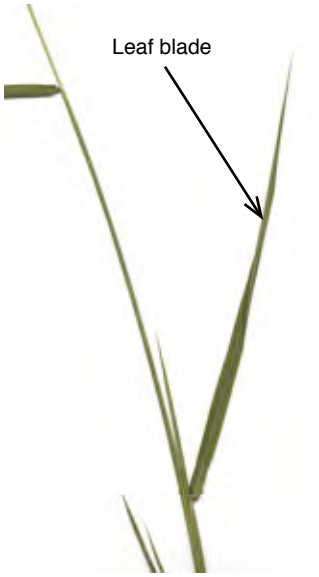
COMMON NAME: Feathery Pennisetum, Mission grass, Foxtail grass

SYNONYM: *Cenchrus setosus* Sw., *Panicum polystachion* L., *Pennisetum setosum* (Sw.) Rich.

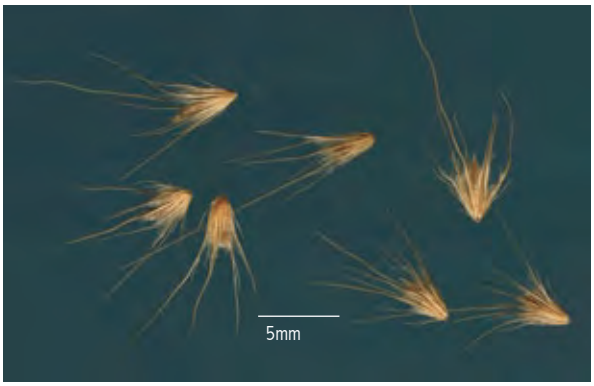
SIMILAR SPECIES: *Pennisetum purpureum* Shum.

ORIGIN: native to Central America, tropical Africa, India

Pennisetum polystachion



Ligule: line of hairs on base



Caryopsis with bristles

FORM:	large, tall, erect, tufted grass
ROOT:	fibrous, wiry
CULM:	scabrous, branching (often) below panicle
LEAF SHEATH:	glabrous or lower ones sometimes pubescent; ligule a conspicuous line of hairs at base
LEAF BLADE:	pilose on both surfaces, base of upper surface with tuft of silky hairs, purple or purple streaked (sometimes)
INFLORESCENCE:	dense cylindrical panicle, yellow to golden yellow
SPIKELET:	subtended by ring of bristles of which one is up to 15 mm long, dense silky plumose
SEED:	caryopsis, pale brown, ellipsoid, remain enclosed within floret
HABITAT:	disturbed areas, dry areas, cropland, landscaped areas, roadsides, facultative upland
ECOLOGY:	can be dominant in fire climax or subclimax savannas when soil fertility has declined, can dominate upland areas cleared for agricultural use or shifting cultivation, competitive growth
PROPAGATION:	seed; seeds germinate while still on inflorescence under wet conditions (often)
USES:	pasture, fodder
FUNGAL PATHOGENS:	*Phakopsora apoda*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1923" (Whistler, 1995), Federal Noxious Weed List 09-12-02, Invasive Plants of Micronesia List

Reference: Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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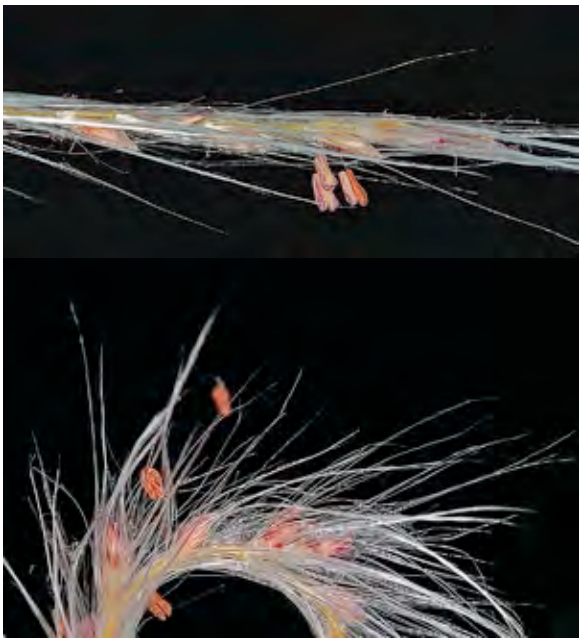
Saccharum spontaneum

Weed #C13

Poaceae

Tribe: Andropogoneae



Panicle often tinged purple

Culms, blades and inflorescence

SCIENTIFIC NAME: *Saccharum spontaneum* L.

ROOT WORD: saccharum = sweet juice of sugarcane

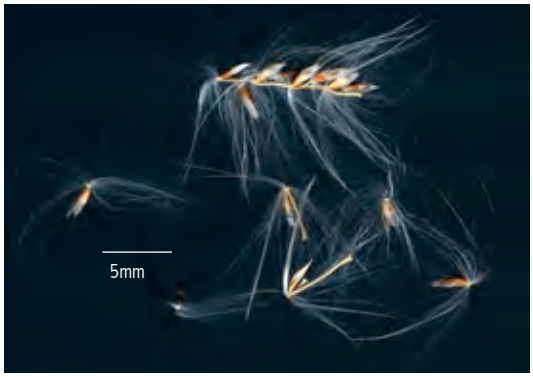
COMMON NAME: Wild cane, Wild Sugarcane

ORIGIN: Unknown

Saccharum spontaneum

Leaf sheath

A single young plant with multiple shoots.



Caryopsis with silky hairs

FORM:	large, tall, erect grass, forming clumps
ROOT:	deep rooted, fibrous, rhizomes creeping
CULM:	erect, fibrous
LEAF:	grayish green, narrow, midrib: prominent, whitish; margins minutely serrate; ligule papery, fringed with hairs
LEAF SHEATH:	glabrous, green to yellow, margins overlapping
INFLORESCENCE:	plumose panicle with numerous racemes, peduncle hairy below the panicle
SPIKELET:	silky hairs in unequal pairs
SEED:	304 to 12,800 per plant; dispersed by wind
HABITAT:	disturbed areas, waste areas, roadsides, wetland margins, facultative uplands; forms dense stands that choke out other vegetation; ability to survive arid conditions, tolerates different soil types/moisture levels; fallow fields (deep plowing followed by sereral light tillages helps reclaim fields)
BIOLOGY:	self or cross pollinated, pollen wind borne; C4 photosynthesis pathway, biotypes exhibit distinct patterns of root growth, highly variable species
ECOLOGY:	early colonizer; drought tolerant
PROPAGATION:	seeds, stem pieces, rhizomes
USES:	forage, brooms, ropes, mats, thatching, fencing, paper pulp, medicinal, young shoots edible
FUNGAL PATHOGENS:	*Curvularia*
MISCELLANEOUS:	"First recorded in the Pacific Islands (Hawaii) in 1903"(Whistler, 1995), "in Pacific as of 1954, not specific to Guam, generic to Pacific" (Merrill, 1954); herbal, toxic; Federal Noxious Weed List 09-12-02; excellent mulch (slow rate of decomposition), allelopathic (may be)

Reference: Merrill, Elmer D. 1954. *Plant life of the Pacific world*. The MacMillan Co., NY.
Whistler, Arthur W. 1995. *Wayside plants of the islands.* Isle Britannica, Hawaii.

