

A photograph of a field of yellow flowers with green leaves, likely an invasive weed species. The flowers are arranged in clusters on tall stems, and the background is filled with green grass and foliage. A dark red banner is overlaid on the bottom half of the image, containing white text.

Selected Invasive Weeds
of the
Central Sierra Nevada
A Field Guide

Selected Invasive Weeds of the Central Sierra Nevada

**Produced by the El Dorado County
Invasive Weeds Management Group**

4th Edition April 2007

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Cover photo by Bob Case

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Introduction

Invasive weeds pose a significant threat to agriculture and wildlands throughout the central Sierra Nevada. They generally are capable of outcompeting the existing vegetation, spreading rapidly and are difficult to control. Invasive weed populations often decrease the biological diversity of an area, diminish wildlife habitat values, reduce forage production and usability, lessen agricultural production, and restrict recreational opportunities.

The intent of this booklet is to provide a straightforward means for people to identify invasive weeds and potential control strategies. Identifying and treating initial populations of these weeds is the best way to prevent them from becoming well established and widespread. Understanding the threat that these species pose, reporting invasions, and treating the problem will result in healthier, more productive natural and agricultural communities.

What is Integrated Weed Management?

Integrated weed management (IWM) is an ecosystem-based strategy that focuses on long-term prevention of weeds. IWM uses a combination of techniques such as biological control, habitat manipulation, and modification of cultural practices. Herbicides are used only after monitoring indicates they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Weed control practices are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.

Who is the El Dorado County Invasive Weeds Management Group?

In 1999, twenty-one federal, state, and local government agencies, non-profit organizations and landowners came together to establish a weed management group in El Dorado County. The group is united by a common interest in controlling the spread of invasive and noxious weeds. We accomplish our mission through public education and the promotion of appropriate weed prevention, eradication and control methods

How to Use This Identification Handbook for Invasive Plants

1. First, carry the handbook with you whenever you are out and about. Put it in your glove compartment, pack, back pocket or lunch box.
2. Refer to it when you encounter a plant that you may suspect is an invasive plant.
3. Use the pictures and description to identify the invasive plant. If you are not sure about the identity of the plant, collect a sample (as much as possible of the stem, leaf, flower, seed, etc.) and place it in a plastic bag and seal tightly. Bring the sample to the Agriculture Department (address below).
4. Fill out the weed survey form in the back of the book each time you find an invasive plant in a new location.
5. On the reverse side of the survey form draw a simple map to locate the site where the invasive plant is encountered. Put as much detail in the drawing as you like. Ask yourself when you finish, "Is the map drawn well enough that someone unfamiliar with the area could find the site and these plants?"
6. Send the completed form and map to:
El Dorado County Department of Agriculture
311 Fair Lane
Placerville, CA 95667
(530) 621-5520

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Weed Ratings Used in this Booklet

The California Department of Food and Agriculture (CDF A) and the California Invasive Plant Council (Cal-IPC) a non- profit organization, each maintain lists of weeds that are of serious concern. For each species presented in this booklet, the ratings given by each organization are presented.

The CDFA identifies the following categories of weeds:

- A** The agency mandates that these weeds be targeted for containment, eradication and quarantine.
- B** These species are more widespread and therefore difficult to contain. The agency allows county Agricultural Commissioners to decide whether to target them for eradication or containment in their jurisdiction.
- C** These species are so widespread that the agency does not endorse state or county-funded eradication or containment efforts except in nurseries or seed lots.

The Cal-IPC focuses on non-native pests that pose serious threats in wildlands using the following categories:

- **High** – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- **Moderate** – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- **Limited** – These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Both lists are available in their entirety at the following websites:

California Department of Food and Agriculture Noxious Weeds List and Ratings at http://www.cdfa.ca.gov/phpps/ipc/encycloveedia/encycloveedia_hp.htm

California Invasive Plant Council – Invasive Plant Inventory at <http://www.cal-ipc.org/ip/inventory/index.php>

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Himalaya blackberry

Rubus armeniacus (= *Rubus discolor*; *Rubus procerus*)

Himalya blackberry shrub.



*Himalya blackberry
flowers and foliage.
(right)*



*(Bottom) Himalya
blackberry fruit and
whitish color on
back of leaflet.*



Himalaya blackberry

Rubus armeniacus (= *Rubus discolor*; *Rubus procerus*)

Rose family (Rosaceae)

CDFA list: Not Rated

Cal-IPC list: High

Description

Himalayan blackberry is a sprawling perennial vine that may expand 10 feet or more a year, smothering other plants as it grows. Its leaves are in groups of 3 to 5 leaflets (usually 5) with the underside much lighter in color than the top. Flowers are white or rose colored about 1 inch across, with broad petals. The roundish fruit is black and shiny, and almost an inch long, with large succulent drupelets (each drupelet contains one seed). Canes bear straight or curved prickles, 1/3 inch long, which draw blood easily. The canes are 5-angled and make large, stiff arches that can reach 10 feet in height before bending over and traveling outward toward a new place to put down roots.

Reproduction

A single large plant produces several thousand seeds. Seedlings grow slowly and require full sun to thrive. Berries and seeds are produced on two-year-old canes after which the cane dies. Seeds are dispersed by birds, coyotes, foxes and other omnivorous animals. Himalayan blackberry also reproduces asexually by rooting at the tip of first year canes. These 'daughter' plants are responsible for the creation and longevity of blackberry thickets.

Origin and Habitat Description

Contrary to its common name, Himalaya blackberry is a native of Western Europe. It was probably first introduced to North America in 1885 as a cultivated crop. It occurs mainly in areas where rainfall is greater than 29 inches, elevations up to 5,000 feet, and on both acidic and alkaline soils. It rapidly overtops the understory vegetation in riparian forests, forms thickets in wastelands, pastures, and forest plantations. It tends to prefer wet sites even in relatively wet climates.

Control

Mechanical removal or burning may be the most effective ways of removing the mature plants, after which some vegetative reproduction is to be expected. Grazing by sheep and goats prevents regrowth after mechanical removal. Young plants can be controlled by hand pulling or hoeing. Herbicide treatments can be effective, but require two or more applications.

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Bull thistle

Cirsium vulgare

Sunflower Family (Asteraceae)



Bull thistle infestation.

Bull thistle plant.



Bull thistle flowering stem.



Bull thistle

Cirsium vulgare

Sunflower Family (Asteraceae)

CDFA list: C

Cal-IPC list: Moderate

Description

Biennial with a short fleshy taproot. Stem is 1-5 feet long, with many branches spreading from it. Plants are green, sometimes brownish. Leaves in the first year form a rosette. Stem leaves are deeply lobed with sharp tips, hairy and prickly on the upper side, and cottony underneath. The pinkish-purple to dark purple flowers are 1½ to 2 inches wide, with one or more clustered at the end of branches.

Flowering occurs from July through September. Seeds are topped by a circle of plume-like white hairs.

Reproduction

Bull thistle reproduces by seeds, which germinate in the fall and winter. Seeds are topped by a circle of plume-like white hairs.

Origin and Habitat Description

Native to Europe and Asia and is now widely established. Introduced many times as a seed contaminant. Primarily found in disturbed sites in pastures, roadsides, building sites, logged sites, and anywhere else where the soil has been disturbed.

Control

Control by hand pulling, cutting at the soil surface, and herbicide treatments.

