

Invasive Plant Management Program

Weed Identification Guide

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Invasive Tree Species

- Seedlings can be hand pulled or weed-wrenched when the ground is soft
- Young trees and resprouts can be lopped and herbicide dabbed on the cut surface (cut-stump treatment)
- Mature trees will need to be cut by chainsaw and cut-stump treated

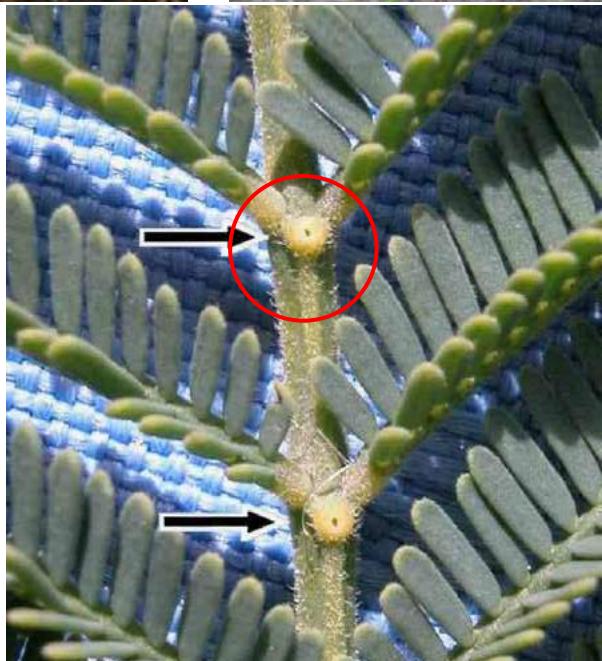


Acacia species

- Most common local species is *Acacia dealbata* (silver wattle) with **feathery gray-blue compound leaves**.
- Bumpy glands on leaf midrib.
- **Blooms fluorescent yellow** in February. Fruit is a twisted red-brown pod.
- *Acacia melanoxylon* (black acacia) is also common. Leaf shape includes simple as well as compound leaves.



Black acacia – feathery true leaves + flat leaf-like stems



Glands on underside of leaf midrib

Ailanthus altissima (Tree of Heaven)

- Deciduous tree with compound leaves. **1-2 teeth at leaflet base.**
- Bark smells like **rancid peanut butter** when scratched
- Young trees look like bare sticks in winter with **large leaf scars**
- Produces huge bunches of reddish papery seeds
- Spreads via root suckers (grows in lines or stands, rarely singly)



Large, heart-shaped leaf scars



Clusters of twisty, papery fruit

Casuarina species (She-oaks)

- 'Australian pines' - look **somewhat pine-like** from a distance
- Up close, **needles are jointed**
- **1" cones** persist on branches and in leaf litter
- Species level ID tricky, but *C. equisetifolia* and *C. cunninghamiana* are in the county
- Not common on creeks

Jointed needles:
number of teeth
at each joint can
help ID to
species



Persistent woody cones



Eucalyptus species

- Often very large trees with **glandular punctate leaves** that **smell spicy** when crushed
- Flowers have many colored stamens (no petals), fruit is a **woody capsule**
- Bark often **strippy/peely**
- Most common creek species:
 - *E. globulus* - blue gum
 - *E. camaldulensis* - red river gum
 - *E. polyanthemos* - silver dollar gum



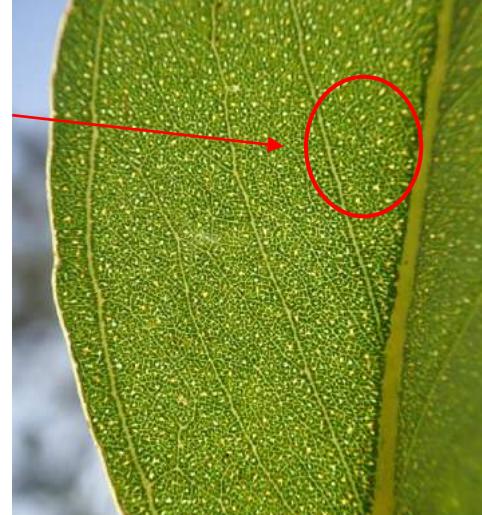
Leaf shape is variable (silver dollar gum left, red river gum above)



Woody capsules – blue gum above, red river gum below



Leaves have clear pinpoint glands in direct light



Red river gum at Lower Silver – note peely bark



Ficus carica (Fig)

- New for SMP 2.5
- Tree with thick knobby branches and **milky juice** if you damage a leaf or stem
- **Palmately lobed leaf** shape is distinctive
- Relatively new invasive – most plants encountered will be < 5 years old