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Achene: a small, dry, one-seeded, indehiscent fruit

Adherent: in close contact or sticking together of different parts; not fused

Adventitious root: roots that originate on the stem or other plant part besides the primary root system

Allelopathy: when a plant releases a chemical that inhibits the growth of other plants growing in the vicinity

Anthesis: flowering period; when flower is fully expanded

Apetalous: petals absent

Apex: tip of a plant

Apical: located at the tip of an organ

Appendage: a subsidiary part, secondary part attached to a main structure

Appressed: pressed against leaf surface

Asymmetrical: without equal halves; as in one side of leaf larger than the other side

Awn: hair or bristle

Axillary: referring to inflorescence; flower coming from axil of leaf

Barbed: referring to awns or bristles; hooks bent backwards like a fish hook

Basal bulb: bulb or corm that forms a swollen or thickened plant base

Bilabiate: having two lips as in irregular flowers

Bilobed: having two lobes

Bract: modified leaf, often colored and associated with flowers

Bracteoles: a secondary bract

Burs: referring to seeds or fruit; having spines or prickles

Campanulate: bell shaped as in flower shape

Caryopsis: a dry, one-seeded, indehiscent fruit as in the fruits of grasses; a grain

Cauline: belonging to stem

Cespitose: referring to grasses; dense low tufts

Ciliate: margins with long hairs

Circumsissle: referring to capsule fruit; opens from a line that circles the capsule

Cleistogamous: referring to flowers; pollination/ fertilization that occurs within the unopened flower

Compressed: flattened

Connate: fusion of similar parts as stipules, bracts, stamens or styles

Cordate: heart shaped; as in leaves

Corymb: type of racemose inflorescence that is flat topped or round topped

Crenate: with rounded teeth as in leaf margins

Culms: grass/sedge stem

Cyathia: referring to the type of inflorescence of the genus Euphorbia

Cyme: a branching type of inflorescence that is flat topped or round topped; determinate

Cystoliths: referring to leaves; mineral deposit (usually calcium carbonate)

Dehiscence: at maturity the opening or splitting of fruit or anthers

Deltoid: triangular shaped; as in leaves

Denticulate: finely dentate

Dichotomously branched: forked

Dioecious: staminate and pistillate flowers on different plants; male and female flowers on separate plants

Discoid: referring to flowers; only having disc flowers as in the genus Asteraceae

Distal: away from the point of attachment, toward the tip or the end of the organ

Ecarunculate: without a caruncle (a fleshy outgrowth near hilum of a seed)

Ellipsoid: shape is elliptical

Emarginate: having a notch at the apex as in leaves

Epipetalous: attached to the petals as in stamens

Fibrous: thread like as in roots, root branches mostly the same thickness

Filament: a fine, thread like structure as in the stalk of an anther

Filiform: thread like

Floret: referring to flowers of Asteraceae and Poaceae; small flowers

Fusiform: spindle shaped

Glabrous: without hairs

Globose: round or almost round

Glumes: referring to the inflorescence of grasses; lower bracts of a grass spikelet

Haustoria: rootlike attachments of parasitic plants

Herbal: plants used for ceremonial, medicinal, or culinary purposes

Hirsute: covered with coarse, stiff hairs as in leaf surfaces

Hispid: having stiff, bristly hairs

Hypanthium: when base (receptacle) of floral parts is cup shaped/ tubular enlargement

Incurved: curved inward, curved toward the base

Indehiscent: referring to fruit; remains closed, does not open

Inflexed: bent inwards

Inflorescence: referring to flowers; way clusters of flowers arranged

Involucre: a ring of bracts surrounding a flower

Keeled: ridged

Inflorescence: referring to flowers; way clusters of flowers arranged

Involucre: a ring of bracts surrounding a flower

Keeled: ridged

Lanceolate: lance shaped; longer than wide with widest point below the middle

Lemma: referring to the inflorescences of grasses; lower bracts enclosing the flower located above the glumes

Medicinal: having the properties of medicine

Membranous: thin, translucent structure

Mericarp: a schizocarp section; splits away at maturity as in fruit

Monoecious: staminate and pistillate flowers on the same plant; male and female flowers on the same plant

Mucronate: terminated abruptly by a short and sharp spur or spiny tip.

Nutlet: a small nut

Obcordate: heart shaped with the narrow end attached to the stalk; as in leaves

Oblanceolate: lance shaped; longer than wide with the widest point above the middle

Orbicualr: in shape almost round

Oblique: unequal; as in leaf bases

Oblong: longer than it is wide with nearly parallel sides as in leaves

Obovate: outline is egg shaped; is attached at the narrow end as in leaves

Ovate: outline is egg shaped; is attached at the broad end as in leaves

Ovoid: egg shaped

Palea: referring to inflorescences of grasses; bracts

Panduriform: fiddle shaped as in leaves

Pappus: specialized calyx consisting of awns, scales or bristles; as in the plant family Compositae

Parasitic: a plant that relies on its nutritional needs from another plant

Pedicel: stalk of a single flower in an inflorescence

Peduncle: stalk of a solitary flower

Perianth: collective term for the corolla and the calyx

Petiole: stalk attaching leaf to the stem

pH (physical hydrogen): referring to soil properties; degree of acidity or alkalinity of a soil

Pistillate: referring to the flower; stamens absent

Plumose: feather-like; hairs with side hairs

Polymorphic: various forms

Pubescent: having short, soft hairs; downy

Pulvini: swellings/enlargements at the base of petioles

Punctate: having depressions, dotted with pits or translucent sunken glands as in leaves

Reniform: referring to shape of fruit; kidney shaped

Rhombic: diamond shaped; having four equal sides

Rotate: flat/circular shape as in flowers with spreading lobes and a short tube

Serrate: margins that are saw toothed with teeth pointing forward as in leaves

Sessile: attached directly, not stalked

Sheath: a tubular covering which surrounds another organ partially

Spathe: referring to inflorescences; bract that surrounds inflorescence

Spike: an unbranched inflorescence with sessile flowers; indeterminate

Spikelets: referring to grass inflorescences; secondary spike containing one or more florets

Spine: referring to the stem; a sharp, pointed woody outgrowth

Staminate: pistil absent, referring to the flower

Stipule: leaf like growth at the base of the petiole

Stomata: pores in a leaf, usually on the lower leaf side

Strigose: having appressed stiff hairs or bristles

Subentire: almost entire (not toothed, notched, divided) as in leaf margins

Subglobose: almost globular, somewhat flattened

Suborbicular: shape is almost circular

Subshrub: a low shrub with woody stems

Sympetalous: petals united

Tendrils: twining support for a vine

Tepals: used to describe a floral part that cannot be defined as either a petal or a sepal

Terete: imperfectly cylindrical; tapers

Terminal: referring to inflorescence; flower at apex of flower stalk

Toxic: capable of causing injury or death

Truncate: with an apex or base appearing squared at the end, as if cut

Tuber: underground modified stem (example potato)

Tuberculate: having small wart like bumps as in seeds

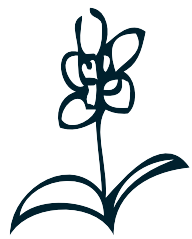
Tufted: having a cluster of hairs

Umbellate: shape of an inflorescence where pedicels originate from a common point; may be flat topped or almost spherical

Unisexual: a flower with either male or female organs. Male and female flowers may be on the same plant or on separate plants.

