

Invasive Plant Management Program

Weed Identification Guide

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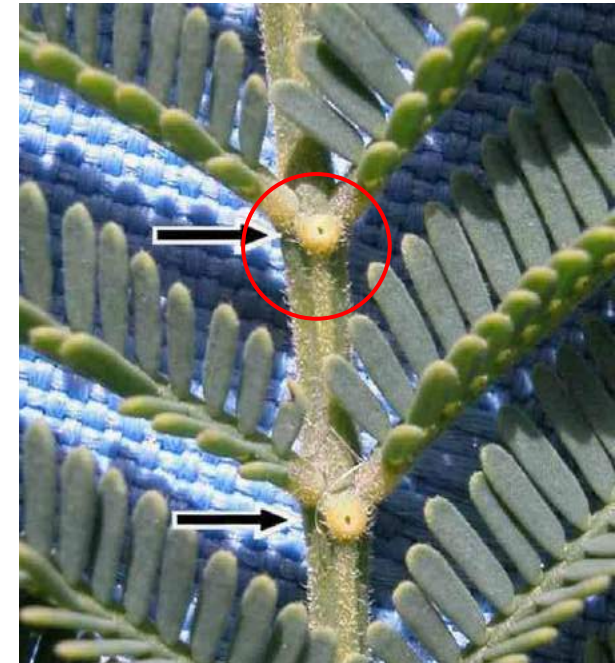
Invasive Tree Species

- 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.

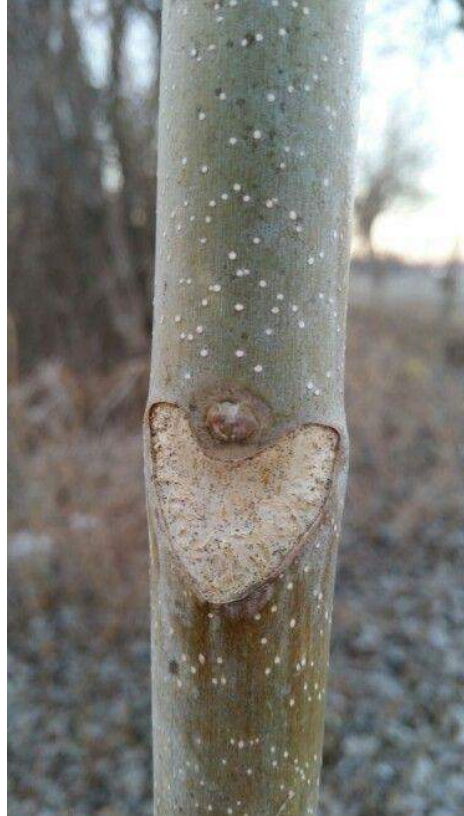


Black acacia – feathery true leaves + flat leaf-like stems

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

Leaves have clear pinpoint glands in direct light



Woody capsules –
blue gum above, red
river gum below

Red river gum at Lower
Silver – note peely bark



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

Ficus carica (Fig)

- New for SMP 2.5
- Tree with thick knobbly 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