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Canada thistle

Cirsium arvense

Sunflower Family (Asteraceae)



(Top) Canada thistle population, male (left) and female (right).



Canada thistle male flowers.

Canada thistle young sprout from rhizome.



Canada thistle

Cirsium arvense

Sunflower Family (Asteraceae)

CDFA list: B

Cal-IPC list: Moderate

Description

A perennial with deep extensive horizontal roots. Stems 1-4 feet tall, ridged and branching above. Leaves are oblong or lanced-shaped and have spiny tips. Flowers are purple (occasionally white) arranged in a head 1/2 to 3/4 inches in diameter.

Reproduction

Reproduces vegetatively from creeping shoots and by seed. Male and female flower heads are on separate plants. Dense patches of plants that are a single sex can occur. Seeds germinate within 3 years of maturing, but deeply buried seeds can survive 10 years or more. Roots are brittle and fragment easily. Individual roots can survive up to 2 years.

Origin and Habitat Description

Native to southeastern Europe and Asia. Introduced to Canada as a contaminant of crop seed in the late 1700s. Inhabits fields, pastures, forest openings, croplands, stream banks, and gardens. Tolerates a wide range of soils types, but grows best in moist soils.

Control

Repeated cultivation, mowing, or hand cutting reduces and can eventually eliminate infestations. Occasional cultivation may increase infestations by dispersing root fragments. Plantings that create dense shade may reduce infestations. Herbicides may also be effective.

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Dalmatian toadflax

Linaria genistifolia ssp. *dalmatica*
Figwort Family (Scrophulariaceae)



Dalmatian toadflax foliage.

Photo by J.M. DiTomaso



Dalmatian toadflax flowers.

Photo by J.M. DiTomaso



Dalmatian toadflax single plant.

Photo by Sue Donaldson

Dalmatian toadflax

Linaria genistifolia ssp. *dalmatica*

Figwort Family (Scrophulariaceae)

CDFA list: A

Cal-IPC list: Moderate

Description

Perennial with oval leaves that have pointed or long-tapered tips. Early spring growth has waxy leaves with a blue-green color. Leaves individually clasp the stem. Yellow flowers are two-lipped, have an orange throat, and are $\frac{3}{4}$ to $1\frac{1}{2}$ inches long with a long spur.

Reproduction

Reproduces by seed and from creeping lateral roots. Most seeds fall near parent plant. Some seeds travel short distances with wind and to greater distances with water, soil movement, and by clinging to the feet, fur or feathers of animals. Seeds germinate in the spring and fall. Germination occurs on the soil surface and to a depth of 1 inch. Plants can rapidly occupy a site through creeping roots.

Origin and Habitat Description

Native to the Mediterranean region. Brought to North America as ornamentals in the mid-to late-1800s. The plants have since widely escaped cultivation. Inhabits disturbed open sites, fields, pastures and degraded rangelands, roadsides and croplands. The plant grows best in cool semi-arid climates and dry, coarse soils.

Control

Intensive cultivation for at least 2 years (every 7-10 days the first year and 4-5 cultivations the second year) is effective. Herbicides are also effective. Overgrazing, soil disturbance or removal of established perennial vegetation enhances survival of the plant. Occasional cultivation can disperse root fragments. Mowing may prevent seed production, but does not prevent spread by creeping roots.

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Diffuse knapweed

Centaurea diffusa

Sunflower Family (Asteraceae)



*Diffuse knapweed plants
in two color forms.*

*Diffuse knapweed
seedling.*



*Diffuse knapweed
flower heads in white
and purple form.*

Diffuse knapweed

Centaurea diffusa

Sunflower Family (Asteraceae)

CDFA list: A

Cal-IPC list: Moderate

Description

An annual or short-lived perennial. About 1-2 feet tall with stems rough to the touch. Seedlings have finely divided leaves covered with short hairs. Flowers are white to rose or sometimes purplish and are numerous and narrow. Leaf-like structures under flower has yellow spines with teeth appearing as a comb along spine margins.

Reproduction

Reproduces by seed with many plants germinating after the first fall rains. Most seeds or seed heads fall near the parent plant. Seeds also disperse when stems break off near the ground and tumble along with the wind.

Origin and Habitat Description

Native to the Mediterranean region. Introduced from southeast Europe and Asia. Infests roadsides, disturbed open sites and rangelands. Plants seldom persist in shaded places, but are highly competitive in open areas.

Control

Hand pulling 2-4 times per year or severing plants at least 2 inches below root crown can be effective. Mowing is not effective since basal leaves (rosettes) are usually too low to be affected and seeds are dispersed when mowing mature stems. Herbicides may be effective when applied at the seedling stage.

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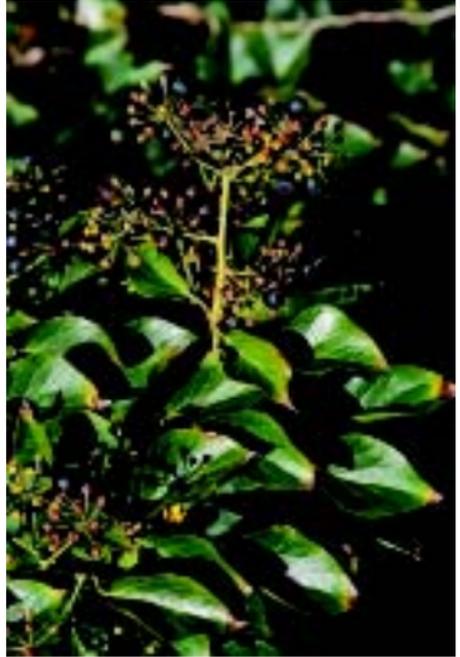
English ivy

Hedera helix

Ginseng Family (Araliaceae)



English ivy climbing on an oak tree.



English ivy fruiting stem.



English ivy leaves.

English ivy

Hedera helix

Ginseng Family (Araliaceae)

CDFA list: Not Rated

Cal-IPC list: High

Description

A broadleaf, evergreen vine often used ornamentally as a groundcover. Climbs by means of aerial roots which grasp almost any vertical surface. Leaves of juvenile stems have 3-5 lobes while leaves of mature flowering stems have no lobes and are oval or diamond shaped. All parts of this plant are poisonous when eaten, including the sap which can cause skin irritation on contact.

Reproduction

Small clusters of greenish flowers, which result in small black berries, are formed on mature stems which tend to grow upright (often supported by trees, shrubs or buildings). Trailing branches root as they grow along the ground. Roots grow deep and dense, capturing much of the surface moisture and nutrients, making it difficult, if not impossible, for other plants to grow.

Origin and Habitat Description

Native to Europe and widely planted throughout milder regions worldwide. Especially aggressive on cooler slopes (branches root and spread rapidly in moist, fertile soil). Once established English ivy is tolerant of a wide range of environmental conditions.

Control

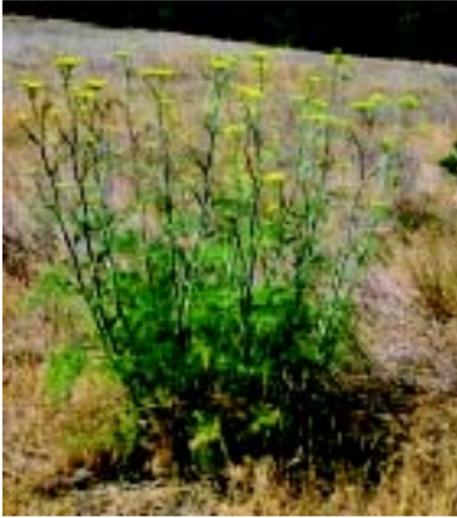
Removing of lower stems and roots with a shovel is a very effective means of control. Cutting/mowing upper stems and leaves does not control ivy. Cutting/mowing followed by an application of herbicide can result in very good control.