Fruit is a fig, but most creek volunteers are too young to fruit



Milky juice when damaged

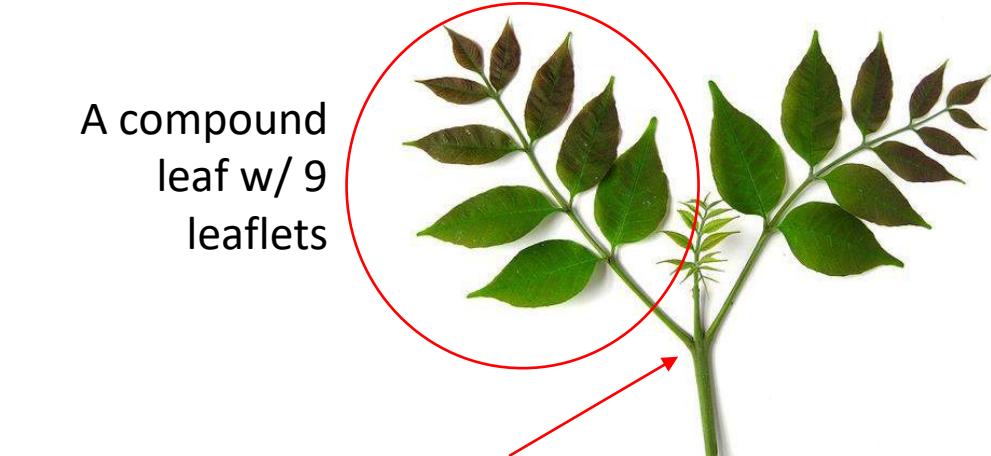
Fraxinus species (Ash)

- Upright, single-trunked trees with **opposite, pinnately compound leaves**
- Most common sp. is *F. uhdei* (leathery, +/- evergreen with purple petioles)
- Very young seedlings may have simple leaves
- The native deciduous Oregon ash occasionally appears on creeks



Native Oregon ash (*F. latifolia*):
large, spoon-shaped terminal leaflet

A compound leaf w/ 9 leaflets



Opposite: two leaves come out of same node in a V shape



Ligustrum species (Privet)

- Mostly *Ligustrum lucidum* (glossy privet)
- Multi-trunked tree or shrub with large, **glossy, opposite leaves**
- Triangular clusters of smelly yellow/white flowers
- Lots of small purple-black berries
- Extremely common on creeks

Simple,
opposite
leaves



Clusters of
oval fruits
with whitish
bloom



Olea europaea (Olive)

- Smallish, often multi-trunked trees or shrubs
- Leaves are **simple and opposite**. Leaf **underside is pale, top is dark green** and shiny.
- Gray gnarled trunks
- Olives may be present



Opposite
branching on
a resprout



Color
difference
between leaf
top & bottom



Palm species

- Two primary weedy species:
 - **Mexican fan palm** (*Washingtonia robusta*) with round, palmately compound leaves
 - **Canary Island palm** (*Phoenix canariensis*) with narrow, pinnately compound leaves
- Seedlings are very common on creeks. Some can be hand-pulled.
- No native palm species in the county



Young Mexican fan palm



Young Canary island palm



Mature Mexican fan palms



Huge Canary island palm on Guadalupe River

Populus nigra 'Italica' (Lombardy poplar)

- Related to native cottonwood (*Populus fremontii*) with similar leaf shape BUT
- Very different growth habit: **narrowly upright with crowded branches**
- Often mostly dead with green only at the base – prone to disease
- Not common on creeks

Native cottonwood habit & leaf shape below



Vertical habit, crowded branches, often diseased



Leaf is more diamond-shaped and serrated than cottonwood

Quercus ilex (Holly oak)

- Very common locally – our only invasive oak
- Juvenile leaves can resemble coast live oak leaves BUT
- Leaves are pointier with **6-10 pairs of parallel veins** (3-5 pairs for coast live)
- Adult leaves have **smooth margins and fuzzy white undersides**
- Produces many more acorns than coast live oak
- Planted on SCVWD campus



Native *Q. agrifolia* leaves: cupped downward with few veins, hair on back surface only at vein armpits.

Juvenile *Q. ilex* leaves:
narrower & pointier with more veins.
Backs may be fuzzy or not.



Adult *Q. ilex* leaves: smooth margins, dark green on top, fuzzy white below. Acorns are similar to coast live oak's.



Robinia pseudoacacia (Black locust)

- **Two spines** flanking each leaf petiole
- Spines persist on branches
- **Compound leaves** with 11-17 oval leaflets
- Suckers from root, forms clonal stands
- Clusters of fragrant white pea-like flowers
- Not too common, but **VERY** hard to kill
- We also remove honey locusts (*Gleditsia triacanthos*)

Honey locust: leaves are twice pinnately compound, spineless. Mostly in saltmarsh, also invasive.



Look for stipular spines at the base of each compound leaf



Salix babylonica (Weeping willow)

- Essentially our only invasive willow
- Branches weep even on very young trees
- Easy to spot by its **droopy shape** from a distance
- Leaf shape is **longer and more serrated** than native red & arroyo willows
- Clonal: mature trees form dense groves near water.



Native red willow leaves: rounded base, lack of serrated margins, shorter overall shape



Overall habit is very drapey



Narrow, pointed leaves with serrated margins on weeping branches



Schinus molle (Pepper tree)

- **Feathery compound leaves that smell spicy when crushed**
- **Pink ‘peppercorn’ fruits in dangly clusters**
- Evergreen foliage, persistent fruit
- Bulbous rough-barked trunk
- Trees over 12” DBH are common (planted). Volunteers are not.