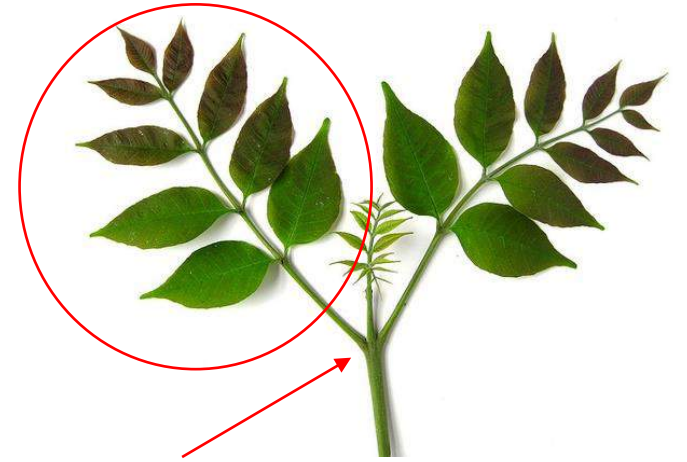


Milky juice when damaged

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

A compound leaf w/ 9 leaflets



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



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

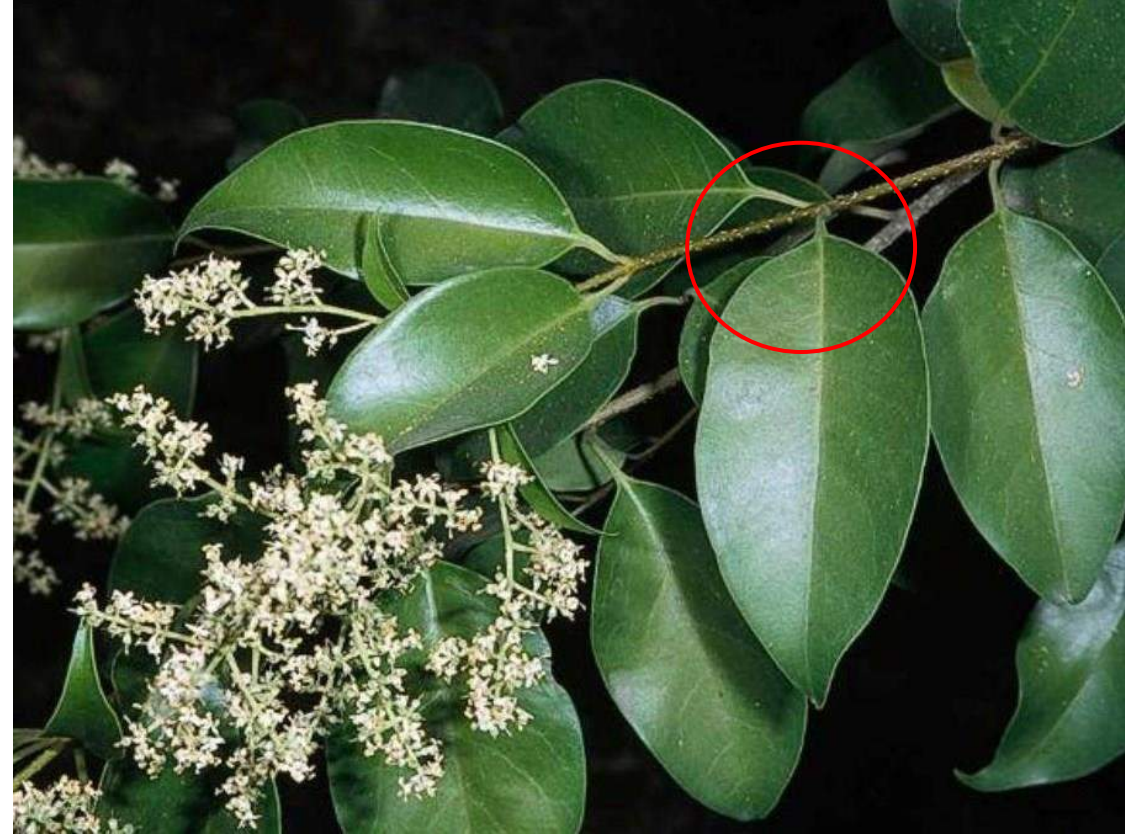
F. uhdei: leathery leaves, purplish petioles



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

Color
difference
between leaf
top & bottom



Opposite
branching on
a resprout



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

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



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

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.

Narrow,
pointed leaves
with serrated
margins on
weeping
branches



Overall habit is very drapery



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



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.

Weeping compound leaves that smell spicy when crushed

Trunks can be massive and gnarled



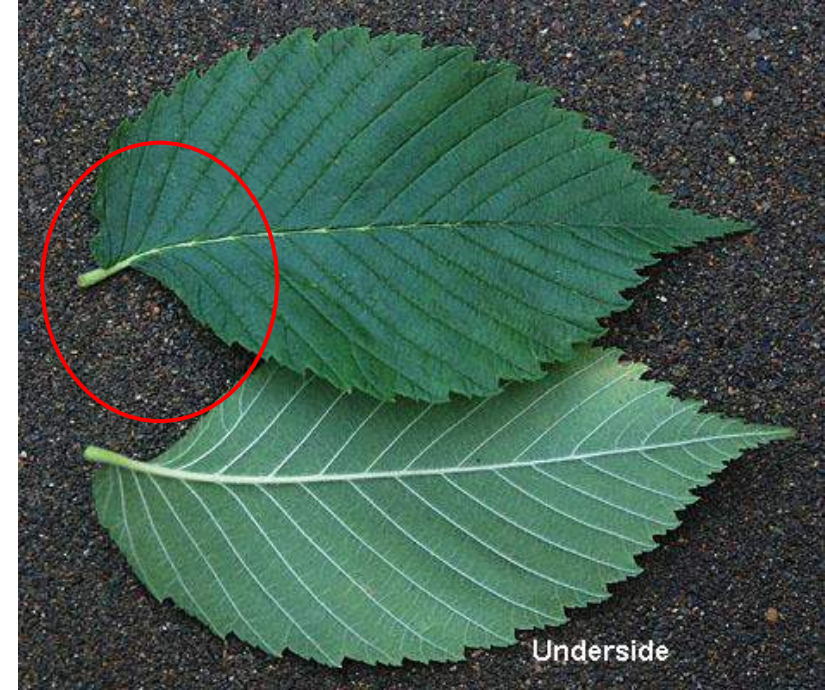
Pink berry-like fruit persist on tree



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)