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Fennel

Foeniculum vulgare

Carrot Family (Apiaceae)



Fennel plant.

*Fennel foliage at
base of plant.*



Fennel flowering umbel.



All photos by J.M. DiTomaso

Fennel

Foeniculum vulgare

Carrot Family (Apiaceae)

CDFA list: Not Rated

Cal-IPC list: High

Description

A 3 to 6 foot tall, taprooted perennial. Erect and solid stem with a whitish coating. Leaves are anise or licorice scented. Leaves are threadlike or fernlike. The flowers are very small and yellow and arranged in an umbrella-like head.

Reproduction

In fall the plant produces many small seeds, which fall nearby. It can also send out underground roots to produce new shoots.

Origin and Habitat Description

Native to Southern Eurasia. It has long been used and cultivated as a medicinal and edible plant and has now become widely escaped in the western hemisphere. It is locally abundant and invasive in waste places, city streets and roadsides of the western slope of the Sierra. It also can invade disturbed forested areas.

Control

Remove invading mature plants. Control initial invasions by removing juvenile plants. In some cases, localized application of herbicides may be useful.

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Giant reed

Arundo donax

Grass Family (Poaceae)



Giant reed within stream.



Second-year branching pattern of giant reed.

Giant reed inflorescence.



Giant reed

Arundo donax

Grass Family (Poaceae)

CDFA list: B

Cal-IPC list: High

Description

Large, perennial grass with underground horizontal stems. Stems of the giant reed can reach a height of 20 feet. An extremely fast grower and can increase more than 3 inches per day under optimum conditions. Once established tends to form large, continuous root masses, sometimes covering several acres.

Reproduction

Flowers between March and September. The flower stalks end with large (12 to 24 inch) plumes. The seeds of plants produced in this country are seldom fertile (plants have been grown from seeds collected in Asia). Reproduction is primarily vegetative, through underground stems which root. Plant fragments, rhizomes and stems, can float miles downstream where they can root and initiate new infestations. Due to its rapid growth rate and vegetative reproduction, new infestations can quickly form pure stands at the expense of native species. Flooding can cause the spread of Giant reed.

Origin and Habitat Description

Native to Mediterranean to the Lower Himalayas. Probably introduced into California from the Mediterranean in the 1820's by early Spanish settlers in the Los Angeles area. Primary use was for erosion control in drainage canals. Grows along lakes, streams, drains and other wet sites.

Control

Control measures must include the removal of underground roots. Herbicides have been effective in controlling this weed. Because the plant is often located near or in water, care must be taken as to the type of herbicide applied and the timing of application. Post treatments include removal of the dead stems and retreatment of any "escapes" that were missed during the initial application. Post treatment for large infestations often includes restoration or revegetation of the site.

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Goatgrass (Barbed and Jointed)

Aegilops triuncialis, *Aegilops cylindrica*
Grass Family (Poaceae)



Barb goatgrass infestation.

*Barb goatgrass
inflorescence.*



*Jointed goatgrass
inflorescences.*

Goatgrass (Barbed and Jointed)

Aegilops triuncialis, *Aegilops cylindrica*

Grass Family (Poaceae)

CDFA list: B

Cal-IPC list: High

Description

Both barb and jointed goatgrass are winter annual grasses growing up to 20 inches tall. Spike-like seed heads can vary in length from 1 to 5 inches. Specialized leaves (bracts) at the end of the flower head have three spikes in barbed goatgrass and a single spike in jointed goatgrass.

Reproduction

Produces abundant sprouts from the base of the plant (each with a seed head) and has aggressive roots that grow very deep and wide. Single plants can produce from 100 to as many as 3,000 seeds which can remain dormant for up to five years before germinating. Seeds germinate with early winter rains and are growing by February. Seeds ripen by late June.

Origin and Habitat Description

Native to Mediterranean, Europe and western Asia. Accidentally introduced into North America as a contaminant in winter wheat in the early 1900's. Both types inhabit dry, disturbed fields and roadsides. Jointed goatgrass infests grain fields, especially winter wheat and is known to grow up to 5,000 feet in elevation. Barbed goatgrass will grow up to elevations of 3,300 feet. Barbed goatgrass primarily infests rangelands and pastures, including grasslands and oak woodlands, but not usually chaparral. Goatgrass is common on the serpentine and gabbro soils in El Dorado County.

Control

Lengthy seed dormancy (2-5 years) makes the control of both species of goatgrass difficult. Prior to moving equipment from infested areas, equipment should be cleaned in order to prevent new infestations from occurring.

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Hedgeparsley

Torilis arvensis

Carrot Family (Apiaceae)



Hedgeparsley plant.

*Hedgeparsley
flowering stem.*



*Hedgeparsley fruiting
umbel with leaf.*

Hedgeparsley

Torilis arvensis

Carrot Family (Apiaceae)

CDFA List: Not Listed

Cal-IPC: Moderate

Description

Erect annual up to 3 feet tall, with alternative leaves and stalks that are hairy. White flowers March – July in clusters arising from a common point on the stalk (umbel). Each flower produces two spiny burs, each with one oblong seed. Burs have minutely hook-tipped bristles that stick to fur and clothing.

Reproduction

Hedgeparsley reproduces by seeds. Seeds fall near the parent plant or disperse away from the plant by water, mud and by clinging to animals, humans and vehicle tires. Seeds can be spread as contaminants in hay, crop seed and bedding material. Most seeds germinate after the first fall rains in areas with mild winters. Plants also have a taproot, with fibrous lateral roots.

Origin and Habitat Description

Native to southern Europe and Eurasia. Favors disturbed sites, roadsides, fields, woodlands and urban areas. Also found in orchards and vineyards. Found throughout California and is very common in foothill oak woodlands.

Control

Cultivation or hand removal before seeds develop can control this species.

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Hoary cress, Lens-podded whitetop

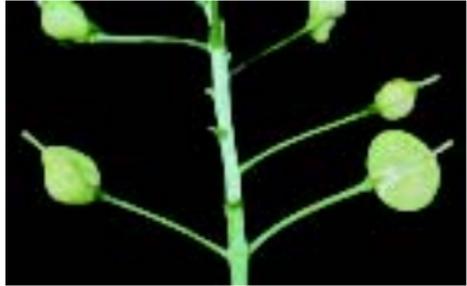
Cardaria draba, *Cardaria chalepensis*
Mustard Family (Brassicaceae)



Hoary cress plants.



Hoary cress fruit.



Hoary cress flowering stem.



*Lens-podded whitetop
fruiting stem.*

Hoary cress, Lens-podded whitetop

Cardaria draba, *Cardaria chalepensis*

Mustard Family (Brassicaceae)

CDFA List: B

Cal-IPC: Moderate

Description

Perennial plant up to 2 feet tall with deep, vigorously creeping roots. Stems and undersides of leaves may be covered with simple, short white hairs. Gray-green colored leaves are opposite each other on the stem and oblong in shape. Leaf edges may be smooth or with irregular teeth. Numerous small white flowers occur in flat-topped clusters. Flowers are fragrant and have four petals. Flowers April to August. Seed pods are disk-shaped (*C. chalepensis*) or upside-down heart-shaped (*C. draba*); one plant can produce up to 850 mature pods annually.

