Coordinated Regional Strategy in the Northwest Using CalWeedMapper
April 14, 2013

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GHD/CNPS Cal-IPC

Photo: Bob Case
Invasive Plants and Wildland Stewardship

Managing invasive plants is:

• A top priority for natural resource managers
• A “no regrets” response for climate adaptation
• A challenge that crosses jurisdictional boundaries
• A challenge with inherent geospatial considerations
Regional Planning

Goals:
Build **collaboration** at the landscape level
Focus on a handful of species for region-wide **eradication and surveillance**
Develop strong pitch for on-the-ground **funding**
Online tool for setting landscape-level strategy

Provides distribution of species statewide by combining expert knowledge data and occurrence data into one system

Includes maps of climatic suitability to help anticipate range
Regional Strategy: Steps

Cal-IPC works with local land managers to:

1. Translate information from CalWeedMapper to **regionwide** opportunities for surveillance & eradication
   *(Northwest meetings: July & Dec, 2012)*

2. Draft **Strategic Plan** for review by land managers in region
   
   a. **Eradication** targets: address top 5 regional species and work to eradicate them within 5 years
   
   b. **Surveillance** targets: learn and survey for early detection and rapid response

   *(Northwest: Strategic plan 2013)*

3. Track **new detections** of these species and coordinate a rapid response!
Northwest Regional Strategy

7 Eradication goals

1. Giant reed - *Arundo donax*
2. Purple loosestrife - *Lythrum salicaria*
3. Saltcedar, tamarisk - *Tamarix ramosissima*
4. Leafy spurge - *Euphorbia virgata* (= *Euphorbia esula*)
5. Rush skeletonweed - *Chondrilla juncea*
6. Shiny geranium - *Geranium lucidum*
7. Knotweeds:
   Japanese knotweed - *Fallopia japonica* (= *Polygonum cuspidatum*)
   Giant knotweed - *Fallopia sachalinensis* (= *Polygonum sachalinense*)
   Himalayan knotweed - *Periscaria wallichii* (= *Polygonum polystachyum*)
Eradication target 1: giant reed

Arundo donax (giant reed)

Cal-IPC Rating: High
Other Ratings: CDFA B, BAEDN

species description

Get Species Map Report
**Arundo donax**
giant reed

**Poaceae**
USDA Code: ARDO4

**Weed Rating:**
- CDFA: B
- Cal-IPC: High

**General Description:**
A robust perennial grass, growing in many-stemmed, cane-like clumps, spreading from horizontal rootstocks below the soil.

**Origin:**
Three species of Arundo occur worldwide in tropical to warm temperate regions. Indigenous to the Mediterranean Basin.

**Size:**
>9 meters tall

**Ecology:**
It has invaded riparian habitat and coastal river drainages.

**Dispersal:**
Expansion through underground rhizome or from plant fragments carried downstream.

**Control:**
Hand pulling, but care must be taken that all rhizome material is removed; Chemical methods in late Aug-Nov.

**Similar Species:**
- **Phragmites australis**

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Forbs & herbs
**Arundo donax**
giant reed

**Flower:**
terminal panicle 1-2 ft (30-60 cm) with branches ascending, the numerous spikelets laterally compressed; glumes > florets, membranous and 3-5 veined; florets 4-5, breaking above glumes

**Flower Color:**
Silver-cream-brown

**Bloom Time:**
May-June

**Leaf:**
Pale green to blue-green leaves. Cauline, sheaths > internodes, ligule thinly membranous and fringed with hairs; blade <3.3 ft (<1 m), 0.8-2.4 in (2-6 cm) wide at base, tapering to a sharp tip, flat or folded, margins scabrous; leaves alternate and conspicuously two-ranked.

**Fruit & Seed:**
It does not form viable achenes in North America

**Key Identifying Characteristics:**
Stems erect, hollow, and glabrous <4 cm in diameter; divided by partitions at nodes like bamboo. Thick, fleshy rhizomes form creeping rootstocks. Robust perennial grass nine to thirty feet tall.