Pink berry-like fruit persist on tree



Weeping compound leaves that smell spicy when crushed



Trunks can be massive and gnarled



Ulmus species (Elm)

- **Sandpapery leaves with **asymmetrical** bases**
- Alternate leaves give stems a zigzag look
- Common species: *U. parvifolia* (Chinese small-leaved elm). *U. procera* (English elm – corky branches), others. Hard to ID to species.
- Some species are clonal and turn into dense stands (especially on Coyote Creek)



U. parvifolia

Stems have a slight zigzag look



Leaf is asymmetrical at base



Underside

Some species have corky branches



Invasive Shrubs

- Young shrubs can be hand-pulled or wrenched out in the wet season
- Most are also susceptible to foliar herbicide
- Large, well-established shrubs will need to be cut-stump treated



Broom species

- Several different genera (*Cytisus*, *Genista*, *Spartium*)
- All **shrubby legumes with bilateral yellow flowers**
- French broom (*Genista monspessulana*) is the most common
- Young plants can be hand-pulled, weed-wrenched, or treated with foliar herbicide
- Native lookalike: deerweed, *Acmispon glaber*



Native deerweed:
much smaller plant
<3' tall, yellow-orange, grows in
open upland areas



Spanish broom
has straight
upright stems
with few leaves



French broom has fuzzy leaves in
threes & plump yellow flowers.



French broom has an open,
scraggly appearance. Grows in
disturbed areas where light is
available.

Cotoneaster & Pyracantha species

- Related evergreen shrubs that produce **red berry-like fruit**
- *Cotoneaster pannosus* (woolly cotoneaster) most common
- *Pyracantha* (firethorn) species have thorns
- No native species
- Only native lookalike is toyon.



Toyons have big, leathery, serrated leaves



Firethorns are thorny & have narrow leaves



Woolly cotoneaster appears occasionally on creeks. Note extreme fuzz on leaf backs

Nicotiana glauca (Tree tobacco)

- Gangly evergreen shrub with **matte gray-green leaves** and **tubular yellow flowers**
- Multi-trunked, can get up to 20' tall
- Green stems when young, woody with age
- Occasional on creeks; large infestations are rare

Tubular yellow flowers



Gray-green leaves
with a dusty bloom



Tall, multi-
trunked growth
form



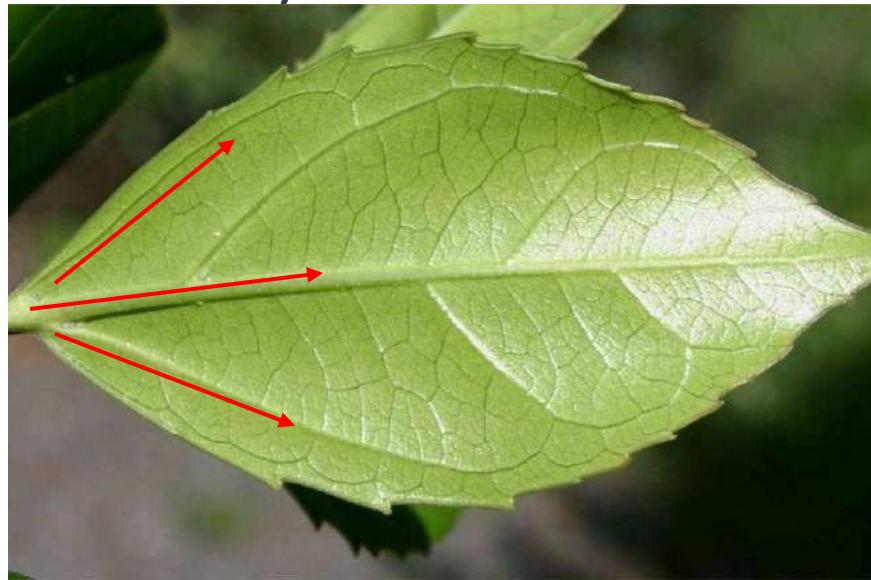
Rhamnus alaternus (Italian buckthorn)

- Common non-descript evergreen shrub
- Leaves have **shiny yellow undersides** with **3 semi-palmate main veins**
- Occasionally has reddish fruit near axils
- Seeds are bird dispersed: seedlings often found under areas where birds perch
- Salt tolerant – abundant near the baylands, but also common elsewhere

Leaf underside is shiny, hairless, and has three main veins coming from the petiole



Inconspicuous, yet everywhere



Ricinus communis (Castor bean)

- Evergreen perennial with big **star-shaped leaves** and weird **spiky fruit**
- Up to 12' tall, can be almost tree-like with a single trunk
- Especially problematic on Coyote Creek
- Seedlings can be hand-pulled during the wet season, but larger plants must be treated with foliar herbicide or cut-stump herbicide.
- Seeds are extremely toxic

Large star-shaped leaves and inflorescences with female flowers at the top, male flowers below.



Sesbania punicea (Red sesbania)

- Shrub or small tree in legume family with **big red pea-like flowers**
- Stems often reddish
- **Pinnately compound leaflets (20-34) with no terminal leaflet**
- Only recorded for Guadalupe River, not common on creeks



Compound leaves with no terminal leaflet (ends in a pair)

Large orange-red flowers in clusters



Tamarix species (Saltcedar)

- **Scale-like leaves** that somewhat resemble a cypress or juniper, but are **unscented**
- Several different species, all invasive
- **Tiny pink flowers in large clusters**
- Uncommon on creeks but difficult to kill with cut-stump treatment or foliar herbicide