Reproduction

New plants sprout from creeping underground roots that can grow to a depth of 10 feet in a month and produces 400 shoots per year. Fragments of roots can also produce new plants. Roots are very resistant to cold and drought, although regeneration from the roots after drought can be poor. Abundant seeds are produced in pods from May to September. Seeds are viable for several years in dry conditions.

Origin and Habitat Description

Native to Central Asia. Favors disturbed open sites, fields, pastures, grain and vegetable crops, orchards, vineyards, roadsides, and ditches. Tolerates a wide range of soil types and moisture conditions. Scattered throughout California.

Control

Colonies are difficult to eliminate because of deep, persistent roots. Cultivation can facilitate spread of plants by dispersing root fragments. However, repeated and frequent cultivation (at least 1-2 times per month) can destroy colonies in 2 to 4 years. Prolonged flooding (2 months) can be effective in eliminating infestation. Herbicides can be effective when timed correctly during the plant's growth cycle.

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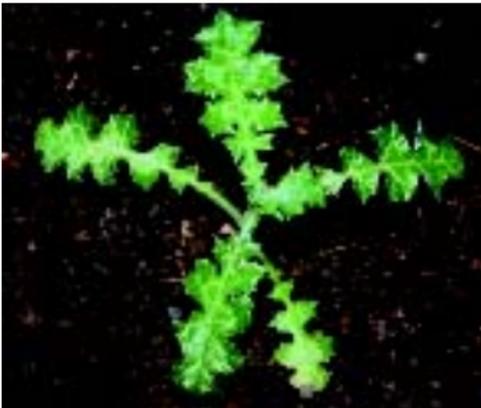
Italian thistle

Carduus pycnocephalus
Sunflower Family (Asteraceae)



Italian thistle plant.

Italian thistle flowering stem.



Italian thistle rosette.

Italian thistle

Carduus pycnocephalus
Sunflower Family (Asteraceae)

CDFA list: C
Cal-IPC list: Moderate

Description

Winter annual growing up to 6 feet tall. Plants exist as a rosette until mature, when the flowering shoots are produced. The leaves attached to the stem have woolly hairs. Small flowers (1/2 to 1 inch), produced in May through July, are pink to purple.

Reproduction

Italian thistle reproduces by seeds. Seeds fall near the parent plant and disperse greater distances with wind, water, birds, small mammals, and human activities. Most seeds germinate in fall and spring. Seeds may remain dormant and can persist in the soil seedbank for up to about 7 years.

Origin and Habitat Description

Introduced from Europe. Typically grows in disturbed open sites, roadsides, pastures, and annual grasslands. Tends to prefer sandy and clay soils.

Control

Hand pulling, prescribed burning, targeted grazing, and herbicide treatments can be effective in controlling Italian thistle.

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Johnsongrass

Sorghum halepense

Grass Family (Poaceae)



Johnsongrass plant.

*Johnsongrass
inflorescence.*



*Johnsongrass collar
and sheath.*

Johnsongrass

Sorghum halepense

Grass Family (Poaceae)

CDFA list: C

Cal-IPC list: Not Listed

Description

A massive perennial grass, 3 -10 feet tall. Erect stems are generally solid with prominent swollen nodes. Underground stems (rhizomes) are white, long and scaly with purple or red areas, 3/4 inch in diameter and up to several feet in length. Fibrous roots branch freely.

Reproduction

Reproduces by seeds, creeping underground stems (rhizomes), and rooting of old above ground stems when they are plowed under into moist soil. An individual plant may produce 28,000 seeds, which are hard and may remain dormant to germinate over a period of years. Individual plants may produce more than 500 rhizome buds in a season and 200-300 feet of rhizomes within one month after flowering.

Origin and Habitat Description

Native to the Mediterranean region. It is a useful forage crop in pastures; however it may escape and become a pest in wet areas, fields, other crops, and roadsides. Has been known to thrive on the moisture trapped in road shoulders after other vegetation has been eliminated by herbicides. It is an alternate host for the sorghum midge, corn stunt disease and the sugar cane mosaic virus. Plants stressed by frost or drought may be toxic to livestock.

Control

Do not move infested material into clean areas. Do not allow initial scattered infestations to reproduce. Seed can remain dormant for several years. Remove all rhizomes as disking can break rhizomes into short segments and spread the plants. Freezing soil temperatures kill rhizomes. Herbicides are relatively useless in killing the plant as they are not effectively absorbed throughout the extensive rhizome system.

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Klamathweed, St. Johnswort

Hypericum perforatum

St. Johnswort Family (Clusiaceae)



Common St. Johnswort plant.



Common St. Johnswort flower.

Common St. Johnswort seedling.



Klamathweed, St. Johnswort

Hypericum perforatum

St. Johnswort Family (Clusiaceae)

CDFA list: C

Cal-IPC list: Moderate

Description

Perennial with erect, rust-colored branches. Plant is 1 to 3 feet tall. Leaves are oblong, smoothed-edged, and arranged opposite to each other on the stem. Tiny, clear dots are found on the leaves. Bright yellow flowers are numerous, each with five petals of the same shape and size. Petals are about 1/2 inch long and often have black dots around their edges. Flowering occurs June to September.

Reproduction

New shoots grow from underground roots (rhizomes) and root crown in early spring. Fragmented underground roots can develop into new plants. Abundant seeds are produced which are dispersed by water and by attachment to animals and other moving objects. Seeds often have a sticky coating enabling them to stick to clothing, machinery, fur, feathers, to be transported elsewhere.

Origin and Habitat Description

Native to Europe. Rangeland areas and pastures, fields, roadsides, forest clearings in temperate regions with cool, moist winters and dry summers. Grows best in open, disturbed sites. It contains a toxic substance which causes animals that eat it to lose weight and develop a skin irritation when exposed to strong sunlight.

Control

Repeated cultivation destroys this weed. Mowing to prevent seed maturation prevents its spread. Burning is not recommended since it stimulates seed germination and reproduction from the roots. Specific herbicides have been shown to be effective in controlling this weed. Biological control agents (beetles) have been introduced which control the spread by consuming seeds, buds, and roots.

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Medusahead

Taeniatherum caput-medusae
Grass Family (Poaceae)



Medusahead plants at early flowering.

*Medusahead
inflorescence at
flowering.*



*Medusahead collars
and sheaths.*

Medusahead

Taeniatherum caput-medusae

Grass Family (Poaceae)

CDFA list: C

Cal-IPC list: High

Description

An aggressive winter annual grass from 1/2 to 2 feet tall. Leaf blades are rolled and generally 1/8 inch wide or less. Flower is a spike nearly as wide as long. Flowers have long (1-4 inches), stiff bristle-like appendages that are finely barbed and twisted when mature.

Reproduction

Has a highly variable reproductive cycle, with both late and early maturing forms. Flowering and seed formation occur in May and June. Seedlings appear similar to downybrome, except the latter is much hairier.