Content derived from Cal-IPC: 3.31.13; Calflora

**Sources**
http://www.cdfa.ca.gov
Eradication target 2: purple loosestrife

*Lythrum salicaria* (purple loosestrife)

Cal-IPC Rating: High
Other Ratings: CDFA B, BAEDN

*species description*

Get Species Map Report

Cal-IPC Draft Planning Regions
SELECT REGION

**Abundance**
- Low
- Medium
- High

**Trend**
- Spreading
- Managed, spreading
- Managed, decreasing
- Eradicated

**Verification Needed**
- Verify Quad
- Verify Species

Adjust transparency:

SORRY. THERE IS NO SUITABLE RANGE MODEL AVAILABLE FOR THIS SPECIES.

**OCCURRENCE OBSERVATIONS**
- Consortium of California Herbaria
- Calflora

**CONSERVATION LAYERS**
- Biological Richness (ACE-II)
**Lythrum salicaria**

**purple loosestrife**

**Weed Rating**

**CDFA B**

**General Description**

Prostrate to erect, often 4-angled; gray-puberulent; branches few.

**Dispersal**

Reproduce primarily by seed. Stem fragments can develop roots under favorable conditions. Seeds disperse with water, mud, human activities, and by clinging to feathers, fur, and feet of animals.

**Control**

Cutting flowering stems followed by flooding can help control but not eliminate infestations. Cut stems may re-root. Use systemic herbicide during the late flowering stage.

**Similar Species**

Lythrum californicum (California loosestrife)

**Origin**

Europe

**Size**

0.5 - 1.5 m tall

**Ecology**

Wetlands. Especially invasive on disturbed sites. Tolerates some shade and most soil types, including infertile soils. Grows best in slightly acid to neutral soils. Does not tolerate being submerged during growing season.

**Lythraceae**

USDA Code: LYSA2
**Lythrum salicaria**

**purple loosestrife**

**forbs & herbs**

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**Flower**

Inflorescence: flowers more than 2 per axil, in dense, ± sessile cymes; pedicel 0–2 mm. Flower of 3 style forms; hypanthium 4–6 mm, cylindrical, 2+ x longer than wide; sepals less than 1 mm, epicalyx lobes linear, >= sepals; petals 7–14 mm, red-purple; stamens 12, incl. or exserted; style incl. or exserted.

**Leaf**

5–14 cm, sessile, truncate at base, lanceolate to ± ovate.

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**Flower Color**

purple

**Bloom Time**

June - September

**Fruit & Seed**

Fruit: ovoid, < hypanthium. 2n=30,50,60.
Generic Ex: FR: capsule, gen cylindric, rarely spheric, valves 2. Seed: many, less than 1 mm.

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**Key Identifying Characteristics**

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**Sources**

http://www.cdfa.ca.gov
Eradication target 3: salt cedar, tamarisk

Tamarix ramosissima (saltcedar, tamarisk)

Cal-IPC Rating: High
Other Ratings: CDFA B, BAEDN

species description

Get Species Map Report
Tamarix ramosissima  
saltcedar

**Weed Rating:**
CDFA: B  
Cal-IPC: High

**General Description:**
Many-branched shrubs or trees less than twenty-six feet tall with small scale-like leaves. Small white to deep pink flowers are densely arranged on racemes. The bark is reddish brown with smooth stems less than an inch in diameter.

**Origin:**
Central Asia. It was planted widely for erosion control, as a windbreak, for shade, and as an ornamental.

**Size:**
Usually 6 m (upto <26)

**Ecology:**
It has invaded streams and lake shores; saline soils

**Dispersal:**
Seed and vegetative growth: Individual plants can produce 500,000 tiny seeds per year

**Control:**
Seedlings and small plants can be uprooted by hand. Or cut and follow-up with herbicide treatment

**Similar Species:**
5 additional T. sp. are reported in California: including *T. aphylla*, *T. chinensis*, *T. parviflora*, and *T. gallica*
Tamarix ramosissima
saltcedar

**Inflorescence:**
spike 1.5-7 mm long and 3-4 mm wide. Bract longer than pedicel, triangular, acuminate, margins +/- denticulate, mainly in the lower part.

**Flower Color:**
Small white to deep pink flowers are densely arranged on racemes.

**Leaf:**
Leaves: 0.06-0.14 in (1.5-3.5 mm), ovate, sessile with narrow base, tip acute to acuminate.

**Key Identifying Characteristics:**
Scale-like leaves, from which comes the name saltcedar; Leaves have salt glands, and salt crystals can often be seen on leaves; The bark is reddish brown with smooth stems less than an inch in diameter.

