

Oxeye Daisy

(*Chrysanthemum leucanthemum*)

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This fact sheet tells how to identify Oxeye Daisy, a Category 1 noxious weed in Montana, and describes the plant's biology, ecology, history and distribution. The fact sheet tells how to control Oxeye Daisy by integrating mechanical and chemical (and, where appropriate, grazing) practices. Illus.

Although a beautiful flower long admired by gardeners, song-writers and poets, oxeye daisy (*Chrysanthemum leucanthemum*) is an invasive weed which is becoming an increasing problem on western rangelands. Oxeye daisy has recently been added to the state-wide noxious weed list. Montanans must understand the biology and ecology of this plant so it can be properly managed in this state as it continues to spread.

Identification and biology

Oxeye daisy is a perennial member of the Asteraceae family, the same family as sunflower (*Helianthus annuus*). Oxeye daisy looks like the typical daisy. Flower heads are borne individually on the tops of long slender stems. Flowers are 1.5 to 2 inches across, with yellow centers, and 20 to 30 white petals radiating from the center (Fig. 1). The petals are slightly notched at the tip. Stems grow 1 to 3 feet tall and are smooth, frequently grooved and sometimes branch near the top. Leaves progressively decrease in size upward on the stem. Basal and lower leaves are lance-shaped with "toothed" margins and petioles that may be as long as the leaves. The upper leaves are alternately arranged, narrow and often clasp the stem. Seeds are brown to black in color, 1/16 of an



Figure 1. Oxeye daisy stems, leaves and flowers

inch long, and have 8 to 10 white ridges down the side (Fig. 2). The plant has branched rhizomes and strong adventitious roots. Scentless chamomile (*Matricaria maritima*) and Shasta daisy (*Chrysanthemum maximum*) look very similar to oxeye daisy. However, chamomile is an annual plant with smaller flowers and much more finely dissected leaves. Shasta daisy usually grows 6 to 12 inches taller than oxeye daisy and has larger flower heads.

Oxeye daisy flowers in June through August. The plant is a prolific seed producer; a single, healthy, robust plant produces up to 26,000 seeds. Reproduction occurs primarily through seed dispersal and germination, although spreading rootstalks contribute to its propagation. Seeds may be viable ten days after the flower blossoms and are dispersed close to the parent plant. Germination occurs throughout the growing season, but most new seedlings emerge in spring. Seeds that do not germinate in the



Figure 2. Seeds have 8 to 10 white ridges down the side

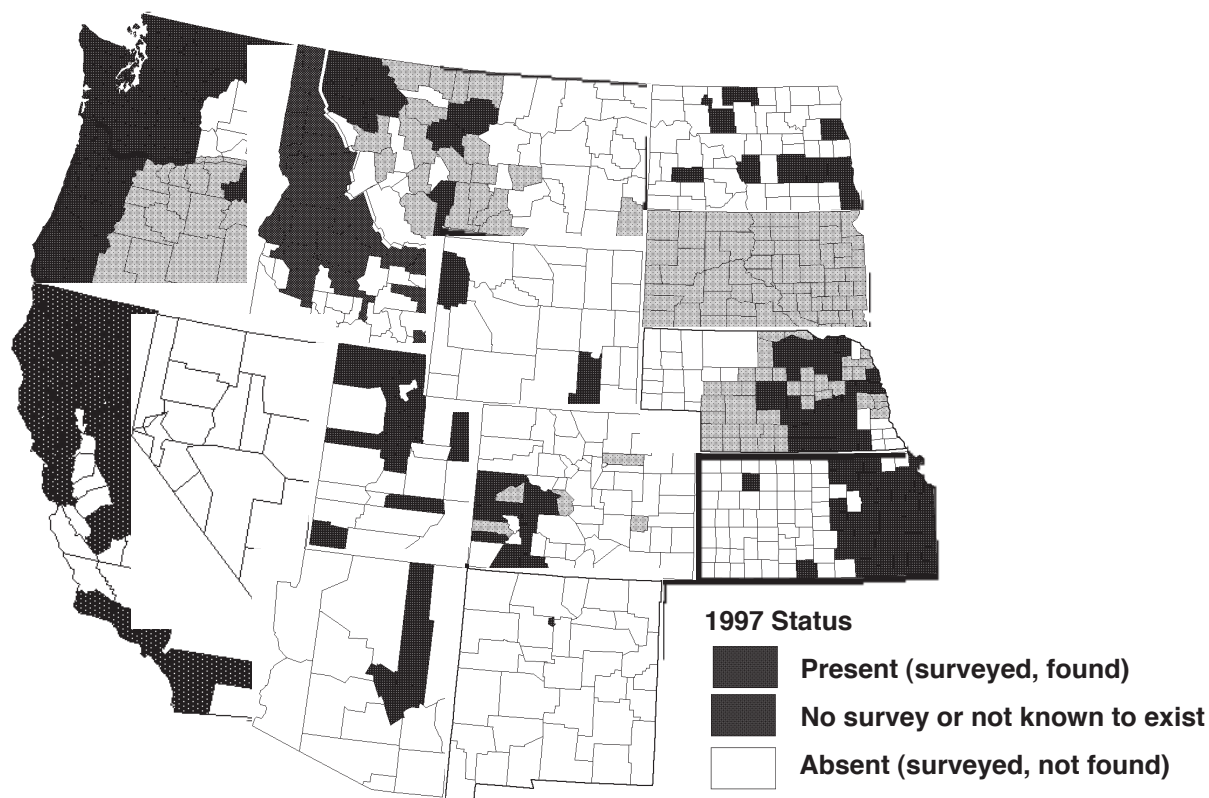


Figure 3. Distribution of oxeye daisy in the western United States (by county)

spring may remain viable for many years. One study found 82 percent of seeds were viable after 6 years and 1 percent were still viable after 39 years.