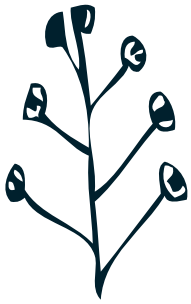
Utricle: fruit type, indehiscent, one seeded, bladdery fruit

Vine: herbaceous plant that is not self supporting

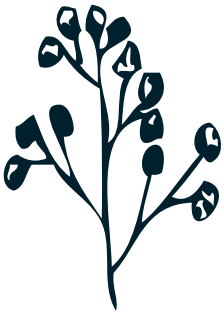


Scapose
(solitary flower)

Spike
(flowers sessile)



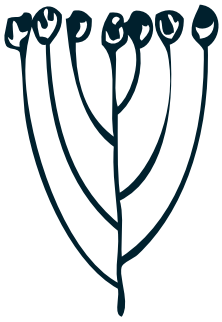
Raceme



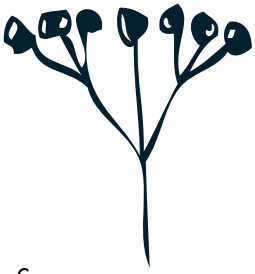
Panicle

Axilary
inflorescence

Terminal
inflorescence

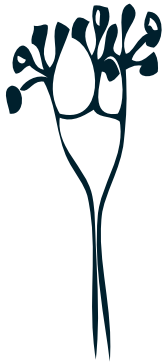


Corymb

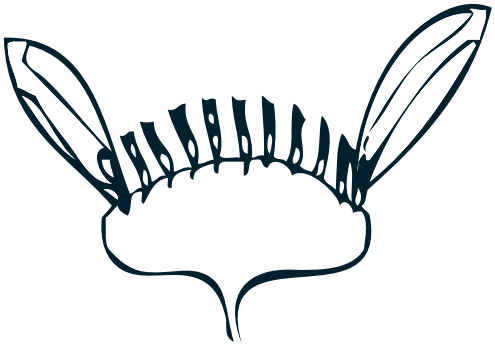


Cyme
(terminal flower blooms first)

Umbel



Umbellate

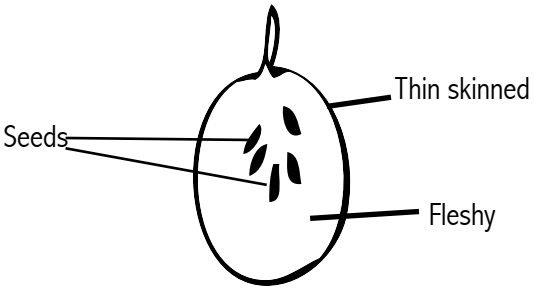


Composite inflorescence

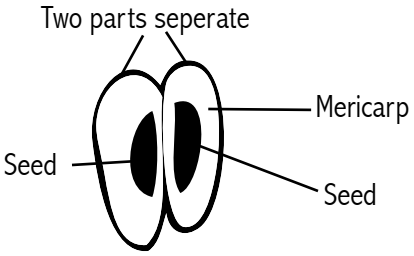
Ray floret

Disk floret

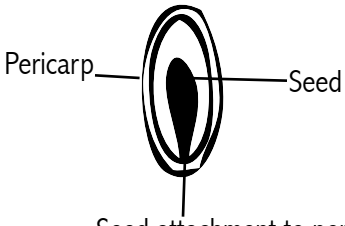
Fruit Types

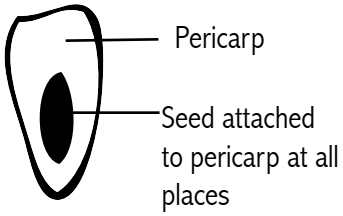


Berry—fleshy, few to many seeded

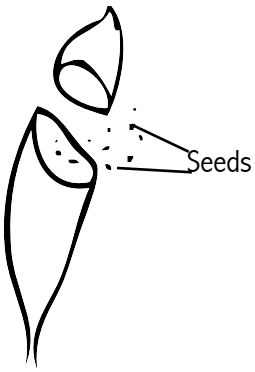


Schizocarp—dry, indehiscent (remains closed)

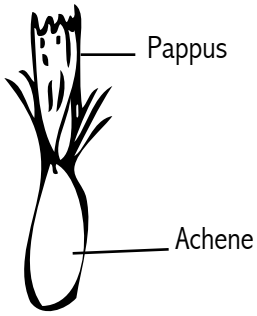




Caryopsis—dry, indehiscent



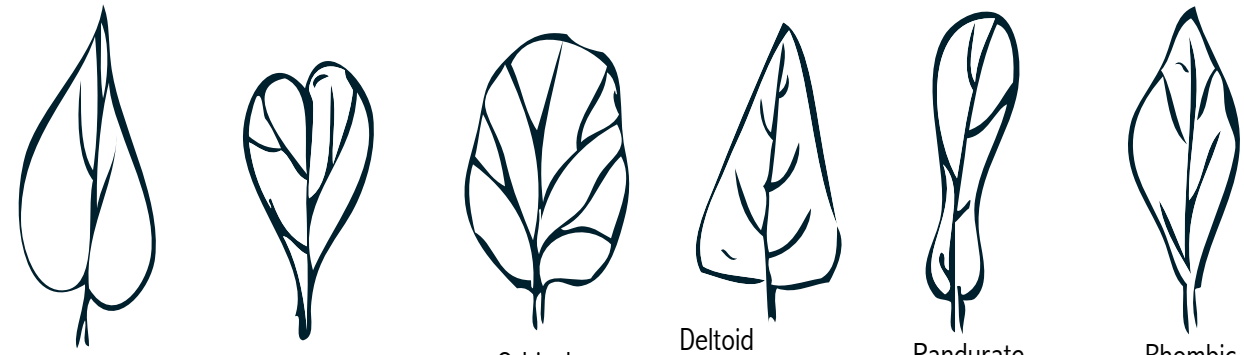
Capsule (circumscissile)—dry, dehiscent (opens)



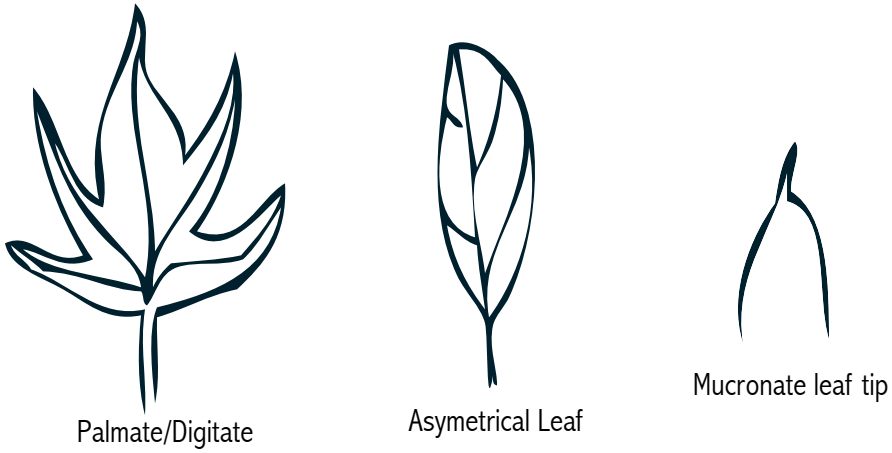
Pappus (modified calyx)

Leaf Outlines

Linear
Lanceolate
Obolanceolate
Elliptic
Oblong
Ovate
Obovate



Cordate
(heart shaped)
Obcordate
Orbicular
Deltoid
(triangle shaped)
Pandurate
Rhombic