**Flower:**
5 sepals, 0.02-0.04 in (0.5-1 mm) long, +/-

**Bloom Time:**
April-August

**Fruit & Seed:**
The quick brown fox jumped over the lazy dogs. The quick brown fox jumped over the lazy dogs.

Content derived from Cal-IPC: 3.31.13; Calflora
Sources
http://www.cdfa.ca.gov

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Eradication target 4: leafy spurge

Photo © Regents of the University of California

Euphorbia virgata (= Euphorbia esula) (leafy spurge)

Cal-IPC Rating: High-Alert
Other Ratings: CDFA A, BAEDN

species description

Get Species Map Report

Expert knowledge by quad:
- Abundance: Low, Medium, High
- Trend: Spreading, Managed, spreading, Managed, decreasing, Eradicated

Verification Needed:
- Verify Quad
- Verify Species

Adjust transparency:

Sorry. There is no suitable range model available for this species.

Occurrence observations:
- Consortium of California Herbaria
- Calflora
Euphorbia virgata (= Euphorbia esula) leafy spurge

Euphorbia esula
leafy spurge

Weed Rating
CDFA A

General Description
Stems erect, and several from the base, more or less woody at the base.

Dispersal
Mature capsules of many spurge rupture and forcefully eject seeds some distance from the parent plant.

Control
Mowing, burning, and grazing do not significantly affect roots and typically stimulate the production of new shoots from root buds. Roots can continue to produce shoots for >8 years.

Origin
Southwestern Europe

Similar Species
sun spurge
Euphorbia helioscopia (sun spurge),
Euphorbia lathyris (caper spurge),
Euphorbia terracina (Geraldton carnationweed)

Size
0.3 - 0.8 m tall

Ecology
Waste areas, disturbed sites, roadsides, fields, pastures. Disturbed areas near habitations, sandy soil, seeps, ocean bluffs; < 160 m
Euphorbia virgata (= Euphorbia esula) leafy spurge

**Flower**
Inflorescences umbel-like at the stem tips, with the central inflorescences maturing first (cyme-like). Each inflorescence appears to consist of one flower, but is actually a cluster of reduced unisexual flowers 1.5-2.5 mm long. Each pistillate flower has 3 styles fused together at the bases and branched at the tips and a 3-chambered ovary. Staminate flowers 11-21.

**Flower Color**
yellow

**Bloom Time**
June-September

**Fruit & Seed**
Capsules 2–5 mm, oblong to round, smooth, yellow-brown, 3-chambered, with 1 seed per chamber. Seeds ovoid to oblong, round in cross-section, 2–3 mm long, and with a yellowish small eliasome near the end of attachment. Seeds yellow-brown to gray or mottled, smooth.

**Leaf**
2–6 cm, sessile; blade linear to oblanceolate, glabrous, tip acute, margin entire.

**Key Identifying Characteristics**

Consent derived in part from the Jepson Manual and used here with permission from the Jepson Herbarium.
Sources
http://www.cdfa.ca.gov
Eradication target 5: rush skeletonweed

Chondrilla juncea (rush skeletonweed)
Cal-IPC Rating: Moderate
Other Ratings: CDFA A, BAEDN

Get Species Map Report
forbs & herbs

**Chondrilla juncea**  
**rush skeletonweed**

<table>
<thead>
<tr>
<th>Weed Rating</th>
<th>Dispersal</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDFA A</td>
<td>Reproduces only by clones produced vegetatively from adventitious buds on roots and asexually by apomictic seed. Seeds primarily disperse with wind, but also by water, animals, and human activity.</td>
</tr>
</tbody>
</table>

**General**

Description
Basal rosettes at first, then sending up erect and spreading stems.

**Origin**
west Eurasia, Mediterranean, northwest Africa

**Size**
0.4 - 1.0 m tall

**Ecology**
Found in disturbed soils 0–600 m. Grows best on well-drained, sandy or gravelly soils in climates with cool winters and hot, relatively dry summers without prolonged drought but tolerates a wide variety of environmental conditions.

**Control**
Tillage will effectively eliminate seedlings and older plants. However, new plants will rapidly reestablish from severed rootstocks as small as 2 cm and from a depth of 120 cm.