History and distribution

Oxeye daisy was introduced to the United States from Europe as a contaminant in seed and as an ornamental. It quickly escaped cultivation and has since become a common weed. Common names include white daisy, field daisy, marguerite, poor-land flower and moon-penny.

Besides being planted for its beauty, oxeye daisy was cultivated for home remedies to cure whooping cough, asthma and other coughs. A tea made from its leaves was sometimes used as an antispasmodic. Today many people enjoy the young leaves of oxeye daisy in salads.

Oxeye daisy is widely distributed across the British Isles and Europe. It is found in most states, but is less common in the southern United States. It is common in the northeast and the Great Plains and is the

most prevalent roadside weed in the Pacific Northwest (Figure 3). In the western states, it is considered noxious in Washington, Wyoming and Montana.

In Montana, Lewis and Clark County was the first to report oxeye daisy in the year 1890. Since then, the number of counties reporting oxeye daisy has increased and continues to increase.

Oxeye daisy prefers upland pastures and meadows, but also grows along roadsides, abandoned croplands and waste areas in western and south-central Montana. Its spread in pastures is exacerbated because most large herbivores avoid it and feed instead on grasses. The ungrazed oxeye daisy is then free to propagate while the grasses are held in check by grazing.

Impacts

The greatest impact of oxeye daisy is on forage production of infested pastures and meadows. Cattle avoid oxeye daisy and therefore any pasture infested with dense stands of oxeye

daisy will decrease forage available for grazing. Dense stands of oxeye daisy can decrease plant diversity and increase the amount of bare soil in an area. The full extent of ecological, environmental, economical and sociological impacts from oxeye daisy are not well documented.

Management

Because oxeye daisy is such a showy, pretty plant, proper management is often neglected. It is often an ingredient in wildflower seed mixes, so consumers should read the label carefully to be sure oxeye daisy is not present. In addition, landowners often avoid mowing the plant because it looks so pretty on their lawn or in their gardens. Therefore, education and awareness are critical for adequate management.

Mechanical

Oxeye daisy should be mowed as soon as flowers appear to reduce seed production. Mowing may have to be repeated during a long growing season because mowing may stimulate

shoot production and subsequent flowering. Root systems are shallow and the plant can be dug up and removed. Be sure to remove the entire root system, though, as remaining roots may produce new shoots. Hand removal will have to be continued for several years because seeds may remain viable in the soil for a long time.

Chemical

Oxeye daisy is slightly tolerant to 2,4-D unless applied at very high rates (5 pounds/acre). In southwestern Montana, 1.5 pints/acre picloram plus 1 quart/acre 2,4-D gave 100 percent control for two years on one site. However, researchers do not recommend this treatment for long term control. Transline® is also labeled for use on oxeye daisy. Transline should be applied at one third to one pint/acre when plants are young and actively growing.

Because oxeye daisy is not a superior competitor for nutrients, some researchers believe fertilizer applied in combination with herbicide will enhance grass yield and hinder oxeye daisy performance. In a mountain meadow in eastern Washington, nitrogen applied at eighty pounds per acre (with no herbicide) was the most cost-ef-

fective chemical treatment of oxeye daisy. Forage production increased by 500 percent when a high level of nitrogen fertilizer was applied.

Biological control

No biological controls have been discovered for oxeye daisy.

Grazing

Proper grazing management will help prevent oxeye daisy from infesting your land. In the British Isles, oxeye daisy is not found in pastures that are grazed lightly. Oxeye daisy abundance is related to the cutting or grazing of associated plants. Timing, frequency and intensity of grazing all have implications on how easily your land is invaded by oxeye daisy. An adequate canopy of grass needs to be maintained to shade oxeye daisy and prevent it from becoming well-established.

Where oxeye daisy is already a major member of the plant community, it will increase with continuous cattle grazing. However, oxeye daisy density may be reduced by intensive cattle grazing. Intensive grazing forces cows to graze oxeye daisy which will reduce seed production. Cattle under intensive grazing also trample oxeye daisy

and reduce growth and vegetative reproduction. In a Montana State University study, researchers found the number of oxeye daisy seeds in the soil and density of oxeye daisy seedlings were lower in heavily grazed plots compared with ungrazed plots.

Horses, sheep and goats will readily graze oxeye daisy. If you wish to employ grazing to consume weeds on your land, sheep and goats have the most potential to reduce oxeye daisy's presence in plant communities.

Conclusion

Oxeye daisy has become an aggressive invader of pastures, meadows and roadsides throughout the United States. In western pastures and meadows, it can form dense stands which choke out other vegetation and decrease forage production. Because of the plant's beauty and showiness, conscientious management by many landowners has been neglected. Persistent mowing, chemical applications and grazing can be effective methods to control oxeye daisy. Integrating various techniques will give the best success of control.

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