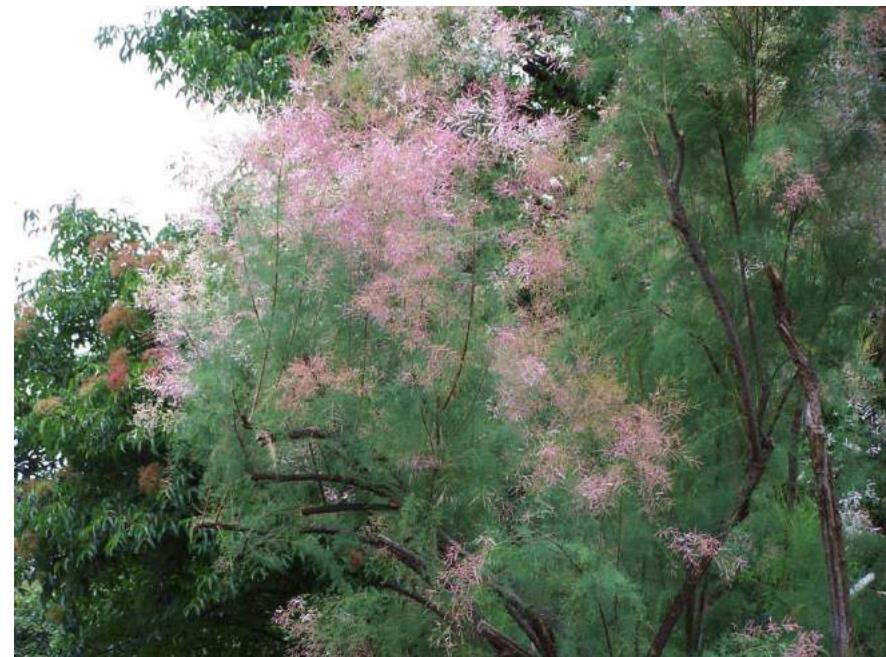


Cypress-like foliage, often winter deciduous



Close-up of flowers

Easiest to spot in bloom during the spring



Invasive Vine Species

- Some vines can be hand-pulled while the ground is wet
- Some can be treated with foliar herbicide
- Ivy and vinca do NOT respond well to herbicide and must be pulled
- Woody/thorny vines may need to be mowed first for access and to reduce area for herbicide treatment



Asparagus asparagooides (Bridal creeper)

- Early detection species
- Summer deciduous vine with glossy, parallel-veined leaves and wiry vines
- Climbs up other vegetation
- Flowers in late winter, fruits by early spring
- Big underground tubers store carbs and allow to overwinter
- Responds well to herbicide applied before fruiting (Jan-Mar)



Shiny leaves with parallel veins appear in December



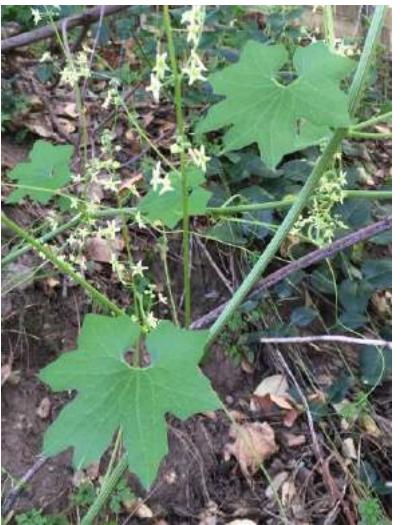
Red fruits appear in spring. Birds spread seeds.



Climbs up woody vegetation (photo taken at Guad near airport)

Delairea odorata (Cape Ivy)

- Evergreen star-shaped leaves
- Vines often bright purple. **Tendrils never spiral.**
- Yellow flowers, but mostly reproduces asexually: fragments can become new plants
- Can be handpulled in the wet season but also responds well to foliar herbicide
- One native lookalike: wild cucumber

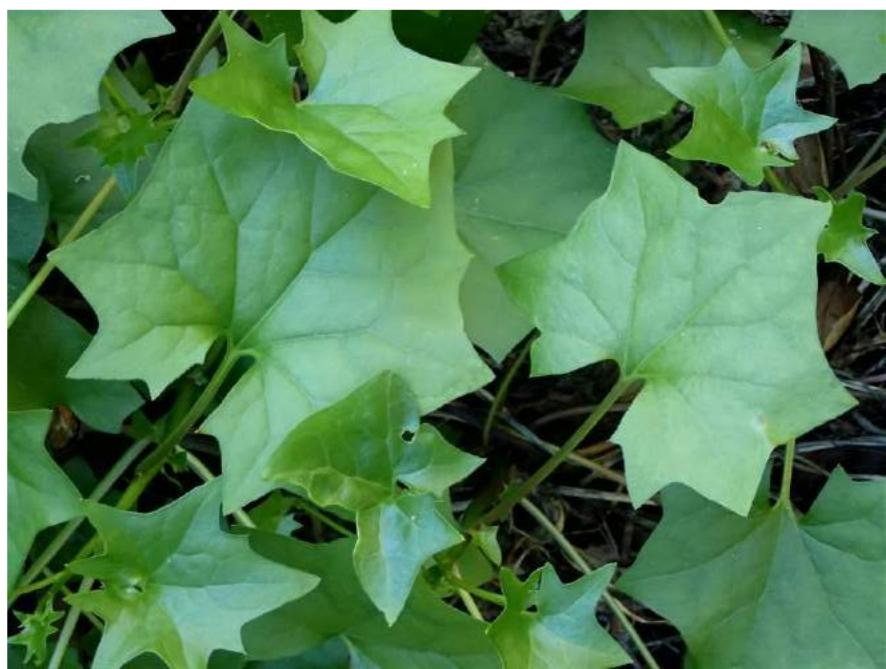


Native wild cucumber
Marah fabacea. Distinguish from Cape ivy by spiral tendrils, matte leaves, and deciduous habit (no green leaves between June-December).

