Featured Weed: Oxeye Daisy

PHOTO BY TRACY MOSLEY, MSU

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Oxeye daisy *(Leucanthemum vulgare),* also called white daisy, marguerite, field daisy, and several other common names, is a showy, perennial weed that invades a variety of landscapes. Oxeye daisy is found in pastures and meadows, along roadsides and railroad beds, and in urban landscapes, and has become increasingly abundant in parts of Montana in the recent past. Unfortunately, this 'pretty' plant is often not perceived as a weed by landowners and land managers, resulting in under-management of this invader.

Oxeye daisy is classified as a Priority 2B noxious weed in Montana. This classification includes weeds that are abundant in Montana and emphasizes local management strategies and priorities for oxeye daisy and 16 additional weeds in this category. A complete list of Montana's noxious weeds can be found at http://agr.mt.gov/agr/Programs/Weeds/PDF/2015WeedList.pdf.

Origin and Distribution

Oxeye daisy was introduced to the U.S. from Europe primarily as an ornamental plant, but also likely in imported hay and grain seed. It currently exists in every state in the United States and is documented in 27 Montana counties. In Montana, its distribution dominates the western third of the state but it is also present in Blaine, Phillips and Valley Counties.

Identification

Oxeye daisy looks like a typical white daisy, usually with a single white flower at the end of each branch on the stem. Flowers are 1.5 to 2 inches across, have 20-30 white ray flowers (i.e., petals) that are slightly notched at the tip and surround a yellow center, and can produce up to 250 seeds. Seeds are brown to black, approximately 1/16th inch long, and have eight to 10 white ridges that run lengthwise down the seed.

Oxeye daisy plants grow 1 to 3 feet tall. Stems are smooth, but often grooved, branch at the top, and can sometimes be pubescent (i.e., have small hairs). Its leaves are dark green and smooth, and decrease in size from the bottom to the top of the plant, with the smallest near the top of the stem. Lower leaves are lance-shaped (i.e., long and narrow) and have toothed margins, giving them a jagged appearance. Upper leaves are narrowly oblong with toothed to shallowly-lobed margins and regularly clasp the stem.

Oxeye daisy is supported by a shallow, branched rhizomatous root system that produces adventitious roots (i.e., roots that develop from unusual places, such as stems). It is sometimes confused with two ornamental daisy species, scentless chamomile (also known as scentless false mayweed) and Shasta daisy. Shasta daisy can be distinguished from oxeye daisy because it grows 6 to 12 inches taller and it has larger flowers. Scentless chamomile differs in its root structure. As an annual, scentless chamomile roots are smaller than oxeye daisy's roots and its leaves are very finely divided.

Growth Habits

Oxeye daisy reproduces primarily through seed production. Each flower has the potential to produce up to 250 seeds, making total seed production per plant average 1300-1400 seeds per smaller plant and up to 26,000 seeds on large, healthy plants. New oxeye daisy stems can also arise from rhizome buds, offering the plant an additional means of propagation. Seed germination occurs primarily in the spring

but can continue throughout the growing season. Flowering occurs from June through August, with seeds reaching maturity beginning in August.

Management

Prevention of invasive weed establishment is always the most economical approach to management. Oxeye daisy is sometimes included in wildflower mixes, so be sure to read the package prior to planting wildflower mixes to prevent establishment and spread of oxeye daisy and all other noxious weeds.

Oxeye daisy seed remains viable in soil for an extended period of time, requiring long-term management of infestations. One study documented that while a majority of seeds germinate within the first six years of production, they have the ability to remain viable in the soil for up to 39 years.

Mechanical control of oxeye daisy can be done with hand pulling, mowing, and tillage. It is important, however, that these methods be used prior to seed formation of oxeye daisy to prevent seed spread. Hand pulling in conjunction with digging roots can be effective for small populations, however, it is important to ensure removal of root fragments, as sprouting can occur from root buds to form new plants. In cropland, oxeye daisy can be effectively controlled by tilling the shallow roots of the plant. Care should be taken to clean tilling equipment before moving to different fields to avoid spread.

Mowing plants at bud formation to remove flowers and subsequent mowing throughout the growing season as more buds appears is effective at minimizing seed input into the soil. Mowing sometimes stimulates lateral branching of oxeye daisy. An integrated approach of mowing and herbicides can be effective for control.

There is no biological control agent approved for use on oxeye daisy, currently. Sheep, goats, and horses will graze oxeye daisy but cattle avoid grazing it due to its bitter taste. Sheep and goats are more likely than horses to graze it effectively. Grazing should be applied strategically with high densities of animals within an infestation prior to flowering. The infested area should only be grazed until 50% of the above ground biomass of desirable grasses is removed to avoid degradation of the desirable plant community. If animals graze an area after flowering, they should be confined for five days prior to moving them to weed-free areas to prevent new infestations.

Herbicides can be used to manage oxeye daisy on rangeland and pastures. Several herbicides have been labeled for use on rangelands and pastures. Montana research has shown that aminopyralid and metsulfuron provide the most effective control one year post-treatment, with picloram also providing good control. Table 1 provides a list of some herbicides labeled for use on oxeye daisy, as well as recommended rates and timing of application for management. ■

TABLE 1. Rangeland and pasture herbicides labeled for oxeye daisy management with rates and timings of application.

Herbicide Active Ingredient (Trade Names)	Rate of Application	Timing of Application
Metsulfuron methyl (Escort®, Cimarron®)	0.1-1.0 ounces per acre	Rosette to early flowering
Aminopyralid (Milestone®)	4 – 6 ounces per acre	Rosette to early flowering
Aminopyralid + 2,4-D (ForeFront® R&P)	1.5 – 2 pints per acre	Young, active growth
Picloram (Tordon® 22K)	1.5 – 2 pints per acre	Active growth prior to budding

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