Leaf is
asymmetrical
at base



U. parvifolia

Stems have
a slight
zigzag look

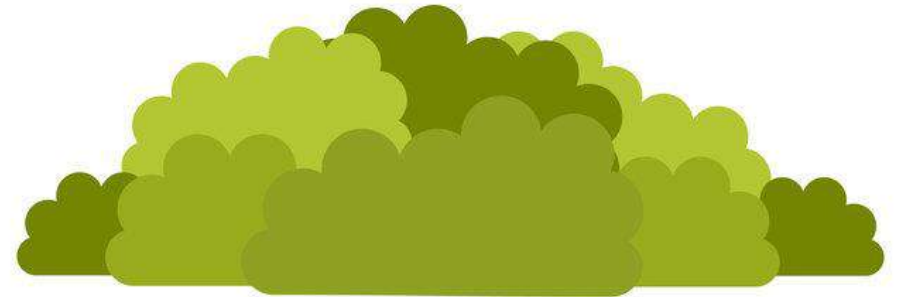


Some species have corky branches



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



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

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.



Firethorns are thorny & have narrow leaves



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



Toyons have big, leathery, serrated leaves

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



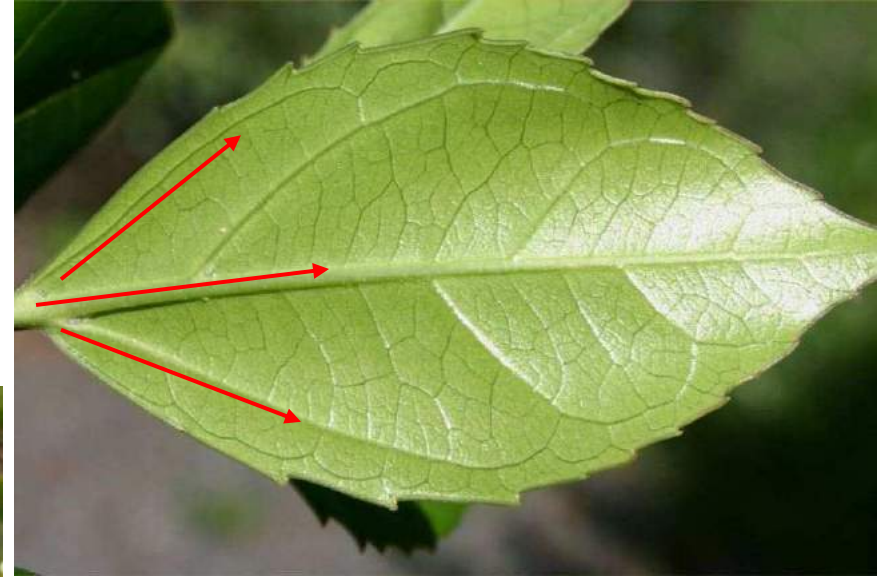
Tall, multi-
trunked growth
form



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 asparagoides (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)

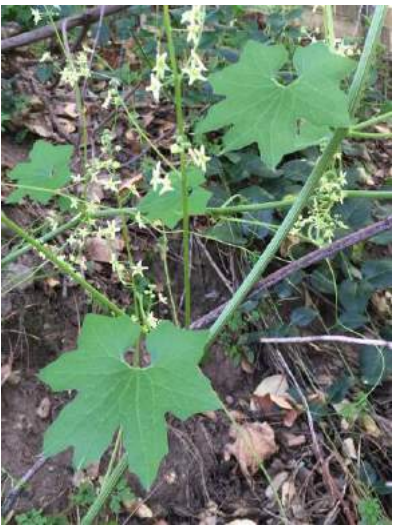


Delairea odorata (Cape Ivy)

- **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



Purple vines (never spiraling)