Glossy star-shaped leaves with an unpleasant smell when crushed



Purple vines (never spiraling)



Hedera species (Ivy)

- Perennial evergreen vine
- Common species: *H. canariensis* (Algerian ivy), *H. helix* (English ivy).
- Juvenile leaves are shaped differently than mature leaves
- Waxy evergreen leaves are somewhat resistant to herbicide, especially in the shade
- Follow-up treatments often involve hand pulling during the wet season
- Ivy climbing up trees will need to be girdled and treated with herbicide

Juvenile Algerian ivy



Juvenile English ivy (leaves have more points and are more star-shaped)



Mature English ivy with fruit. Note different leaf shape.

Rubus species (Blackberry)

- Shrubby vines that can become woody with age
- Two invasive species: *R. armeniacus* (Himalayan; shrubby) and *R. ulmifolius* (thornless, often has long cascading runners).
- Tall stands will need to be mowed first before other treatments
- Watch out for native *R. ursinus* (CA blackberry)



CA blackberry (lighter green with 3 leaflets and needle-like prickles) with Himalayan (dark green with ridged stems, 5 leaflets, and thick rose-like thorns)

Himalayan blackberry on top, thornless blackberry below.



Vinca major (Periwinkle)

- Sprawling, evergreen vine with **opposite leaves**, wiry vines, and **milky juice**
- Showy purple pinwheel flowers in early spring
- Not thought to seed in California; spread via sprawling stems that can root at the nodes
- Resistant to herbicide
- Must be hand pulled during the wet season

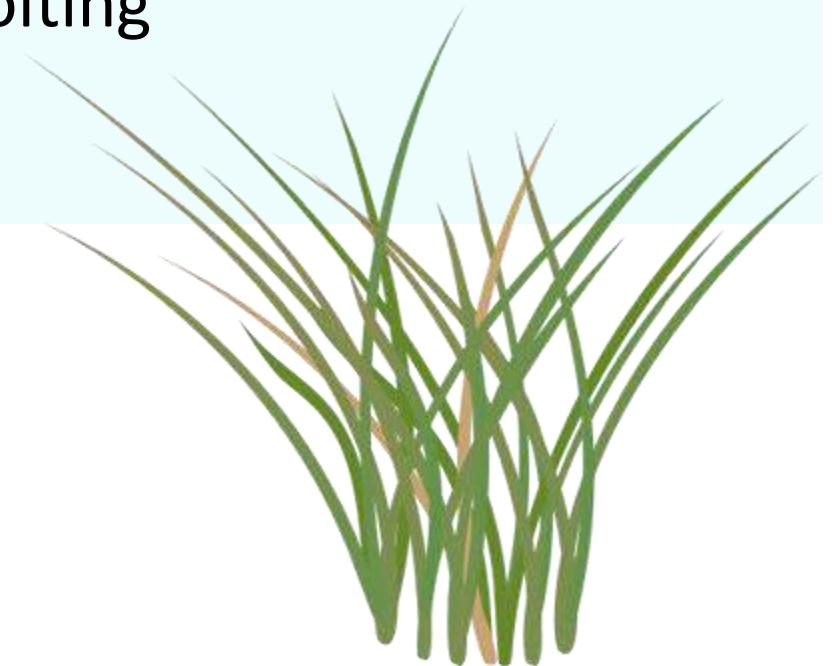
Waxy opposite leaves, purple pinwheel flowers in early spring



Sprawling habit, no more than 1-2' tall; spreads by runners

Invasive Herbs & Grasses

- This group includes annuals (plants that complete their life cycle in one year), biennials (two years), and perennials (more than two years).
- Annuals and biennials must be treated before producing seeds, and some are more effectively treated before bolting
- Treatment timing is variable for perennials



Arundo donax (Giant reed)

- 12'+ tall **robust perennial grass resembling bamboo**. Forms dense monospecific stands.
- Rarely flowers or seeds.
- Spreads via fragment or rhizome
- Present in all watersheds, but especially Coyote and Guadalupe
- Absurdly hard to kill. Must be mowed, allowed to resprout, and treated with foliar herbicide 3+ times a year.

Coarse, droopy leaves have a spiky appearance



Usually grows in large, dense, clonal stands



Cortaderia species (Pampas/Jubata grass)

- *C. selloana* (pampas grass) and *C. jubata* (jubata grass)
- *C. jubata* is more common (flowers are much taller than leaves)
- **Robust perennial bunchgrasses with tall flowering heads**
- Knife-sharp leaf edges
- Occasional on creeks
- Can be manually dug up but is more commonly treated with foliar herbicide



Pampas grass:
flowering stalks
are only slightly
taller than
leaves



Jubata grass:
flowering stalks
are much taller
than leaves

Centaurea species (Star thistles)

- Several different species (from most to least common: *C. solstitialis* – yellow starthistle, *C. melitensis* – tocalote, and *C. calcitrapa* – purple starthistle).
- Seedlings form **rosettes**; mature plants are branched and have **spiky flowers**.
- **Late season annuals** (purple starthistle is biennial) – usually bloom starting late May.
- Must be treated with herbicide before they flower.