Palmate/Digitate
Asymetrical Leaf
Mucronate leaf tip

Leaf Margins And Hairs

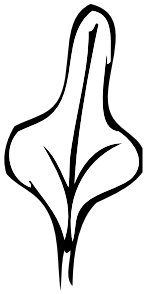
Entire

Serrate

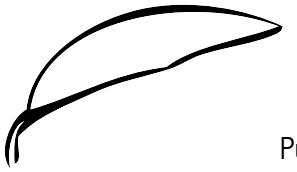
Dentate

Cillate

Crenate



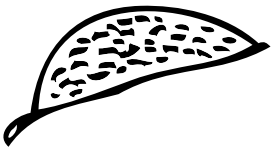
Lobed



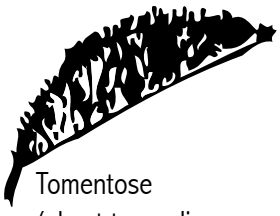
Glabrous
(smooth, no hairs

Pubescent
(very short hairs)

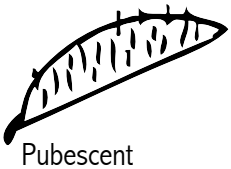
Scabrous
(rough, stiff, short hairs)



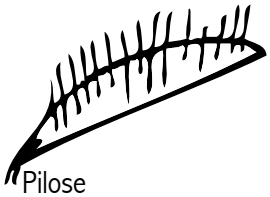
Strigose
(appressed, short, stiff hairs



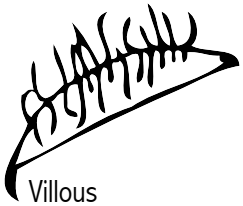
Tomentose
(short to medium,
dense interwoven hairs)



Pubescent
(medium length
hairs)

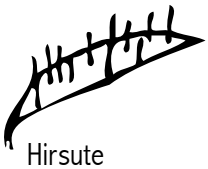


Pilose
(long, soft hairs)



Villous
(long, wavy, soft hairs)

Hispid
(long, sharp stiff
hairs)

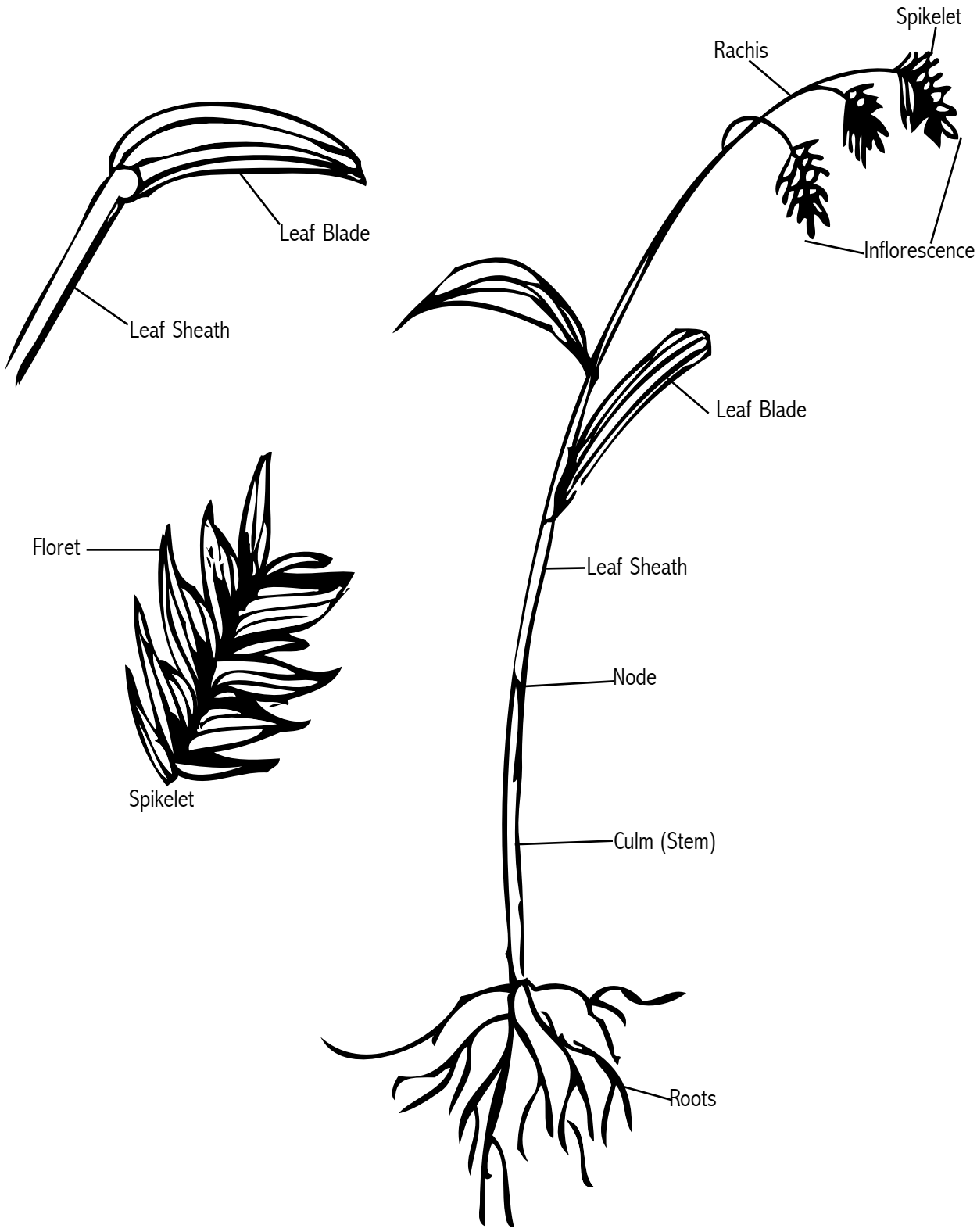


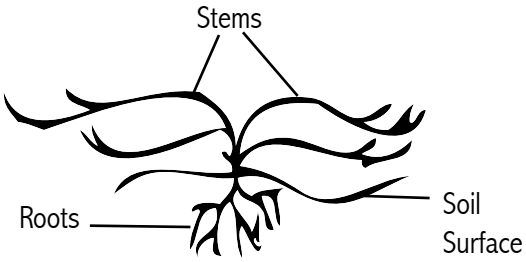
Hirsute
(long, stiff hairs)

Stellate
(star-like hairs
from a common
center)

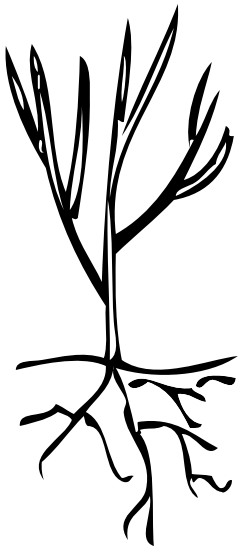
Glandular
(hairs tipped with
roundish glands)

Rugose
(wrinkled surface)


Spikelet
Rachis
Leaf Blade
Inflorescence
Leaf Sheath
Leaf Blade
Floret
Leaf Sheath
Node
Spikelet
Culm (Stem)
Roots

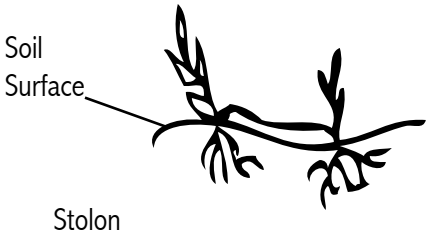


Decumbent Stems
(lying on the ground with upright stem tips)

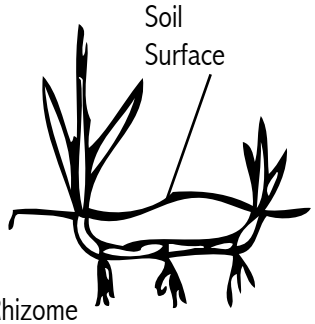


Asending Stems
(upright/erect)

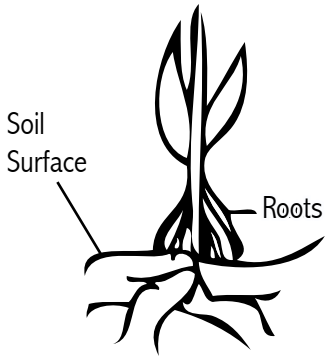
Prostrate or Procumbent Stems
(lying on the ground)



Stolon
(above ground shoot rooting at nodes)



Rhizome
(below ground shoot rooting at nodes)



Adventitious
(rooting on mature shoots)

Acalypha indica L.

