

Management

————— Reduce seed production by integrating available tools —————

Physical control

Grazing and prescribed burns can be effective tools to reduce aboveground vegetation and eliminate seed production. The ideal timing for these approaches is when plants have started to flower, but have not produced seeds, to ensure plants will not regrow. Cows will not eat yellow starthistle after flowers have spines, but goats and sheep will continue to eat it. Planting native perennial grasses and annual forbs helps to increase competition with yellow starthistle and restore ecosystem functions. However, restoration must be done in tandem with yellow starthistle control for it to be effective.



Photo: Feather River Land Trust

A goat chows down on yellow starthistle.

Mechanical control

Yellow starthistle can be removed by hand throughout the year, but ideally before seed has been produced. Mowing can control plants at high density only when timed during the bolting/early flowering stage. However, mechanical control, such as with a scythe, as shown below, is impractical on a large scale.



Photo: Pamela Beitz

Biological control

Insects that impact yellow starthistle seed production by laying eggs inside the flowers are present in the EBRPD parks. The two most effective biocontrol agents, the false peacock fly and hairy weevil, reduce seed production by 43-76%, but will not control an infestation alone.

Chemical control

Chemicals can be a useful tool when combined with non-chemical methods in an integrated approach. Consideration for species of concern and non-target plants must be taken.



Get involved!

Want to play a role in the management of noxious weeds in your parklands? Inquire with your local EBRPD park staff about the possibility of setting up a work day for your organized group or visit <http://www.ebparks.org/getinvolved/volunteer/operations> for more information and to register for volunteer opportunities. See you in the parks!

Text and design: Courtney Glettner
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This brochure is provided as a public service of the Stewardship Department of the East Bay Regional Park District.

Yellow Starthistle



East Bay 
Regional Park District

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How did it get here?

Yellow starthistle (*Centaurea solstitialis* L.), native to the Mediterranean region, was first introduced to California in the mid-1800s as a contaminant in alfalfa seed. As alfalfa production expanded, yellow starthistle seeds hitched rides on tractors and other equipment, spreading to grain fields and, ultimately, other disturbed areas, like rangelands and roadsides.



Photo: Nancy Brownfield

A dense stand of yellow starthistle in Briones Regional Park. A noxious weed is a plant that has been designated by the Federal, State or county government to be threatening to public health, agriculture, recreation, wildlife, or property.

Identification

Yellow starthistle is identified by its grey-green vegetation and yellow flowers with sharp spines. Plants flower between May and September, producing 35 to 80 seeds per seedhead, and up to 100,000 seeds per large plant. Plant height can vary from 6 inches to 5 feet tall, depending on the environment. Plants grow best in deep clay soils in full sun.

An opportunistic competitor

As a winter annual with an extended germination period, yellow starthistle seeds begin to germinate in early winter, continuing through spring. Primary energy is put into root growth, which can grow up to 6 feet. These roots heavily deplete deep soil water reserves, using an estimated 15-25% of the mean annual precipitation, making water unavailable for native forbs, perennial grasses, and trees. Plants have winged leaves with a wax-like coating that allows them to keep cool and conserve water. Seeds, which remain viable for an average of 3 years, and up to 10 years, can be transported long distances by birds, livestock, humans, contaminated feed, vehicles, and equipment.

Prescribed burns, like the one shown on the right in Briones Regional Park, help to reduce yellow starthistle seed production, increase effectiveness of chemical treatments, and encourage native plant growth. However, prescribed burns can be difficult to carry out in urban areas, due to concerns about air quality and property damage.

What's the big deal?

If left unmanaged, these plants can grow to dense monocultures, creating a nuisance for recreation. Additionally, the exclusion of all other types of vegetation by yellow starthistle competition alters the functioning of the ecosystem. The loss of native forbs impacts native pollinators, like bees, as well as other species that rely on the diversity of the ecosystem. Native grasses and trees provide habitat and play an important role in carbon sequestration and surface water infiltration. Such ecosystem services are lost with an invasive monoculture. Yellow starthistle is poisonous to horses and rangelands are degraded by the reduction in livestock forage.



Photo: EBRPD staff