Tocalote rosette (early season growth)



Mature yellow starthistle growth form



From top: yellow star, tocalote, purple star

Conium maculatum (Hemlock)

- Tall **biennial herb** in the carrot family
- Single main stem with **white flowers in umbels**
- Lacy, fern-like droopy leaves
- **Purple splotches** on stem
- Musty smell
- Best treated with herbicide as first year seedlings or second year plants before they bolt
- Reproduces only by seed



1st year seedling

2nd year plant – early season growth



Mature 2nd year plant – up 10' tall



Purple blotches on stem

Cynara cardunculus (Artichoke)

- Feral artichokes!
- Perennial with **gray-green dissected leaves**, big 4-6" diameter purple flowers, and spiky artichokes
- Mature seeds are wind dispersed like dandelions
- Not common on creeks; more invasive in SoCal

Feral artichokes revert to a much spikier form than familiar globe artichokes



Huge spiky gray green leaves



Dittrichia graveolens (Stinkwort)

- **Sticky, camphor-scented annual** in the sunflower family.
- Flowers are tiny yellow dandelions.
- **Winter annual** – blooms Sept-November. Produces many thousands of windborne seeds.
- Invades disturbed areas (roadsides, empty lots), then can move into good quality habitat. Tolerates very wet and very dry conditions, but not deep shade.



Infestation – often the only green plant in Aug/Sept



Christmas tree shape before bolting



Foeniculum vulgare (Fennel)

- Tall perennial in the carrot family with multiple main stems
- **Finely dissected leaves, licorice scent**
- Deep taproot
- **Green stems year-round** (unlike hemlock, which dies after flowering)
- Very hard to kill, requires multiple foliar herbicide applications or mow + treat a year.

Finely dissected leaves



Tall, branched shape with umbels of yellow flowers



Lepidium latifolium (Pepperweed)

- Perennial herb with **well-developed root** system, leaves in rosettes, and branching inflorescences
- Leaves often have fungal spots, smell like broccoli when crushed
- Mowing can distribute fragments
- Resistant to herbicide
- Several related species (*L. draba*) also problematic



L. draba in salt marsh

Rosette
pre-bolting



Diseased leaves
can help ID



Phalaris aquatica (Harding grass)

- **Perennial bunchgrass with wide blue-green leaves & spike-like flowerheads.**
- Grows in open upland areas as well as breaks in the canopy.
- Reproduces only by seed, so control targets established plants and seeks to prevent seed production
- Best treated with foliar herbicide before bolting
- Clipping flowerheads and mowing can deter growth but will not kill



Each plant produces many spike-like flowering heads



New growth: leaves are wide, blue-green. No stems/branching.



Phragmites australis (Common reed)

- Robust emergent grass usually only found in saltmarsh
- Looks similar to *Arundo*, but shorter with **more slender stalks** and **persistent flowerheads**
- Forms dense stands
- There is a native subspecies that does not form dense, monospecific stands. They are very hard to distinguish.

Stalks are slimmer and shorter than *Arundo*



Flowering heads are common in *Phragmites*, rare in *Arundo*

Salsola species (Russian thistle)

- New for SMP 2.5
- **Annual weeds with strange papery flowers and a reddish tinge**
- Several species including tumbleweeds (*S. australis*, *S. tragus*) in disturbed areas and along roads
- One succulent saltmarsh species, *S. soda*.
- No native *Salsola* species in CA.



S. tragus flowers and rounded tumbleweed shape



S. soda, a saltmarsh invader with succulent leaves & stems



Spartina species

- **Perennial grasses** found only in **saltmarsh**
- Several invasive species (*S. anglica*, *S.alterniflora* & hybrids, *S. densiflora*, *S. patens*)
- All the invasives form dense, monospecific clumps
- Unlikely to be found on any IPMP project
- One native species (*S. foliosa*)