Origin and Habitat Description

Native to the Mediterranean region. It is extremely competitive, invading millions of acres of semi-arid rangeland. It is found in pastures, roadsides, disturbed areas, and waste areas.

Control

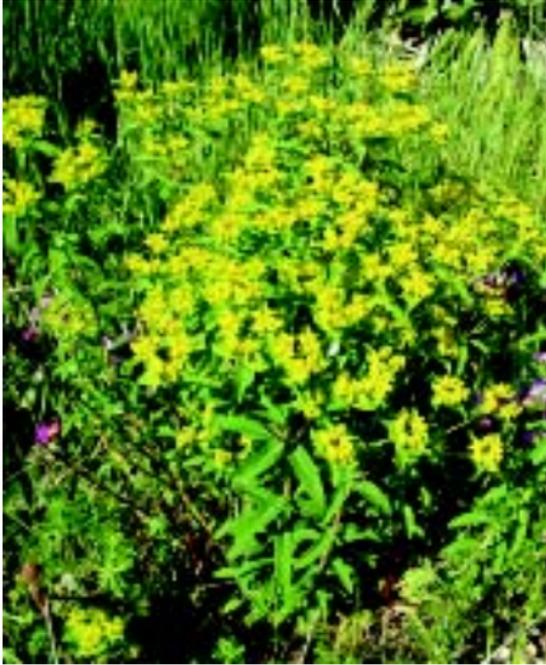
A slow hot fire, after Medusahead seeds have ripened but before they drop, will reduce Medusahead up to 90 percent the following year. Disking and plowing before seed set can reduce Medusahead by 90 percent or more. Herbicides applied in March or April will reduce Medusahead. Intensive grazing during the growing season will reduce Medusahead in about two years. Revegetation with desirable species is useful in controlling this plant.

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Oblong spurge

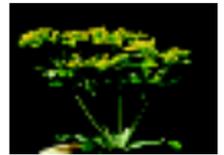
Euphorbia oblongata

Spurge Family (Euphorbiaceae)



Oblong spurge flowering plant.

Photo by Bob Case



*Oblong
spurge.*



Oblong spurge flowers. *Photo by J.M. DiTomaso*

Oblong spurge

Euphorbia oblongata

Spurge Family (Euphorbiaceae)

CDFA list: B

Cal-IPC list: Limited

Description

A perennial shrub with erect stems covered with fine hairs, often somewhat woody at the base. Has woody, branched taproot and crown buds that develop at the base of the stems to produce new shoots or roots. Leaves and stems contain milky white latex sap which is an irritant to humans and livestock. Stems are ascending to erect and covered with fine white hairs, especially near upper stems. Leaves oblong or elliptic, mostly 1½ to 2½ inches long, with broadly rounded tips. Flowers are distinctively shaped and bright greenish yellow.

Reproduction

Euphorbias, such as oblong surge, generally have male and female flowers on the same plant. The plants form extensive creeping root systems and are highly invasive. Reproduction is by seed and vegetative shoots from creeping, long horizontal roots. Crown buds form at the bases of the stems and can produce new shoots or roots. New plants from seeds or root pieces can flower the first year. Infestations are often initiated by seed, but population expansion is mostly by the production of new shoots. The seeds mature about 30 days after the female flower appears. The capsules burst forcefully expelling seeds up to 15 feet from the parent plant. Seeds also are dispersed by human or animal activities, they can survive digestion after consumption, and they can float several days and germinate on water surfaces. Seeds stay viable up to eight years in the soil.

Origin and Habitat Description

Introduced from southwest Europe. Now found in waste places, roadsides, disturbed areas, fields, and pastures.

Control

Mowing, burning and grazing stimulates the production of new shoots from buds and do not significantly affect roots. Continuous grazing can reduce the soil seed bank by preventing flower production, but roots can continue to produce shoots for many years (>8). Manually removing plants before seed develops can control this species. Treatment with herbicides can be effective.

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Pampasgrass

Cortaderia selloana

Grass Family (Poaceae)



*Pampasgrass
female plant.*

*Pampasgrass collar
and sheath.*



*Pampasgrass male (right) and
female (left) inflorescence.*

All photos by J.M. DiTomaso

Pampasgrass

Cortaderia selloana

Grass Family (Poaceae)

CDFA list: Not Rated

Cal-IPC list: High

Description

Large, perennial grass 6-13 feet tall, with long leaves arising from a tufted base which are folded at midrib and have tiny serrated edges that can cut flesh. Flowers in a plume produced at the top of a long stiff stem. Pampas grass is closely related to and easily confused with jubata grass (*C. jubata*), a very invasive plant of coastal California. Fortunately jubata grass is not frost tolerant and generally not a problem in the Central Valley or here in the Sierra foothills.

Reproduction

Reproduces almost entirely by division or plant fragments. Reproduction from seed is rare because historically the horticultural trade has selectively sold the showier female plants. In recent times, more male plants are being sold and propagation by seed may become a problem in the future.

Origin and Habitat Description

Native to Argentina, Brazil and Uruguay. Brought to California by a Santa Barbara nurseryman in 1848 and commercial production began in 1874 in both California and Europe. In 1946 it was planted by the Soil Conservation Service throughout Ventura and Los Angeles counties for dry land forage and erosion control purposes. It grows in relatively damp soils along river margins. In California it can tolerate winter frosts, hot summer temperatures, intense sunlight and moderate drought.

Control

Pulling or hand grubbing of pampasgrass seedlings is effective. Larger plants require a more concerted effort with pulaski and shovel. Remove entire crown and the top section of the roots. Burning of clumps is not effective as plants will resprout. Chemical control can be achieved by spot treatment of herbicides.

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Perennial pepperweed, Tall whitetop

Lepidium latifolium

Mustard Family (Brassicaceae)



Perennial pepperweed plant.



Perennial pepperweed inflorescence.

Perennial pepperweed basal rosette.



Perennial pepperweed, Tall whitetop

Lepidium latifolium

Mustard Family (Brassicaceae)

CDFA list: B

Cal-IPC list: High

Description

Perennial plant between one and six feet tall. Leaves several times longer than wide and widest at the base. White flowers develop in dense cluster at the ends of branches. Reddish-brown seeds are round, flat, slightly hairy, and about 1/16 inch long. Flowering occurs from June to August.

Reproduction

Reproduces by seeds; however, seeds do not persist for long periods in the soil. Heavy vegetative reproduction from the underground rhizomes occurs in early spring.

Origin and Habitat Description

Native to southern Europe and western Asia. Grows in waste areas, wet areas, ditches, roadsides, cropland, along waterways, and dry habitats such as road cuts and fills. Outcompetes native vegetation and row crops, forming dense weedy plots.

Control

Attempts at mechanical removal can spread the plant and increase its numbers. Burning is not effective due to resilient underground rhizomes and lack of competition from other species. Combinations of mowing and herbicide treatments have been effective in controlling spread. Biological control agents have not been developed.

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Poison-hemlock

Conium maculatum

Carrot Family (Apiaceae)



Poison-hemlock plant.



Poison-hemlock leaf.



Poison-hemlock stem with purple blotches.