Alysicarpus vaginalis (L.) DC.

Alysicarpus vaginalis (L.) DC.

Amaranthus spinosus L.

Herbarium Specimens

Amaranthus viridis L.

Antigonon leptopus Hooker & Arnold

Amaranthus viridis L.

Bidens alba (L.) D.C.

Bidens alba (L.) D.C.

Blechum pyramidatum Lam. Urb.

Blechum pyramidatum Lam. Urb.

Boerhavia erecta L.

Herbarium Specimens

Chamaesyce hirta (L.) Millsp.

Chamaecyce hypercifolia (L.) Millsp.

Chamaecyce hypercifolia (L.) Millsp.

Chamaecyce prostrata (Aiton.) Smal.

Chromolaena odorata (L.) King & Robinson

Chromolaena odorata (L.) King & Robinson

Commelina benghalensis L.

Conyza canadensis (L.) Cronq.

Herbarium Specimens

Coccinia grandis (L.) Voigt

Corchorus aestuans L.

Cuscuta campestris Yunck.

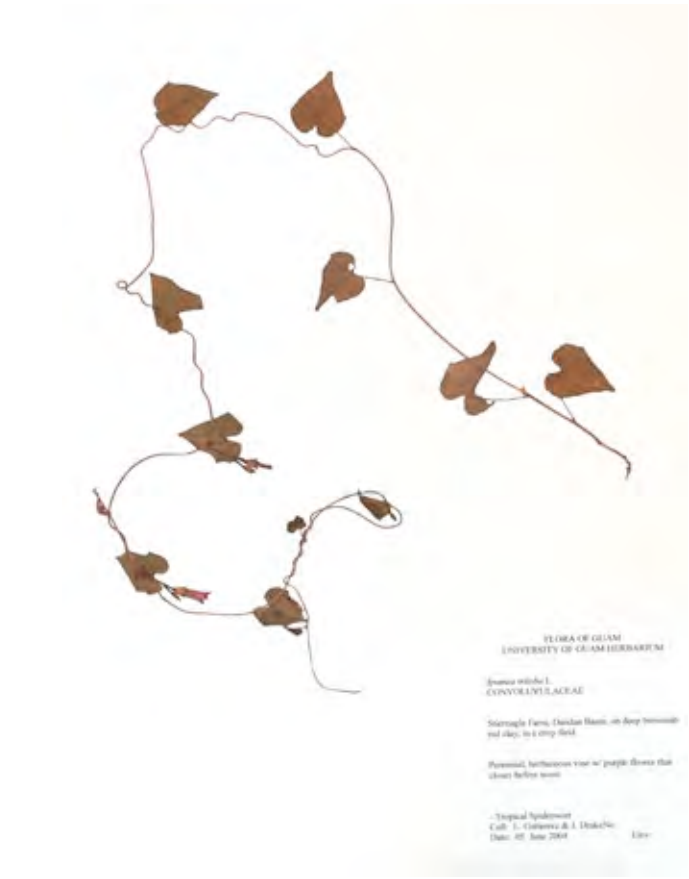
Cyanthillium cinereus (L.) H. Robinson

Desmodium tortuosum (Sw.) DC.

Desmodium triflorum (L.) DC.

Euphorbia cyathophora Murr.

Euphorbia heterophylla L.



Ipomea triloba L.

Ipomea triloba L.

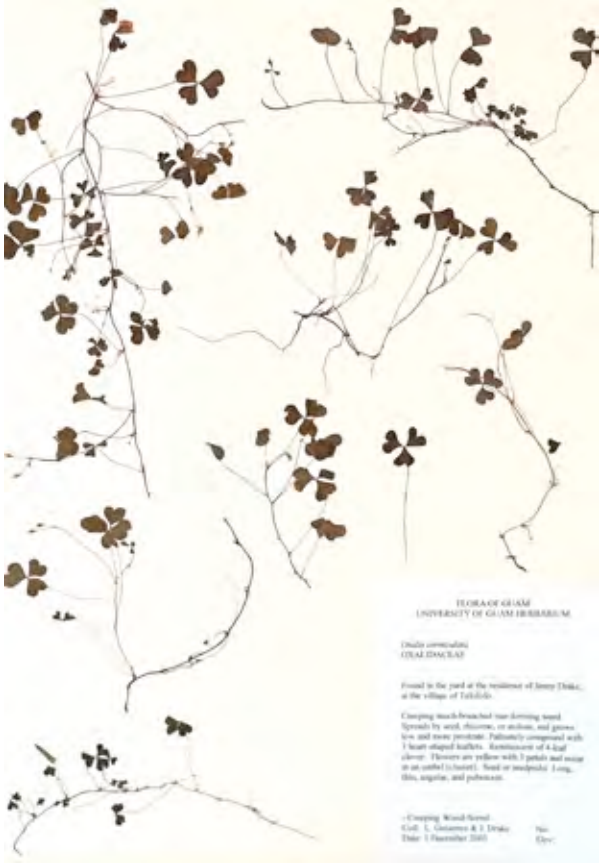
Malvastrum coromandeliamum (L.) Garcke

Mikania micrantha Kunth

Mimosa pudica L.

Momordica charantia L.

Oxalis corniculata L.



Oxalis corniculata L.

Passiflora foetida L.

Passiflora suberosa L.

Passiflora suberosa L.

Phyllanthus amatrus L.

Physalis anulata L.

Pilea microphylla (L.) Liebm.

Portulaca oleracea L.

Sida rhombifolia L.

Herbarium Specimens

*Spermacoce assur*gens Ruis & Pavon

Stachytarpheta jamaicensis (L.) Vahl

Synedrella nodiflora (L.) Gaertner

Tridax procumbens L.

Tridax procumbens L.

Vernona cinerea (L.) Less.

Youngia japonica (L.) DC.