**Similar Species**
*yellowspine thistle*
Unlike rush skeletonweed, *Taraxacum officinale* (dandelion) has unbranched, leafless, hollow, non-persistent, fleshy flowering stems and seeds without small scales at the apex. *Chicory* (*Cichorium intybus*) is similar but has rosette leaf lobes pointing outwards or forwards and not always opposite, and basal leaves with a few rough coarse hairs.

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*Cirsium ochrocentrum*
**Chondrilla juncea**  
**rush skeletonweed**

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**forbs & herbs**

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**Flower**
Flowers 7–12; corollas 12–18 mm. Inflorescence: heads subsessile, mostly in interrupted spike-like clusters; involucre 9–12 mm; phyllaries linear-lanceolate, glabrous or sparsely tomentose

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**Leaf**
Basal and lower cauline wing-petioled, oblong to obovate, shallowly lobed, lobes pointed, often reflexed; upper cauline linear, entire.

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**Flower Color**
yellow

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**Bloom Time**
July - October

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**Fruit & Seed**
Fruit 8–12 mm, glabrous. Achene oblong, tapered at both ends, hairless, brown, and 3–4 mm long, with many lengthwise ribs. Beak slender, 5–6 mm long. Pappus: 5–6 mm, many equal, fine, white bristles; beak 5–6 mm, tip expanded; pappus bristles 40–50+ in 1 series.

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**Key Identifying Characteristics**
Rosette leaves oblanceolate, 4–12 cm long, 1–5 cm wide, prostrate, and typically lacking hairs. Margins often purple-tinged and irregularly shallow-lobed. Lobes opposite one another. Terminal lobe more or less sharp-pointed. Stem leaves often absent or bract-like, but when present resemble reduced rosette leaves.

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*Consent derived in part from the Jepson Manual and used here with permission from the Jepson Herbarium.*


*Sources*

http://www.cdfw.ca.gov
Eradication target 6: shiny geranium

Geranium lucidum  
*Shining geranium*

Annual, Biennial herb  
Not native to California

Cell size: 7.5 arc minutes  
Show grid  
Highlight cells where plant is present  
Show individual observations  
3 records  
Point observations
Geranium lucidum
shining geranium

Weed Rating:
CDFA: watch list
Cal-IPC: watch list

General Description:
Predominantly a forest understory species, very shade tolerant. Low-growing annual with small, pink, 5-petaled flowers that grow in pairs on little stems. Stems are red colored growing from a weak central root.

Origin:
Europe, North Africa, West Asia

Size:
0.5 meters

Ecology:
It effects in oak woodlands, seasonally wet ash forests and on forest edges

Dispersal:
The seeds are small and rapidly transported to uninfested areas on boots, vehicles, and by wildlife.

Control:
Small patches can be uprooted by hand remove as much root and stem as possible to prevent plants from re-sprouting. Plants can be sprayed before flowering (late March through April) with either a broadleaf herbicide.

Similar Species:
Geranium molle

Dicot
USDA Code: GELU
Stems are reddish and not hairy, up to 20 inches tall.

Flower:
Flowers are pink, 5 petaled and grow interspersed with the leaves; rather than above them.

Stem:
Stems are reddish and not hairy, up to 20 inches tall.

Key Identifying Characteristics:
Leaves are shiny (especially later in the season), round to kidney-shaped with 5-7 lobes (that are themselves shallowly lobed. Sepals (around the base of the flower) are keeled (stick out) with noticeable cross-ribs.

Flower Color:
Small white to deep pink flowers are densely arranged on racemes.

Bloom Time:
May

Leaf:
Leaves are rounded, deeply lobed with a waxy appearance that makes dense infestations easy to recognize.

Fruit & Seed:
By late June and July, seed formation is completed and the plant material melts back into the forest floor.

Content derived from Oregon.gov: 3.31.13; Calflora Sources:
http://www.oregon.gov/ODA/plant/weeds/Pages/profile_shinygeranium.aspx
http://www.cdfa.ca.gov

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Eradication target 7: Knotweeds (Japanese, Giant & Himalayan)
How to ID: Japanese knotweed (or all knotweeds?)

Identification Tips:
**Polygonum cuspidatum**  
**Japanese knotweed**

### Weed Rating
**CDFA B**

### General Description
**Herb. Annual - perennial; erect**

### Origin
**Japan**

### Size
1 - 2 m tall

### Ecology
Disturbed moist sites, roadsides, riparian and wetland areas, < 1000 m. Plants typically grow in open, sunny areas on moist soils in cool temperate climates. Grows on a wide range of soil types. Tolerates some soil dryness.