All photos by J.M. DiTomaso

Poison-hemlock

Conium maculatum

Carrot Family (Apiaceae)

CDFA list: Not Rated

Cal-IPC list: Moderate

Description

All parts of the plant are extremely poisonous. Leaves resemble those of parsley or wild carrot, often causing it to be mistaken for the latter with fatal results. Biennial, with a fleshy, white taproot and a smooth, hollow, purple-spotted stem about 2 to 6 feet in height. Usually, first year plants only produce a large rosette of pinnately compound leaves. A disagreeable, mouse-like odor is especially noticeable when the plant is bruised. Flowers in June or July of second year. Showy, clusters of small white flowers are arranged in umbrella-shaped structures on a stem up to 8 feet tall.

Reproduction

Small (1/8 inches long) grayish green/brown fruit ripens in August and with conspicuous, wavy, longitudinal ribs. Two seeds are enclosed within each fruit. Despite its prolific seed production, it does not have a well developed mechanism for long-distance seed dispersal. While some seeds may be spread by water, birds or rodents, most simply drop close to the parent plant and live about three years in the soil.

Origin and Habitat Description

Introduced from Europe as an ornamental and herbal. It's now naturalized at lower elevations along roadsides, ditch and stream banks, creek beds, fence lines, waste places, and in or on the edges of cultivated fields where moisture is sufficient. Commonly invades wetlands.

Control

Removal of young plants by hand pulling, hoeing or spot herbicide application is effective. Plowing or repeated cultivation will prevent hemlock establishment. Mowing can be used but needs to be repeated each year.

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Puncture vine, Goatheads, Caltrops

Tribulus terrestris

Caltrop Family (Zygophyllaceae)



Puncture vine plant.



*Puncture vine
flowers and fruit.*



Puncture vine fruit.

Puncture vine, Goatheads, Caltrops

Tribulus terrestris

Caltrop Family (Zygophyllaceae)

CDFA list: C

Cal-IPC list: Not Rated

Description

A creeping ground-hugging plant bearing yellow flowers and producing very hard and sharp seeds. A tap rooted annual spreading radially to about 3 feet. Stems often have hairs that lie flat against the stem. Leaf shape is pinnate, made up of leaflets less than 1/4 inch long. Flowers are yellow and solitary in axils. Petals and sepals are deciduous. The 5 lobed fruit, splits into 5 nutlets, each with 2-4 stout spines, and with seeds 3-5 per chamber.

Reproduction

Flowers are followed by very hard sharp “seeds” (actually, each one is a single-seeded wedge of the intact fruit) that are less than a quarter-inch point-to-point. These obnoxious weed seeds are pressed against the ground so tightly that you won’t even feel them. However, your tires (or the soles of your shoes) will silently pick up the pointy fruit segments, and that seed will germinate wherever the “sticker” finally falls out of your tire or shoe.

Origin and Habitat Description

Native to the Mediterranean area. Found on roadsides, railways, vacant lots, other dry, disturbed areas, up to about 4,500 feet. First seen in California in 1902, long a pernicious weed, now (somewhat) controlled by introduced weevils. “Tribulus” is Latin for “trouble.” In the vegetative condition, this plant is toxic to livestock.

Control

Don’t wait for the weevil. Learn to identify this plant and remove plants by hand. Watch for juvenile plants. Herbicide can be effective if applied to young plants at or before flowering.

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Purple loosestrife

Lythrum salicaria

Loosestrife Family (Lythraceae)



Purple loosestrife along river bank.



Purple loosestrife inflorescence.

*Purple loosestrife
vegetative stem.*



Purple loosestrife

Lythrum salicaria

Loosestrife Family (Lythraceae)

CDFA list: B

Cal-IPC list: High

Description

Perennial with erect stems between 2 and 6 feet tall. Extensive underground roots (rhizomes). Leaves are lance-shaped, opposite each other on the stem, and have smooth edges. Flowers are rose-purple with 5 to 7 petals all of similar shape and size. Each flower is 1/2 inches long and arranged in spikes at the end of stems. Flowering occurs from August to September.

Reproduction

Persists year to year from overwintering root buds and from the root crown. High numbers of small seeds are produced and dispersed by the wind or water. Seeds are viable for several years in wet conditions.

Origin and Habitat Description

Native to Europe. Introduced and cultivated as an ornamental. Usually associated with moist or marshy sites, ponds, meadows, ditches, and stream banks.

Control

Hand removal is the only effective mechanical control method. Cutting, burning, and flooding are not particularly effective and may increase infestations. Herbicides have been effective in controlling this weed; however, care must be taken to protect native species and wetland health. Biological control agents have been effective in controlling this weed. Weevil larvae that feed on the roots, beetles that feed on the leaves and buds, and weevils that feed on flower buds, shoot tips, and seed pods have all demonstrated an ability to control infestations.

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Rush skeletonweed

Chondrilla juncea

Sunflower Family (Asteraceae)



Rush skeletonweed plant.

*Rush skeletonweed
flower head.*



*Rush skeletonweed immature
foliage is very similar to
dandelion and chicory.*

Rush skeletonweed

Chondrilla juncea

Sunflower Family (Asteraceae)

CDFA list: A

Cal-IPC list: Moderate

Description

Highly branched perennial or biennial with an extensive and deep taproot. The plant is one to four feet tall. There are downward bent, coarse reddish hairs at the base of the stem. Leaves at the base of the plant are sharply toothed and wither as stem develops. Leaves on the stem are small, narrow and with a smooth edge. Flowers are scattered on branches, less than one inch in diameter, and yellow. Strap-shaped petals have five distinct teeth on the end. Seeds are pale brown to black, 1/8 inch long, ribbed, and with white bristles at one end. Flowers from July to September.

Reproduction

Reproduces by seeds, but seeds are not long lived in the soil. Vegetative reproduction is vigorous. Root pieces as small as 1 inch and buried 3 feet in the soil can produce viable plants.

Origin and Habitat Description

Native to southern Europe. Grows in well-drained, light textured soils along roadsides, rangelands, grain fields, pastures, and vineyards. Easily invades disturbed areas. Extensive and deep root system makes Rush skeletonweed difficult to control.

Control

Mowing prior to the development of seeds effective in reducing the number of seeds produced. Grazing at the proper time can achieve similar results. Tilling not effective due to vigorous vegetative reproduction. Two insects and a fungus are available for effective biological control. Herbicide treatments alone are not very effective in controlling or eradicating this weed. Compatibility of herbicide programs, competitive vegetation, and biological control agents is critical for effective management.

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Scarlet wisteria, Rattlebox

Sesbania punicea

Pea or Bean Family (Fabaceae)



Scarlet wisteria along bank of American River.



*Scarlet wisteria
inflorescence.*

*Scarlet wisteria
fruit pods.*



Scarlet wisteria, Rattlebox

Sesbania punicea

Pea or Bean Family (Fabaceae)

CDFA: Not Rated

Cal-IPC: High Alert

Description

Woody shrub or small tree with distinctive drooping oblong leaflets arranged in opposite pairs. Showy red to orange-red, pea-like flower clusters late spring through fall. Oblong, pods, brown to dark brown colored, with pointed tip and four lengthwise wings, produce 4-10 seeds per pod. Main roots are woody. Foliage, flowers and especially immature seeds are toxic to humans and animals when ingested.

Reproduction

Reproduces by seed. Pods open slowly and do not eject seeds. Seeds disperse primarily by floating down river to colonize new riparian areas. Plants typically attain reproductive maturity at 2-3 years of age; individual trees can survive for up to 15 years.