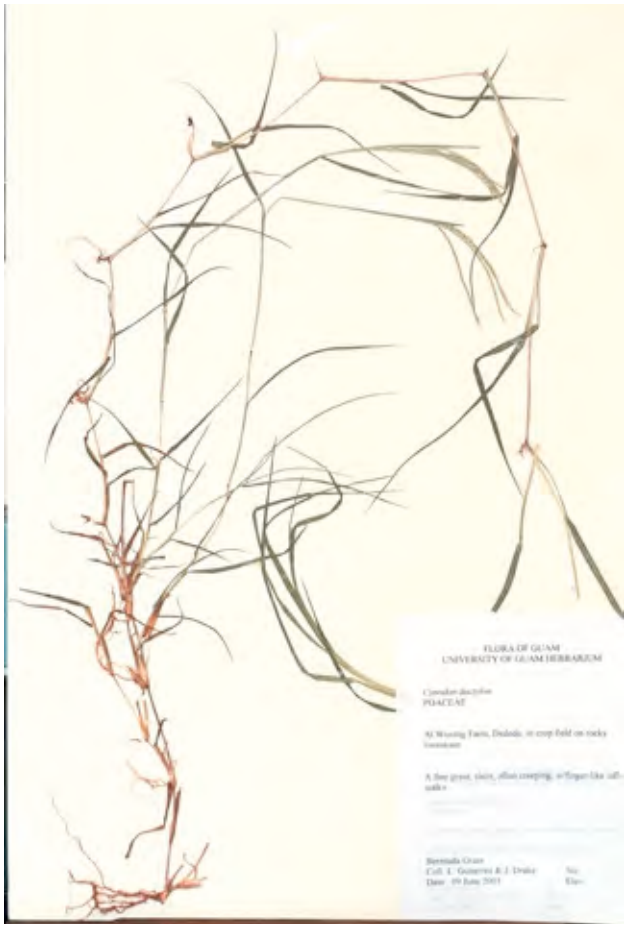
Cenchrus echinatus L.

Herbarium Specimens

Chloris inflata (L.) Sw

Chloris inflata (L.) Sw

Chrysopogon aciculatis (retz.) Trin.



Cynodon dactylon (L.) Pers.

Cyperus brevifolius (Rottb.) Hasskarl

Cyperus rotundus L.

Dactyloctenium aegytium (L.) Willd

Dactyloctenium aegytium (L.) Willd

Herbarium Specimens

Echinocloa colomum (L.) Link

Eleusine indica (L.) Gaertner

Panicum maximum Jacq

Paspalum paniculatum L.

Paspalum paniculatum L.

Pennisetum polystacion (L.) Schult.

Saccharum spontaneum (L.) Willd

Common Name Cross Reference

Agsom	*Phyllanthus amarus* Schumach & Thonn.
Alamagosa	*Momordica charantia* L.
Arrowleaf Sida	*Sida rhombifolia* L.
Artillery Plant	*Pilea microphylla* (L.) Liebm.
Asthma Plant	*Chamyaesyce hirta* (L.) Millsp.
Atmagoso	*Momordica charantia* L.
Balsam Pear	*Momordica charantia* L.
Beach Wire Grass	*Dactyloctenium aegyptium* (L.) Willd.
Beggers Tick	*Bidens alba* (L.) DC.
Bermuda grass	*Cynodon dactylon* (L.) Pers.
Bitter Gourd	*Momordica charantia* L.
Bittermelon,	*Momordica charantia* L.
Bodulagas donkulu	*Portulaca oleracea* L.
Bodulagas-chaca	*Chamaesyce prostrata* (Aiton.) Small
Botoncillo	*Cyperus brevifolius* (Rottb.) Hasskarl
Broomweed	*Sida rhombifolia* L.
Burgrass	*Cenchrus echinatus* L.
Buttongrass	*Dactyloctenium aegyptium* (L.) Willd.
Buttonweed	*Spermacoce assurgens* Ruiz & Pavon
Cadena De Amor	*Antigonon leptopus* Hooker & Arnot
Cahguan humatag	*Cyperus rotundus* L.
Chaguan lemae	*Cyperus brevifolius* (Rottb.) Hasskarl
Chaguan-agaga	*Echinochloa colona* (L.) Link
Chaguan-santa-maria	*Vernonia cinerea* (L.) Less.
Chain of Love	*Antigonon leptopus* Hooker & Arnot
Coat Buttons	*Tridax procumbens* L.
Common Sida	*Sida rhombifolia* L.
Coral Vine	*Antigonon leptopus* Hooker & Arnot
Couchgrass	*Cynodon dactylon* (L.) Pers.
Creeping Tick Clover	*Desmodium triflorum* (L.) DC.
Crowfoot Grass	*Dactyloctenium aegyptium* (L.) Willd.
Cuba jute	*Sida rhombifolia* L.
Devil's Grass	*Cynodon dactylon* (L.) Pers.
Dwarf Poinsettia	*Euphorbia cyathophora* J.A. Murray
Erect Boerhavia	*Boerhavia erecta* L
Erect Spiderling	*Boerhavia erecta* L
Escobilla Adumelon	*Sida rhombifolia* L.
Escobilla Apaka	*Sida rhombifolia* L.
Escobilla Dalili	*Sida rhombifolia* L.
False Mallow	*Malvastrum coromandelianum* (L.) Garcke
False Verbena	*Stachytarpheta jamaicensis* (L.) Vahl
Feathery Pennisetum	*Pennisetum polystachion* (L.) Schult.

Field Dodder	*Cuscuta campestris* Yunck.
Fingergrass	*Chloris barbata* (L.) Sw
Florida Beggarweed	*Desmodium tortuosum* (Sw.) DC.
Fofgu-sabana	*Ipomea triloba* L.
Garden Spurge	*Chamyaesyce hirta* (L.) Millsp.
Globe Kyllinga	*Cyperus brevifolius* (Rottb.) Hasskarl
Golden Beardgrass	*Chrysopogan aciculatus* (Retz.) Trin
Golden Dodder	*Cuscuta campestris* Yunck.
Golondrina	*Chamyaesyce hirta* (L.) Millsp.
Goosegrass	*Eleusine indica* (L.) Gaertner
Graceful Spurge	*Chamaesyce hypericifolia* (L.) Millsp.
Groundcherrry	*Physalis angulata* L.
Guinea grass	*Panicum maximum* Jacq.
Gunpowder plant	*Pilea microphylla* (L.) Liebm.
Hairy Beggartick	*Bidens alba* (L.) DC.
Hairy Creeping Milkweed	*Chamaesyce prostrata* (Aiton.) Small
Hairy horseweed	*Conyza canadensis* (L.) Cronq.
Hairy Spurge	*Chamyaesyce hirta* (L.) Millsp.
Hierba Del Cancer	*Acalypha indica* L
Horseweed	*Conyza canadensis* (L.) Cronq.
Horseweed Fleabane	*Conyza canadensis* (L.) Cronq.
Indigo Berry	*Passiflora suberosa* L.
Inifuk	*Chrysopogan aciculatus* (Retz.) Trin
Ironweed	*Vernonia cinerea* (L.) Less.
Ivy gourd	*Coccinia grandis* (L.) Voigt
Jamaican Vervain	*Stachytarpheta jamaicensis* (L.) Vahl
Jungle rice	*Echinochloa colona* (L.) Link
Kulites, Kulites	*Amaranthus spinosus* L.
Little bell	*Ipomea triloba* L.
Little Ironweed	*Cyanthillium cinereus (L.) Rob.*
Love in a Mist	*Passiflora foetida* L.
Love vine	*Antigonon leptopus* Hooker & Arnot
Maigo-lalo	*Phyllanthus amarus* Schumach & Thonn.
Mexican Creeper	*Antigonon leptopus* Hooker & Arnot
Mimosa	*Mimosa pudica* L.
Mission grass	*Pennisetum polystachion* (L.) Schult.
Nodeweed	*Synedrella nodiflora (L.) Gaetn.*
Nut Sedge	*Cyperus rotundus* L.
Nutgrass	*Cyperus rotundus* L.
One Leaf Clover	*Alysicarpus vaginalis* (L.) DC
Oriental Hawksbeard	*Youngia japonica* (L.) DC.
Palaii	*Chrysopogan aciculatus* (Retz.) Trin