### Dispersal
In the US, spread is predominantly through rhizomes rather than seeds. Seeds develop ~ 2 weeks after flowering. Seedling survival is usually low, but plants are persistent once established. Seedlings rarely establish under shady conditions.

### Control
Carefully digging out rhizomes and cutting of stems 4 or more times per season, especially in conjunction with shading by black plastic or heavy shade cloth.

### Similar Species
Philadelphus lewisii (Lewis's mock-orange)
**Fallopia japonica**

(= *Polygonum cuspidatum*)

Japanese knotweed

**forbs & herbs**

**Flower**
Inflorescence: open panicle, in most upper axils; branches < 15 cm, longer in fruit, ± drooping. Flower: perianth 2–8 mm, ± white, 3 outer lobes keeled in flower, winged in fruit; fertile stamens exserted

**Leaf**
petioled; blade generally 10–15 cm, widely ovate to wider than long, tip abruptly pointed

**Flower Color**
white

**Bloom Time**
August - October

**Fruit & Seed**
Fruit ± 4 mm, brown, shiny

**Key Identifying Characteristics**
Leaves broadly ovate, ~ 10-15 cm long, sometimes wider than long. Bases truncate to tapered.
**Polygonum polystachyum**  
*cultivated knotweed*

<table>
<thead>
<tr>
<th>Weed Rating</th>
<th>General Description</th>
<th>Dispersal</th>
<th>Control</th>
<th>Similar Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDFA B</td>
<td>Herbaceous annual to perennial, erect.</td>
<td>Reproduces vegetatively from rhizomes and by seed. Rhizome fragments disperse with water currents or flooding and with natural or human facilitated soil movement. Fruits (achenes enclosed by sepals) disperse primarily with wind.</td>
<td>Carefully digging out rhizomes and cutting of stems 4 or more times per season, especially in conjunction with shading by black plastic or heavy shade cloth.</td>
<td>Polygonum punctatum (white; dotted smartweed), Polygonum argyrocoleon (silversheath knotweed)</td>
</tr>
</tbody>
</table>

**Origin**  
South-central Asia

**Size**  
2 m tall

**Ecology**  
Grows in high elevation wet meadows and marshes of forested areas in its native range, but is found between 0 - 500 m in California. Grown in some cases as an ornamental.

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**Periscaria wallichii**  
(= *Polygonum polystachyum*)  
Himalayan knotweed
**Periscaria wallichii**

(= *Polygonum polystachyum*)

**Himalayan knotweed**

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**Forbs & Herbs**

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**Flower**

Inflorescence 20–35 cm, open; flowers many; lower branches in leaf axils. Flower: perianth 5–7 mm, white; filaments thread-like.

**Leaf**

10–20 cm, petioled; blade lanceolate, densely soft-hairy, especially below, base tapered or ± cordate, often with 2 small basal lobes.

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**Flower Color**

white

**Bloom Time**

August - October

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**Fruit & Seed**

Fruits with sepals 5–7 mm long. Sepals lack wings. Achenes pale, ~ 5–7 mm long, typically do not develop in California.

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**Key Identifying Characteristics**

Leaves lanceolate, 10–20 cm long, often with short hairs on veins, margins, and lower surfaces. Bases slightly heart-shaped to tapered.