Origin and Habitat Description

Cultivated as an ornamental, but it has escaped cultivation and invaded riparian areas and other habitats in South Africa, southeastern United States and localities in California, including the American River Parkway. Favors riparian areas, disturbed moist places, sand and gravel bars and margins of ponds, ditches, and canals. Large infestations can reduce in-channel water flow increasing the potential for flooding.

Control

Hand cutting and removal (loppers, saws, weed wrenches) can successfully control infestations. Herbicide treatments can also be effective.

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Scotch, French and Spanish brooms

Cytisus scoparius, *Genista monspessulana*, *Spartium junceum*

Pea or Bean Family (Fabaceae)



Scotch broom flowers.

Scotch broom plant.



French broom flowering stem.



*Spanish broom
flowering stem.*

Scotch, French and Spanish brooms

Cytisus scoparius, *Genista monspessulana*, *Spartium junceum*

Pea or Bean Family (Fabaceae)

CDFA list: C

Cal-IPC list: High

Description

Woody shrubs which grow up to 10 feet tall. Branches are dark green with 3 part leaves. Abundant flowers are bright yellow. Unlike French broom or Spanish broom, the flowers of Scotch broom are usually singular, not in clusters. Spanish broom can be distinguished by the fragrant yellow flowers and rounded, bright green stems. It has long, mainly leafless stems, which branch off at the top, ending with flowering clusters on leafless stalks. Leaves are simple and one-parted (compared to 3 -parted leaves of scotch or French broom), with hairs on the lower surface. Seed pods of all brooms are flattened, brown or black, with white hair on the edges of the pea-like pods.

Reproduction

Reproduce by seeds and stump sprouting. Seeds have a hard, water impermeable seed coat that delay germination for months or years and enable seeds to survive for 25 to 80 years. Seeds can germinate throughout the year under suitable conditions. Typically, germination occurs after the first rain of fall and through the last rainfall of spring.

Origin and Habitat Description

Scotch broom is native to central and southern Europe and the British Isles. French broom is native to the Mediterranean region, the Azores and the Canary Islands. Spanish broom is native to the Mediterranean region and the Canary Islands. Each of these brooms was introduced as a nursery plant in California prior to 1870. Brooms grow best in seasonally dry, sandy, nitrogen- poor soils in full sunlight. They colonize areas where the soil is disturbed such as roadsides, logged areas, burned areas, gravel bars, river beds, and fence rows.

Control

Seeds sprout quickly following disturbance by fire, grazing, or other mechanical means, making control more difficult. Removal of the entire plant, including a significant part of the root, and herbicide treatments can be effective in control. Hand hoeing of small plants can also be effective. Cutting (lopping) the plants to 6 inches or less above ground can be an effective control technique. Lopping should be done in the fall when the plants are heat and water stressed. Herbicide treatments can be effective. Retaining partial canopy in forest settings slows spread.

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Spotted knapweed

Centaurea biebersteinii DC. (= *C. maculosa*)

Sunflower Family (Asteraceae)



Spotted knapweed plant.



*Spotted knapweed
flower heads from
bud to full flower.*

*Spotted
knapweed
rosette.*



Spotted knapweed

Centaurea biebersteinii DC. (= *C. maculosa*)

Sunflower Family (Asteraceae)

CDFA list: A

Cal-IPC list: High

Description

Biennial or short-lived perennial with stout taproot. Upright plant up to 3 feet tall. Leaves at the base of the plant up to six inches long, narrow, and may or may not be divided into leaflets. Flowers are pinkish to purple, ½ -1 inch long, and thistle-like. Leaf-like structures (bracts) around flower head are stiff, and tipped with a dark, comb-like fringe resembling “spots”. Flowers June to October.

Reproduction

Reproduces by seed, with some vegetative reproduction. Seeds are about 1/8 inch long and tipped with a tuft of persistent bristles. Seeds germinate in the fall after the first rains and in the early spring.

Origin and Habitat Description

Native to Europe. Fields, roadsides, disturbed open sites, grasslands, overgrazed rangelands, and logged areas. Plants seldom persist in shaded places and colonize most soil types in which the soil surface has been disturbed. Spotted knapweed may release chemical substances which inhibit the growth of surrounding vegetation.

Control

Mowing and hand pulling is effective but tillage is not recommended. The use of fire integrated with the application of herbicides on newly sprouted plants has been effective. Biological control using the larvae of specific insects has been successful in reducing knapweed populations over time.

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Sweetclover, yellow and white

Melilotus officinalis, *Melilotus alba* Medik.

Pea or Bean Family (Fabaceae)



White sweetclover along edge of pond.



White sweetclover flowering stem.



Yellow sweetclover flowering stem.

Sweetclover, yellow and white

Melilotus officinalis, *Melilotus alba* Medik.

Pea or Bean Family (Fabaceae)

CDFA: Not Rated

Cal-IPC: Not Rated

Description

Erect biennials, sometimes annuals or short-lived perennials, up to 5 feet tall or more. Stems are woody at the base; leaves consist of three leaflets. Taproot tough or woody, slender to thick, typically deep, with fibrous lateral roots. Flowers pea-like, slender, sweetly fragrant, on short stalks. Flowers from spring to fall. Pods on stalks that bend downward containing 1-2 seeds.

Reproduction

By seed. Pods do not open to release seeds. Seeds fall near the parent plant and disperse to greater distances with water, mud, road materials (e.g. gravel), or as a seed or feed contaminant. Also moved by clinging to the shoes and clothing of humans, on vehicle tires and undercarriages, and possibly by animals.

Origin and Habitat Description

Native to Eurasia. Inhabits roadsides, open field, pastures, and crop land. White sweetclover often grows in moist places such as riparian areas, ditches and disturbed areas. Yellow sweetclover typically inhabit dry places. Both occur throughout California.

Control

Manual removal, cultivation, or cutting plants to prevent seed production can control sweetclover. Burning can kill existing plants, but often stimulates seed germination when moisture conditions are favorable. Establishment of desirable, competing perennial species can eliminate sweetclover in about 2 years. Cutting or mowing immature plants in the fall (when energy reserves are low) of their first year can weaken plants and reduce their growth the following season. Herbicide treatments can also be effective.

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Tamarisk, Smallflower or Saltcedar

Tamarix parviflora, *Tamarix ramosissima*
Tamarisk Family (Tamaricaceae)



*Smallflower
tamarisk in flower
in riparian site.*

*Smallflower
tamarisk
flowering
branch.*



Saltcedar in flower.

Saltcedar flowering branch.



Tamarisk, Smallflower or Saltcedar

Tamarix parviflora, *Tamarix ramosissima*

Tamarisk Family (Tamaricaceae)

CDFA: B

Cal-IPC: High

Description

Small trees or shrubs with tiny, scale-like leaves. Trunk(s) short, sometimes twisted with branches erect to spreading, with a dense canopy of slender twigs, often arched or drooping. Twig leaves tiny and generally gray-green in color. Flowers typically white to pale or dark pink. Dry fruit capsules release numerous minute seeds. Trees develop an efficient, deep root system to access the water table. The presence of numerous trees can seriously reduce underground water tables and surface water availability. Roots extract salts from the deep soils and can excrete it from the leaves. Salt is then deposited on the soil surface with the leaf litter. Increased salinity of the soil inhibits the growth and survival of desirable vegetation. *Tamarix* species can increase flooding by narrowing channel width. In addition, the plants are flammable and can introduce fire into wetland and riparian areas.