Common Name Cross Reference

Pigweed	*Amaranthus viridis* L.
Pigweed	*Portulaca oleracea* L.
Pillpod	*Chamyaesyce hirta* (L.) Millsp
Plush grass	*Chloris barbata* (L.) Sw
Prickly Malvastrum	*Malvastrum coromandelianum* (L.) Garcke
Prostrate Sandmat	*Chamaesyce prostrata* (Aiton.) Small
Prostrate Spurge	*Chamaesyce prostrata* (Aiton.) Small
Purple Nutsedge	*Cyperus rotundus* L.
Purslane	*Portulaca oleracea* L.
Radiate Finger Grass	*Chloris radiata* (L.) Sw.
Red Milkweed	*Chamyaesyce hirta* (L.) Millsp
Rockweed	*Pilea microphylla* (L.) Liebm.
Russell Rivergrass	*Paspalum paniculatum* L.
Sandbur	*Cenchrus echinatus* L.
Scarlet-Fruited Gourd	*Coccinia grandis* (L.) Voigt
Sensitive plant	*Mimosa pudica* L.
Shame Weed	*Mimosa pudica* L.
Siam Weed	*Chromolaena odorata* (L.) King & Robinson
Sleeping grass	*Mimosa pudica* L.
Slender Amaranth	*Amaranthus viridis* L.
Sourgrass	*Oxalis corniculata* L.
Southern Sandspur	*Cenchrus echinatus* L.
Spanish Needles	*Bidens alba* (L.) DC.
Spiny Amaranth	*Amaranthus spinosus* L.
Swollen Fingergrass	*Chloris barbata* (L.) Sw
Syndrella	*Synedrella nodiflora* (L.) Gaetn.
Three Flower Beggarweed	*Desmodium triflorum* (L.) DC.
Three Lobe Morning Glory	*Ipomea triloba* L.
Threelobe False Mallow	*Malvastrum coromandelianum* (L.) Garcke
Tomate Chaka	*Physalis angulata* L.
Touch Me Not	*Mimosa pudica* L.
Tridax	*Tridax procumbens* L.
Tridax Daisy	*Tridax procumbens* L.
Tropical Spiderwort	*Commelina benghalensis* L.
Umog	*Eleusine indica* (L.) Gaertner
Vernonia	*Cyanthillium cinereus (L.) Rob.*
Wandering Jew	*Commelina benghalensis* L.
White Moneywort	*Alysicarpus vaginalis* (L.) DC
Wild cane	*Saccharum spontaneum* L.
Wild Daisy	*Tridax procumbens* L.
Wild Passionfruit	*Passiflora foetida* L.
Wild Poinsettia	*Euphorbia cyathophora* J.A. Murray

Wild Sugarcane	*Saccharum spontaneum* L.
Wildcape gooseberry	*Physalis angulata* L.
Wiregrass	*Cynodon dactylon* (L.) Pers.
Yellow Wood Sorrel	*Oxalis corniculata* L.

Flower Color	Species	Family
	Broadleaf	
flowers minute	*Amaranthus viridis*	Amaranthaceae
flowers minute	*Amaranthus spinosus*	Amaranthaceae
flowers minute	*Acalypha indica*	Euphorbiaceae
flowers minute	*Chamaesyce hirta*	Euphorbiaceae
flowers minute	*Chamaesyce hypericifolia*	Euphorbiaceae
flowers minute	*Chamaesyce prostrata*	Euphorbiaceae
flowers minute	*Phyllanthus amarus*	Euphorbiaceae
flowers minute	*Pilea microphylla*	Urticaceae
flowers minute	*Euphorbia cyathophora*	Euphorbiaceae
flowers minute	*Euphorbia heterophylla*	Euphorbiaceae
deep maroon	*Macroptilium lathyroides*	Fabaceae
lavender to pale blue	*Stachytarpheta jamaicensis*	Verbenanceae
lavender	*Vernonia cinerea*	Asteraceae
pink to purple	*Mimosa pudica*	Fabaceae
purple	*Commelina benghalensis*	Commelinaceae
purple to red with yellow markings	*Alysicarpus vaginalis*	Fabaceae
violet to purple	*Desmodium triflorum*	Fabaceae
white	*Conyza canadensis*	Asteraceae
white	*Spermacoce assurgens*	Rubiaceae
white, small	*Blechum pyramidatum*	Acanthaceae
white or pale pink, small	*Boerhavia erecta*	Nyctaginaceae
pink to white	*Desmodium tortuosum*	Fabaceae
white to lavender	*Chromolaena odorata*	Asteraceae
white to cream with dark yellow center	*Tridax procumbens*	Asteraceae
white with yellow center	*Bidens alba*	Asteraceae
pale yellow with dark spots in center	*Physalis angulata*	Solanaceae
light yellow, yellow to orange	*Sida rhombifolia*	Malvaceae
yellow	*Portulaca oleracea*	Portulacaceae
yellow	*Synedrella nodiflora*	Asteraceae
yellow	*Youngia japonica*	Asteraceae
yellow	*Oxalis corniculata*	Oxalidaceae
deep yellow to orange	*Malvastrum coromandelianum*	Malvaceae

Flower Color	Species	Family
	Vine	
purple	*Ipomoea triloba*	Convolvulaceae
white, pink, dark pink	*Antigonon leptopus*	Polygonaceae
white	*Coccinia grandis*	Cucurbitaceae
white, minute	*Cuscuta campestris*	Convolvulaceae
white	*Mikania scandens*	Asteraceae
white with purple centers	*Passiflora foetida*	Passifloraceae
greenish white, small	*Passiflora suberosa*	Passifloraceae
yellow	*Momordica charantia*	Cucurbitaceae
	Sedge	
spikelets pale green	*Cyperus brevifloius*	Cyperaceae
spikelets red-brown	*Cyperus rotundus*	Cyperaceae

Species	Family	Mangilao	Barrigada	Tumon
Broadleaf				
Acalypha indica	Euphorbiaceae		X	X
Alysicarpus vaginalis	Fabaceae		X	X
Amaranthus spinosus	Amaranthaceae			X
Amaranthus viridis	Amaranthaceae		X	X
Bidens alba	Asteraceae			X
Blechum pyramidatum	Acanthaceae		X	
Boerhavia erecta	Nyctaginaceae			
Chamaesyce hirta	Euphorbiaceae	X	X	X
Chamaesyce hypericifolia	Euphorbiaceae		X	X
Chamaesyce prostrata	Euphorbiaceae	X	X	X
Chromolaena odorata	Asteraceae			X
Commelina benghalensis	Commelinaceae			
Conyza canadensis	Asteraceae			X
Cyanthillium cinereus	Asteraceae	X		
Desmodium tortuosum	Fabaceae			X
Desmodium triflorum	Fabaceae			
Euphorbia cyathophora	Euphorbiaceae		X	
Euphorbia heterophylla	Euphorbiaceae	X	X	X
Macroptilium lathyroides	Fabaceae			
Malvastrum coromandelianum	Malvaceae			
Mimosa pudica	Fabaceae		X	
Oxalis corniculata	Oxalidaceae	X	X	X
Phyllanthus amarus	Euphorbiaceae	X	X	X
Physalis angulata	Solanaceae			X
Pilea microphylla	Urticaceae	X	X	X
Portulaca oleracea	Portulacaceae		X	X
Sida rhombifolia	Malvaceae			
Spermacoce assurgens	Rubiaceae	X		
Stachytarpheta jamaicensis	Verbenanceae		X	X
Synedrella nodiflora	Asteraceae			X
Tridax procumbens	Asteraceae		X	
Youngia japonica	Asteraceae		X	X
Vine				