Native species *S. foliosa*
grows in narrow bands at
marsh edge



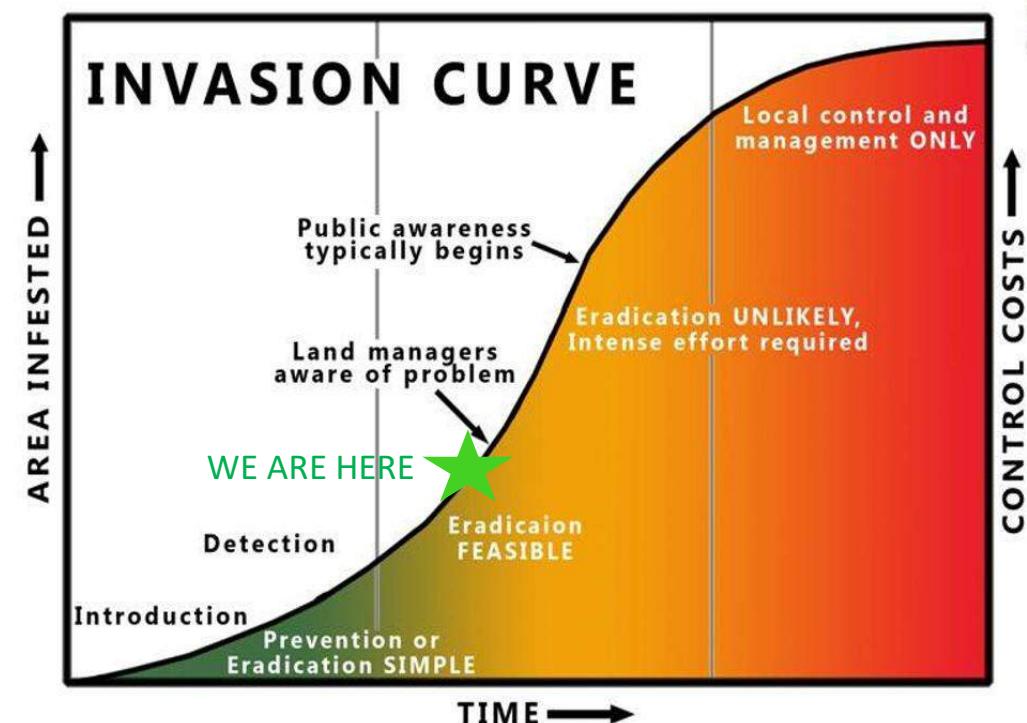
S. alterniflora



S. densiflora

Early Detection Rapid Response Species

- Uncommon but at high risk of spreading and establishing
- Fewer than 10 known populations on Valley Water land
- Please report any new infestations to Jen Mo or CalFlora
- Eradication is still possible!



Aegilops species (goat grass)

- Annual grass with **coarse, sandpapery texture** and **barbed flowerheads**
- Forms a dense thatch that smothers native wildflowers
- Grows in serpentine meadows and high-quality habitats in the upper watersheds
- Most common species is *A. triuncialis*

Infested grasslands are monocultures



Seeds germinate out of last year's flowers - barbs still attached



Araujia sericifera (Bladderflower)

- Only known to be on Guad River
- **Opposite, shovel-shaped leaves & thick spiraling vines.**
- **Milky juice** when cut/bruised
- Woody base must be cut-stump treated.
- Fruit like wrinkly, spongy avocados



Opposite leaves with milky juice (milkweed relative)



Spongy avocado-sized fruit filled with winged seeds

Euphorbia species

- Near-succulent plants that ooze **toxic milky juice**
- Most are herbaceous (one shrubby – *E. characias*)
- Foliate often has a **yellow-green tinge**
- Flowers are distinctly weird looking
- One common weed (*E. peplus*, petty spurge), several early detection species:
 - *E. characias* – Albanian spurge
 - *E. helioscopia* – wartweed
 - *E. oblongata* – eggleaf spurge

E. characias (Albanian spurge) on Norwood Creek: note knobby, woody, reddish stems



E. helioscopia at Lake Cunningham – large, symmetrical flowers



E. oblongata on San Tomas Creek

Ludwigia hexapetala (water primrose)

- Leggy aquatic herb with hairy red stems that takes over open water
- Occasionally has yellow flowers with five or six petals
- Taller and more aggressive than common water primrose (*L. peploides*)



L. peploides grows near land in mud or shallow water, never taller than 1-2'. There is a native subspecies, *L. peploides* ssp. *peploides*.

Taking over
Vasona Lake



Leggy reddish
stems form
dense mats
several feet tall



Oncosiphon pilulifer (Stinknet)

- **Smelly** (turpentine + cheese odor) invasive chamomile with **spherical yellow heads**
- Lacy leaves germinate early spring
- Only one recorded location on Stevens Creek near Crittenden
- Native lookalikes: pineapple weed and sneezeweed



Native lookalikes:
pineapple weed (left) has
pointy flowerheads and a
pineapple scent;
sneezeweed (right) has a
skirt below the head and
non-lacy leaves.



Lacy leaves and round yellow heads
that turn brown with age.
Seedheads persist on plant.
Below: single plant at Stevens Creek.



Paspalum species

- Two early detection species: *P. urvillei* and *P. vaginatum*. Both perennial grasses.
- *P. urvillei*: **tall perennial bunchgrass** with wide (1") blades and droopy inflorescences with 10+ branches. Only recorded on Stevens Creek.
- *P. vaginatum*: **saltmarsh only**, forms **tufty perennial thatch** on areas that would otherwise be bare mud or pickleweed.
- One weedy but not targeted species, *P. dilatatum*.



P. dilatatum. 6-10 inflorescence branches.

P. urvillei:
bunchgrass with
wide leaves,
flowers with 10-30
branches



P. vaginatum. Two-branched inflorescence, creeping growth.



Taeniatherum caput-medusae (medusahead)

- Annual grass with **coarse, wiry texture** and awns that are shorter at the bottom and longer near the top.
- Falls over to form a thick, silica-rich thatch that smothers other vegetation
- Invades serpentine meadows and other high-quality habitats, especially in the upper watersheds



Flowering stalks fall over to form a dense, silky-looking thatch



Flowerheads have a mullet: short awns near the stem, long ones near the top

Glossary of Equipment & Techniques

Backpack sprayer: a non-mechanized pump-based system that allows one person to apply foliar herbicide by walking through an area.

Bolting: when a plant produces a flowering stalk and prepares to reproduce

Cut-stump treatment: mechanical removal of a woody plant followed by dabbing on concentrated herbicide on the conductive tissues of a newly cut stump surface.

DBH: diameter at breast height is an easy way to refer to tree size.

Foliar herbicide: application of a diluted spray of herbicide to the leaves, either with a backpack sprayer or a spray rig.