Reproduction

Reproduces by seed and sometimes vegetative from root sprouts and stem fragments. Seeds disperse primarily with wind and water. Mature plants can produce 500,000 seeds per year per plant! Stem fragments can take root when buried in a moist environment such as might occur with flooding.

Origin and Habitat Description

Smallflower tamarisk is native to southeastern Europe; Saltcedar is native to eastern Asia. Favors river, lake, and pond margins, ditches and roadsides. Mature plants survive heat, below-freezing temperatures, flooding, drought and burning. Both species are found in many areas in California.

Control

Manual removal or killing the root system with herbicide treatments of mature trees/shrubs is required to successfully control infestations. Seedlings and small plants are easily hand-pulled. Establishing competitive cover discourages establishment of seedlings. Biological control methods are currently being developed.

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Tocalote, Malta thistle

Centaurea melitensis

Sunflower Family (Asteraceae)



*Malta starthistle
buds and flower
heads.*

*Malta
starthistle
senesced
flower heads.*



*Malta
starthistle
rosette.*

Tocalote, Malta thistle

Centaurea melitensis

Sunflower Family (Asteraceae)

CDFA List: C

Cal-IPC: Moderate

Description

Simple to bushy winter annuals, occasionally biennials, with spiny yellow-flowered heads and wiry stems. Foliage often grayish green. Leaves even covered with thick stiff hairs and minute glandular dots. Older leaves are usually sparsely covered with fine, white, cottony hairs. Flowers April – July with heads solitary or in clusters. Central spine of the plant is long, slender, and often purple- to brown-tinged.

Reproduction

Reproduces by seed. Seeds fall near the parent plant and are dispersed short distances with wind and to greater distances with human activities, animals, water and soil movement. Most seeds germinate after the first fall rains.

Origin and Habitat Description

Native to southern Europe; thought to be introduced in California in the late 1700s during the Spanish missionary period. Favors open disturbed sites, rangeland, open woodlands, cultivated fields and roadsides.

Control

Although undocumented, cultural strategies used to control yellow starthistle are likely to control this thistle as well. Can be controlled by hand pulling, mowing, grazing, burning, biological control, and herbicide treatments. Timing of mowing, grazing, burning and herbicide treatments can be very important in their success. Effective management requires control of the current population and suppression of seed production, combined with the establishment of competitive vegetation.

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Tree-of-Heaven

Ailanthus altissima

Quassia Family (Simaroubaceae)



Tree-of-heaven plants.



Tree-of-heaven young plant.

*Tree-of-heaven male
plant with flowers.*



Tree-of-Heaven

Ailanthus altissima

Quassia Family (Simaroubaceae)

CDFA list: C

Cal-IPC list: Moderate

Description

Fast growing deciduous tree with large leaves and a creeping root system. The leaves have an unpleasant odor, especially when crushed. Trees are erect, usually with a single trunk. New foliage typically reddish and covered with very short, velvety hairs. The taproot is deep with many shallow creeping lateral roots that often produce many new shoots. Flowers (greenish yellow to white colored) in May-July with male and female flowers developing on separate trees. Fruits straw-colored to reddish brown, winged, linear-oblong with a small seed in the center. Dense thickets of these trees replace native and other desirable vegetation and wildlife habitat. Handling Tree-of-Heaven can cause contact dermatitis in sensitive individuals.

Reproduction

Reproduces by seed and vegetatively from creeping root. Fruits mature in late summer and fall throughout the following spring with wind, water and soil movement and by human activity. New trees often develop from roots of established trees, even in shady conditions.

Origin and Habitat Description

Native to China and introduced to California as a landscape ornamental, a food plant for silkworm and as a culturally important medicinal plant of Chinese immigrants during the Gold Rush period.

Control

Hand-pulling small seedlings, including the entire root, can prevent infestations from developing and spreading. Immediately treating cut stumps with an herbicide is more effective than cutting alone, especially in late spring. Cut stems left in contact with moist soil can resprout roots and shoots.

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Yellow starthistle

Centaurea solstitialis

Sunflower Family (Asteraceae)



Yellow starthistle plant.



Yellow starthistle seedling.

Yellow starthistle flower.



Yellow starthistle

Centaurea solstitialis

Sunflower Family (Asteraceae)

CDFA list: C

Cal-IPC list: High

Description

A long lived winter annual, this grows significantly during the summer. It is a gray-green to blue-green plant with a deep taproot. Grows to heights varying from 6 inches to 5 feet. Stems of mature plants are rigid, spreading, and typically branch from the base in open areas. Stems and leaves are covered with loose, cottony wool that gives them a white-ish appearance. Produces bright, thistle-like yellow flowers with sharp spines surrounding the base.

Reproduction

Reproduces by seed. Seed production can be as high as 30,000 seeds per square yard, with about 95% of the seed being viable soon after dispersal. Most seeds germinate within a year, but some can remain viable in the soil for more than 3 years. Seeds germinate from fall through spring.

Origin and Habitat Description

Native to Europe and Asia and was introduced in California around 1850 via South America. Now common in open areas on roadsides, rangeland, wildlands, hay fields, pastures and waste areas. Activities that disturb the soil, such as grading and tilling, aid to the establishment of yellow starthistle.

Control

Can be controlled by hand pulling, mowing, grazing, burning, biological control, and herbicide treatments. Timing of mowing, grazing, burning and herbicide treatments can be very important in their success. Effective management requires control of the current population and suppression of seed production, combined with the establishment of competitive vegetation.

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References

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University of California Press (Publication No. 3488). 2007

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A Manual of Vascular Plants of California.

University of California Press. 1993

Grasses in California. University of California Press. 1974

Grower's Weed Identification Handbook. Division of Agriculture and Natural Resources, University of California. 1998

Selected Weeds of the United States. Agricultural Research Service, US Department of Agriculture. 1970

Weeds of the West. The Western Society of Weed Science in cooperation with the Western United States Land Grant Universities Cooperative Extension Service. Revised 1996

Weed Related Websites

University of California Cooperative Extension Weed Research and Information Center: <http://wric.ucdavis.edu>

California Invasive Plant Council: www.cal-ipc.org

California Department of Food and Agriculture – Encycloweed: <http://www.cdfa.ca.gov/phpps/ipc/encycloweed>

Calflora Database: <http://www.calflora.org/index0.html>

The Nature Conservancy's Global Invasive Species Initiative: <http://tncweeds.ucdavis.edu/>

The Center for Invasive Plant Management at Montana State University: www.weedcenter.org

US Department of Agriculture (USDA) PLANTS Database: <http://plants.usda.gov>

California Native Plant Society: www.cnps.org

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Weed Survey Form

Name: _____ Phone: _____
(Name and affiliation) (Daytime)

Weed sighted: _____ Date: _____

Estimate of infestation: _____
(Size of area and/or number of plants)

32 Descriptive location: _____
(Roadside, rangeland, pasture, forest, streamside, specific crop, ownership)

Section: _____ Township: _____ Range: _____ 1/4 sec.: _____

Site status: _____
(Identifying landmarks, directions to site; *please draw map on back of form*)

Eradication action: _____

Mail completed form to: El Dorado County Department of Agriculture,
311 Fair Lane, Placerville, CA 95667
or call (530)621-5520.

Map



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Feel free to duplicate this form.