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



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

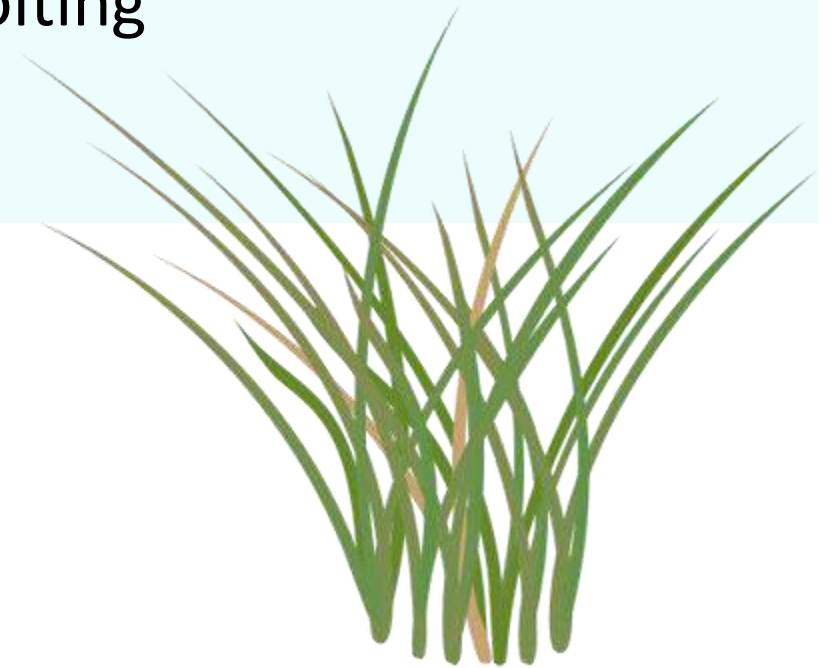
Waxy opposite leaves, purple pinwheel flowers in early spring



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 branchy 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



2nd year plant – early season growth



1st year seedling

Purple blotches on stem



Mature 2nd year plant – up 10' tall



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

Huge spiky gray green leaves



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



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.



Tall, branched shape with umbels of yellow flowers

Finely dissected leaves



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

Rosette
pre-bolting



Diseased leaves
can help ID



L. draba in
salt marsh

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*)



S. alterniflora



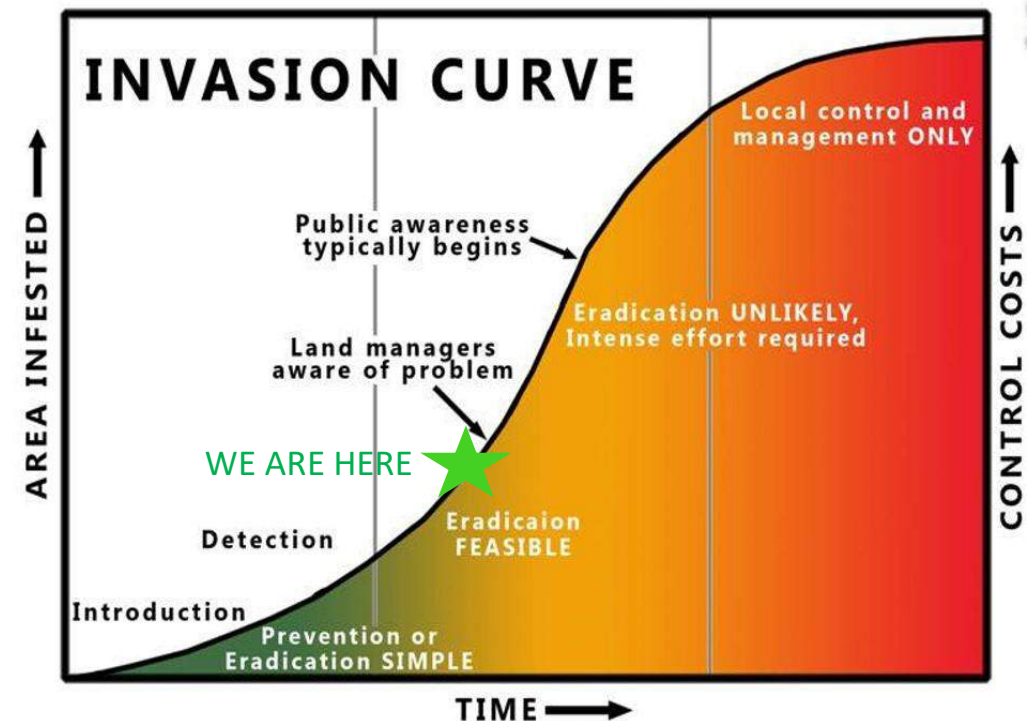
Native species *S. foliosa*
grows in narrow bands at
marsh edge



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



Barbed, bulbous flowerheads appear in April

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 knobbly, 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*)

Taking over
Vasona Lake



Leggy reddish
stems form
dense mats
several feet tall



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



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

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