Hand-pull: to remove a plant including the roots by hand or with the aid of small non-mechanized tools such as a trowel, spade, dandelion digger, or hori-hori

Lop: to remove small branches or an entire small woody plant with manual clippers

Mow: to use gas-powered weedeaters to remove vegetation

Mulching: a method of weed control that involves laying a thick layer of mulch or chips on top of the soil to smother weeds

Solarization: a method of weed and soil pathogen control that involves laying clear tarp over the soil to trap light and heat, killing both weed seedlings and pathogens

Tarping: a type of mulching that uses plastic tarps laid over the soil surface to smother weeds underneath

Weed wrench: a specialized tool that acts as a lever to remove species with long taproots from the soil, such as French broom

A weed wrench allows a plant to be pulled out completely without mechanized equipment



Appendix: SMP 2.5 Official Plant List

Invasive Plant List				
Species	Common Name	Habitat	Life Form	Systematic Program Mitigation Ratios
Species with 1-2 years of control work (Tier 1)				
<i>Casuarina cunninghamiana</i>	river she-oak, beefwood	Riparian & upland	tree	1:1
<i>Cotoneaster</i> spp.	cotoneaster	Riparian & upland	tree	1:1
<i>Eucalyptus</i> spp.	eucalyptus, gum	Riparian & upland	tree	1:1
<i>Ficus carica</i>	Common fig	Riparian & upland	tree	1:1
<i>Fraxinus</i> spp.	ash	Riparian & upland	tree	1:1
<i>Juglans</i> spp. (<i>J. regia</i> , <i>J. californica</i>)	walnut	Riparian & upland	tree	1:1
<i>Ligustrum</i> spp.	privets	Riparian & upland	tree	1:1
<i>Nicotiana glauca</i>	tree tobacco	Upland & ruderal (levees)	tree	1:1
<i>Olea europaea</i>	olive	Riparian & upland	tree	1:1
Palm Spp. (<i>Phoenix canariensis</i> , <i>Washingtonia robusta</i>)	palms	Riparian & upland	tree	1:1
<i>Populus nigra</i> 'Italica'	Lombardy poplar	Riparian & upland	tree	1:1
<i>Rhamnus alaternus</i>	Italian buckthorn	Riparian & upland	tree	1:1
<i>Salsola tragus</i>	Russian tumbleweed	Riparian & upland	annual herbaceous	1:1
<i>Schinus molle</i>	Peruvian pepper tree	Riparian & upland	tree	1:1
<i>Sesbania punicea</i>	red sesbania, rattlebox	Riparian & upland	perennial herbaceous	1:1
Species with 3 years or more of control work (Tier 2)				
<i>Acacia</i> spp.	acacia	Riparian & upland	tree	2:1
<i>Ailanthus altissima</i>	tree of heaven	Riparian & upland	tree	2:1
Non-native <i>Ambrosia</i> spp.	ragweed	Riparian & upland	annual herbaceous	2:1
<i>Arundo donax</i>	giant reed	Riparian & upland	perennial grass	2:1
Broom spp.	Broom species	Riparian & upland	shrub	2:1
<i>Centaurea</i> spp.	Yellow starthistle, Purple starthistle	Upland & ruderal (levees)	annual herbaceous	2:1
<i>Conium maculatum</i>	poison hemlock	Upland & ruderal (levees)	annual/biennial	2:1
<i>Cortaderia</i> spp.	pampas grass, jubata grass	Upland & ruderal (levees)	perennial grass	2:1
<i>Cynara cardunculus</i>	artichoke thistle	Tidal & FW marsh & ruderal	perennial herbaceous	2:1
<i>Delairea odoata</i>	Cape Ivy	Riparian & upland	vine	2:1
<i>Dittrichia graveolens</i>	stinkweed	Upland & ruderal (levees)	annual herbaceous	2:1
<i>Foeniculum vulgare</i>	fennel	Riparian & upland	perennial herbaceous	2:1

<i>Hedera</i> spp.	English ivy, Algerian ivy	Riparian & upland	vine	2:1
Non-Native <i>Lepidium</i> spp.	pepperweed	Tidal & FW marsh & ruderal	perennial herbaceous	2:1
<i>Myriophyllum aquaticum</i> + <i>spicatum</i>	parrotfeather	Aquatic	aquatic	2:1
<i>Phalaris aquatica</i>	Harding grass	Riparian & upland	perennial grass	2:1
<i>Phragmites australis</i>	common reed	Tidal and FW marsh	perennial grass	2:1
<i>Quercus ilex</i>	holly oak	Riparian & upland	tree	2:1
<i>Ricinus communis</i>	castor bean	Upland & ruderal (levees)	annual, biennial	2:1
<i>Robinia pseudoacacia</i>	black locust	Riparian & upland	tree	2:1
<i>Rubus armeniacus</i>	himalayan blackberry	Riparian	vine	2:1
<i>Salix babylonica</i> (and hybrids)	weeping willow	Riparian	tree	2:1
<i>Spartina alterniflora</i>	atlantic cordgrass	Tidal marsh	perennial grass	2:1
<i>Tamarix ramosissima</i>	salt cedar	Riparian & upland	tree	2:1
<i>Ulmus</i> spp.	elm	Riparian & upland	tree	2:1
<i>Vinca major</i>	vinca, periwinkle	Riparian & upland	perennial herbaceous	2:1