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**Sources**

http://www.cdfa.ca.gov
### Northwest Surveillance targets

<table>
<thead>
<tr>
<th>SURVEILLANCE</th>
<th>DESCRIPTION</th>
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<tr>
<td>1 Tamarix parviflora</td>
<td>smallflower tamarisk</td>
</tr>
<tr>
<td>2 <em>Carthamus lanatus</em></td>
<td>woolly distaff thistle</td>
</tr>
<tr>
<td>3 Brachypodium distachyon</td>
<td>annual false-brome, false brome</td>
</tr>
<tr>
<td>4 <em>Alyssum murale, A. corsicum (partially)</em></td>
<td>Oregon yellow tuft</td>
</tr>
<tr>
<td>5 Onopordum acanthium*</td>
<td>Scotch thistle</td>
</tr>
<tr>
<td>6 Alternanthera philoxeroides</td>
<td>alligator weed</td>
</tr>
<tr>
<td>7 <em>Hydrilla verticillata</em></td>
<td>hydrilla</td>
</tr>
<tr>
<td>8 <em>Sesbania punicea</em></td>
<td>red sesbania, scarlet wisteria</td>
</tr>
<tr>
<td>9 Eichhornia crassipes</td>
<td>water hyacinth</td>
</tr>
<tr>
<td>10 Dittrichia graveolens</td>
<td>stinkwort</td>
</tr>
<tr>
<td>11 Acroptilon repens</td>
<td>Russian knapweed</td>
</tr>
<tr>
<td>12 <em>Carduus nutans</em></td>
<td>musk thistle</td>
</tr>
<tr>
<td>13 <em>Centaurea virgata ssp. squarrosa</em></td>
<td>squarrose knapweed</td>
</tr>
<tr>
<td>14 <em>Cynara cardunculus</em></td>
<td>artichoke thistle</td>
</tr>
<tr>
<td>15 <em>Centaurea calcitrapa</em></td>
<td>purple starthistle</td>
</tr>
<tr>
<td>16 Cynoglossum officinale</td>
<td>houndstongue</td>
</tr>
<tr>
<td>17 Watsonia meriana</td>
<td>bulbil watsonia</td>
</tr>
<tr>
<td>18 Agrostis avenacea</td>
<td>Pacific bentgrass</td>
</tr>
<tr>
<td>19 Kochia scoparia</td>
<td>kochia</td>
</tr>
<tr>
<td>20 Lepidium appelianum (= Cardaria pubescens)</td>
<td>hairy whitetop</td>
</tr>
</tbody>
</table>
| **Sesbania punicea**
| **red sesbania, rattlebox** |
| **Weed Rating** |
| CDFA B |
| **General Description** |
| Erect shrub, small tree. |
| **Origin** |
| southern South America, Argentina and Paraguay |
| **Size** |
| up to 4m tall |
| **Ecology** |
| Occurs along streams, lake shores, other moist sites, roadsides. Red Sesbania in some cases is cultivated as an ornamental. < 200 m. |
| **Dispersal** |
| Massive numbers of pods fall directly into the river and can float miles downstream to start new infestations. |
| **Control** |
| Pulling is relatively easy. Larger trees can be cut, and the stumps should be treated with triclopyr. |
| **Similar Species** |
| Lotus crassifolius (big deervetch) |
**Flower**
5–15-flowered inflorescence; calyx lobes sub-equal, < tube; corolla 1.5–2.5 cm, scarlet or orange-red; 9 filaments fused, 1 free.

**Leaf**
Leaflet more or less 20–34, 0.8–2.5 cm, elliptic to elliptic-oblong; even-1-pinnate; stipules generally deciduous; leaflets generally many.

**Flower Color**
red

**Bloom Time**
June - September

**Fruit & Seed**
Fruit 10–15 mm wide, 4-winged; seeds 4–8

**Key Identifying Characteristics**
Distinctive drooping oblong leaflets arranged in opposite pairs, clusters of bright red flowers, and pods are green and yellow early in the season eventually turning dark brown, remaining on the plant in winter.
**Carthamus lanatus**
woolly distaff thistle
(Asteraceae)

**Weed Rating:**
- CDFA: B
- Cal-IPC: moderate

**General Description:**
Winter annual forb (family Asteraceae) found in disturbed open sites, roadsides, pastures, annual grasslands, and waste areas. Its spiny foliage can injure livestock.

**Size:**
0.4-1 meter tall

**Origin:**
Mediterranean area

**Ecology:**
Disturbed ground, grassland, oak woodland; < 1100 m. elev.

**Dispersal:**
Most seeds fall near parent plant. Others dispersed via animals, tractors and other human machinery, and water or mud.

**Control:**
Mowing just before flower bud stage can prevent most seed production.

**Similar Species:**
Other Carthamus species and blessed thistle (Cnicus benedictus) shown in photo below.
**Carthamus lanatus**
woolly distaff thistle
(Asteraceae)

**Flower:**
Flower heads solitary at stem tips, 25-35mm long.

**Flower Color:**
Bright yellow

**Bloom Time:**
July - August

**Fruit & Seed:**
4–6 mm long, brown; pappus 10–13 mm long.

**Leaf:**
Stem leaves sessile, alternate, stiff, deeply lobed. Basal leaves lobed and spine-tipped (see above photo).

**Key Identifying Characteristics:**
Bright yellow flowers in spiny heads, spiderweb-like woolly hair in lower portion of flower heads.