Species	Family	Mangilao	Barrigada	Tumon
Antigonon leptopus	Polygonaceae			X
Coccinia grandis	Cucurbitaceae			
Cuscuta campestris	Convolvulaceae			
Ipomoea triloba	Convolvulaceae	X	X	X
Mikania scandens	Asteraceae	X	X	X
Momordica charantia	Cucurbitaceae		X	
Passiflora foetida	Passifloraceae			X
Passiflora suberosa	Passifloraceae	X	X	X
Sedge				
Cyperus brevifloius	Cyperaceae			
Cyperus rotundus	Cyperaceae		X	X
Grass				
Cenchrus echinatus	Poaceae			
Chloris barbata	Poaceae			
Chloris radiata	Poaceae			
Chrysopogon acidulatus	Poaceae			
Cynodon dactylon	Poaceae			
Dactyloctenium aegyptium	Poaceae		X	
Echinochloa colona	Poaceae			
Eleusine indica	Poaceae	X		X
Panicum maximum	Poaceae			
Paspalum paniculatum	Poaceae			X
Saccharum spontaneum	Poaceae			

Species	Family	Dededo	Yigo	Malojloj	Yigo	Inarajan	Mangilao	Barrigada	Talofofo
Broadleaf									
Acalypha indica	Euphorbiaceae						X		
Amaranthus spinosus	Amaranthaceae	X							X
Amaranthus viridis	Amaranthaceae					X	X	X	X
Bidens alba	Asteraceae		X		X	X			
Boerhavia erecta	Nyctaginaceae	X			X	X			X
Chamaesyce hirta	Euphorbiaceae		X		X	X	X	X	
Chamaesyce hypericifolia	Euphorbiaceae		X			X	X	X	
Chamaesyce prostrata	Euphorbiaceae					X			
Chromolaena odorata	Asteraceae							X	
Euphorbia cyathophora	Euphorbiaceae	X	X		X				
Euphorbia heterophylla	Euphorbiaceae	X	X	X	X	X	X	X	
Macroptilium lathyroides	Fabaceae					X			
Mimosa pudica	Fabaceae		X	X				X	X
Phyllanthus amarus	Euphorbiaceae	X		X	X		X	X	
Physalis angulata	Solanaceae	X		X	X				X
Pilea microphylla	Urticaceae				X				
Portulaca oleracea	Portulacaceae	X			X	X	X	X	X
Sida rhombifolia	Malvaceae		X						
Spermacoce assurgens	Rubiaceae		X	X	X				
Stachytarpheta jamaicensis	Verbenanceae	X	X	X	X			X	
Tridax procumbens	Asteraceae					X			X
Youngia japonica	Asteraceae							X	
Vine									
Antigonon leptopus	Polygonaceae							X	
Ipomoea triloba	Convolvulaceae	X		X		X	X	X	X
Mikania scandens	Asteraceae					X			
Momordica charantia	Cucurbitaceae	X	X	X	X		X	X	X
Passiflora foetida	Passifloraceae			X					
Passiflora suberosa	Passifloraceae		X					X	

Species	Family	Dededo	Yigo	Malojloj	Yigo	Inarajan	Mangilao	Barrigada	Talofofo
Sedge									
Cyperus brevifloius	Cyperaceae						X		
Cyperus rotundus	Cyperaceae		X	X		X	X		X
Grass									
Cenchrus echinatus	Poaceae				X	X	X	X	
Chloris barbata	Poaceae						X		
Cynodon dactylon	Poaceae	X							
Dactyloctenium aegyptium	Poaceae				X		X	X	
Echinochloa colona	Poaceae			X				X	X
Eleusine indica	Poaceae	X			X			X	X
Pennisetum polystachion	Poaceae		X	X	X				

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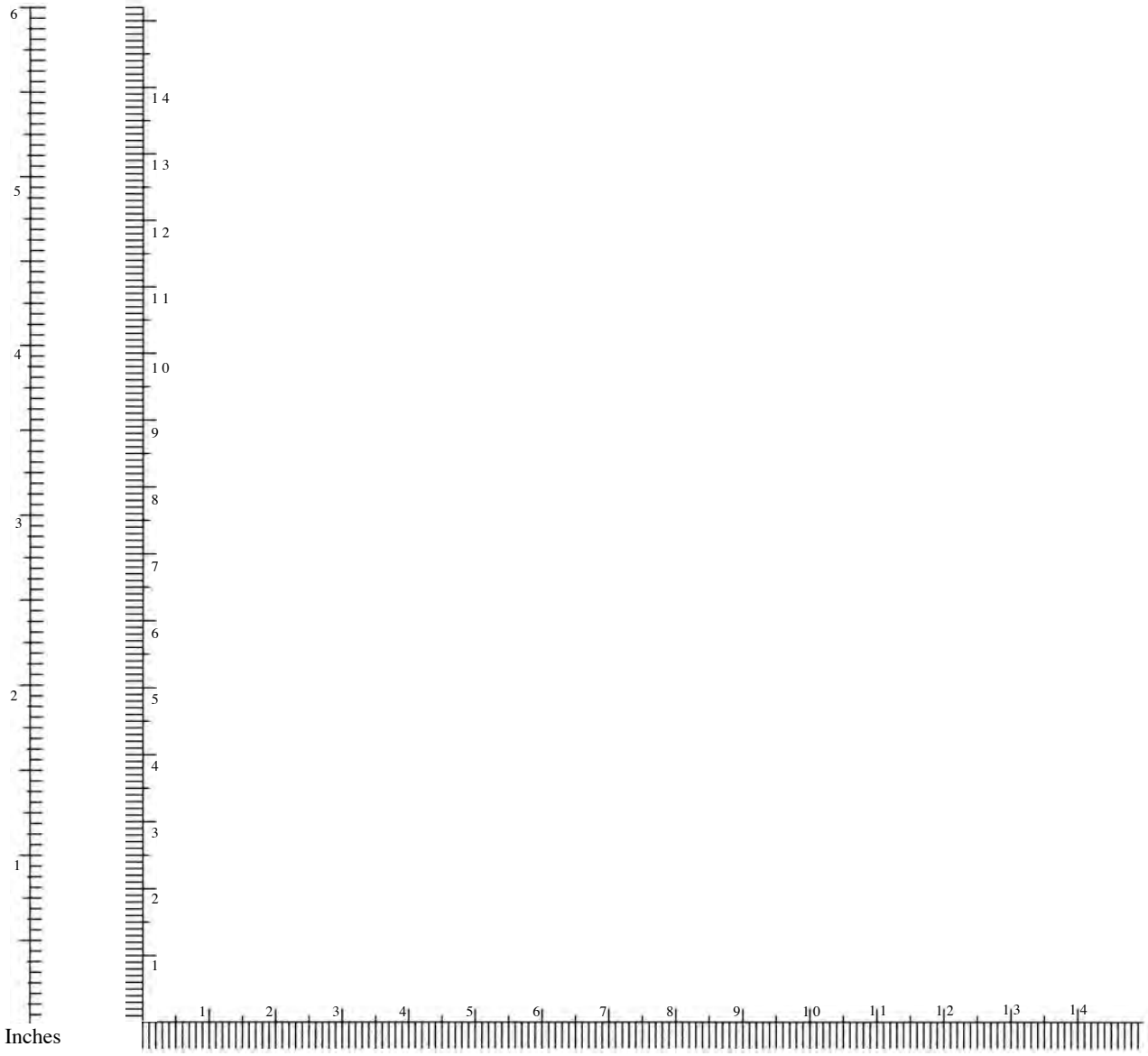
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