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**Sources**
http://www.cdfa.ca.gov

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*forbs & herbs*
Hydrilla verticillata
hydrilla
(Hydrocharitaceae)

Weed Rating:
CDFA: A
Cal-IPC: High

General Description:
Perennial aquatic rooted and remaining underwater (submersed) Forms large mats that fill the water column and can block or severely restrict water flow.

Origin/Distribution:
It has been observed in Calif. deserts, south and central coasts, San Francisco Bay Area, and Central Valley. Currently, isolated infestations in several counties north and east of Central Coast. Mty. County in lily pond(Schulte Rd.) 1978, reported eradicated. None in SC,SBT Cos.

Size:
?

Ecology:
Freshwater canals, ponds, lakes. Less than 200m. Elev.

Dispersal:
Stems root at nodes for vegetative reproduction. Seeds viable and move through water column.

Control:
First get your boat unstuck. Raking/seining temporarily reduces biomass before root fragments regrow stems. Herbicide and other physical control measures available.

Similar Species:
Other family members such as Egeria and Elodea spp. Mats of hydrilla exposed below in canal when “west main is shut”.

Freshwater canals, ponds, lakes. Less than 200m. Elev.
Hydrilla verticillata
hydrilla
(Hydrocharitaceae)

Flower:
Male and female flowers on different individual plants (dioecious). Both floating with 6 perianth parts 3-5mm long. Perianth parts all similar unlike most other species that could be confused with Hydrilla.

Flower Color:
?

Bloom Time:
June-August

Fruit & Seed:

Leaf:
5 leaves per node. 1-2 cm long and up to 2mm wide. Leaf edges toothed, mid-vein below with row of small teeth.

Key Identifying Characteristics:
Always 5 leaves per node. Toothed margins and lower mid-rib of leaves. Floating flowers with all perianth parts appearing similar. Your boat gets stuck in it.

Please take a pic next time you see flowers and put pic here!


Sources
http://www.cdfa.ca.gov
Knotweed Surveillance Targets

Japanese Knotweed 
(*Fallopia japonica*)

*Himalayan knotweed* 
(*Persicaria wallichii*)

giant knotweed 
(*Polygonum sachalinense*)
Thistle Surveillance Targets

*Carduus nutans* musk thistle

*Cynara cardunculus* artichoke thistle
Learn! See NW’s priority species online through Calflora’s illustrated plant list!*

*See regions page on CalWeedMapper to link to illustrated plant lists!

**Field crews and volunteers can be trained to watch for new species using this plantlist (can be downloaded to Smartphone) or forthcoming training materials.
Respond rapidly!

Northwest’s Priority Weed Hotline tracks new surveillance and eradication occurrences of NW Priority Species that have been submitted recently in the region...
Regional Strategy

Cal Fire is working with regional partners to set landscape-level strategies, secure funding, and implement coordinated efforts statewide. Click on the map to see regional efforts underway!

REGION UPDATES

Northwest

See page. Eradication Workplan is completed by 2014. Species have been identified in the Strategic Plan. For more information, see the presentation on their 25 priority species.

North Central

See page. Partners used species identified in the Strategic Plan to apply for USDA’s PTI grant. A list of funding opportunities has been compiled and a presentation on priority species is under development.

Bay Area

See page. Cal Fire has absorbed BAECN and is furthering this Bay Area EDPP effort.

Central Coast

See page. For more information, see their presentation on their 19 priority species given by Bruce Delgado at local WMA meetings. WMA chairs are coordinating searches to verify infestation sizes and locations identified in their Eradication Workplan.

South Central Coast

See page. WMA chairs are coordinating to verify infestation sizes and locations in order to draft an Eradication Workplan. Meeting #2 occurred in Winter 2014.

North Sierra

See page. First meeting to draft Strategic Plan will take place in September 2013 in Truckee.

Central Sierra

See page. Participants prioritized 10 eradication and 15 surveillance targets. The USDA PTI proposal was funded and partners are working to eradicate three top priority species.
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