



# Yellow starthistle

**Invasive plants such as yellow starthistle may degrade plant communities and reduce suitable habitat for livestock and wildlife. Prevention and early detection can help slow the spread of new invaders and maintain weed-free areas. Contact your Extension agent or county weed coordinator for more information.**

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## YELLOW STARTHISTLE IS NATIVE TO THE

Mediterranean region and was introduced to North America in the 1850s. Since then it has spread to millions of acres in California, Washington, Oregon, and Idaho, and it is considered a serious noxious weed in those states. This species has not established in Montana but has been spotted occasionally. It has been found, reported, and eradicated in 11 Montana counties since 1958 (Figure 1), but all plants were discovered and eradicated before they could establish a permanent population. There are no known populations of yellow starthistle in Montana at this time because Montanans have worked hard to identify and eradicate this weed before it establishes. Due to its limited distribution in Montana and its potentially severe impacts to agriculture, wildlife, and recreation, this plant is classified as a priority 1A noxious weed. That means it is a high priority plant to keep out of our state by continuing to focus on prevention, early detection, and eradication.

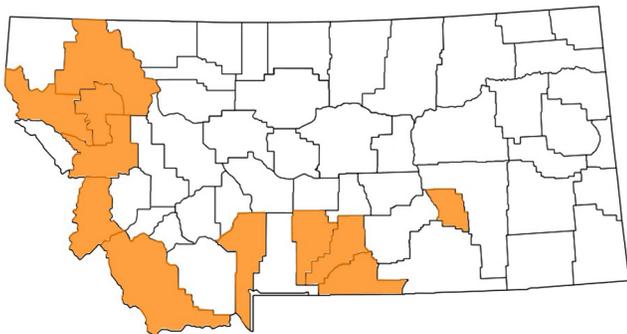
**Species name:** *Centaurea solstitialis*. Family: Asteraceae

**Identification:** Yellow starthistle is fairly easy to recognize during flowering because of its bright yellow flowers and sharp spines radiating from the flowering heads (Figure 2). Another unique characteristic is its “winged” stem, meaning that leaves run up and down the length of the stem (Figure 3). Mature plants are usually 2-3 feet tall but can be up to 5 feet. Stems and leaves of yellow starthistle are covered with small hairs that give the plant a grayish appearance. Though mature plants are distinctive, yellow starthistle at the

rosette stage is more difficult to identify. Rosettes resemble dandelion or tall tumbleweed (*Sisymbrium altissimum*). If you think you have found a rosette, mark the location and watch it closely until it bolts.

**Habitat:** Yellow starthistle grows best in areas with hot, dry summers. In northern latitudes such as those in Montana, yellow starthistle most often occurs on south-facing slopes, where it can get the direct winter sunlight that helps winter annual plants thrive. Like most invasive weeds, first introductions occur primarily in disturbed sites like roadsides, ditches, waste areas, and pastures used to feed hay to livestock. This plant is often a contaminant in alfalfa and it has been found in newly seeded alfalfa fields in Montana. It establishes best on deep, fertile, loamy soil, but it will establish on a range of soil types from deep, sandy, well-drained soils to soils that are somewhat clayey.

**Biology and Spread:** Yellow starthistle can be a rapid colonizer in the right circumstances. It is a winter annual plant, meaning it usually initiates growth in the fall, but some seeds can start growth in the spring instead. All individual plants complete their life cycle within one growing season and depend entirely on seeds for reproduction. Rosettes form during early spring and plants bolt during late



**FIGURE 1.** Yellow starthistle has been found and eradicated in 11 Montana counties.



**FIGURE 2.** Yellow starthistle has yellow flowers with long spines. Photo by Stephen Ausmus, USDA Agricultural Research Service, Bugwood.org.



**FIGURE 3.** Yellow starthistle has an erect, branching, winged stem, and a rosette that resembles dandelion. Photo by Jane Mangold.

spring. Plants flower and produce seeds from early summer through fall. Yellow starthistle puts most of its energy into seed production and typically produces 700 to 10,000 seeds per plant. These seeds fall to the ground in late summer to early winter and contribute to the seed bank. When fall rains begin many, but not all, seeds germinate and the cycle is repeated. Seed longevity varies by soil type, but most seeds germinate or decay within two or three years. The potential for rapid seed bank development makes established populations of this plant difficult to control. It is important to locate populations when they are small to prevent formation of large seed banks. Seeds are spread in materials like mulch, hay and feed, crop and grass seed, top soil, and gravel; livestock; vehicles and equipment; and even personal gear like boots and clothing.

**Impact:** Impacts of yellow starthistle include decreased forage production for livestock and wildlife and decreased recreational opportunities, and it is also associated with a reduction in native plant diversity. Yellow starthistle spines deter grazing after plants begin producing flowers. In addition, the plant can cause neurologic disease in horses if they consume very high amounts. If it is the only food available to horses it can be fatal. In addition to forage production concerns, the sharp spines of yellow starthistle can penetrate human skin and patches can be too thick to walk through. It can have serious negative impacts on the use of recreational lands (Figure 4).

**What can you do?** Yellow starthistle is a priority 1A species on Montana's noxious weed list, meaning that prevention and early detection are top priorities for management. It is critical to learn to identify this species and to report suspected yellow starthistle plants and populations to Montana Department of Agriculture, Extension personnel, a county weed district, or the Schutter Diagnostic Lab. Prevent yellow starthistle invasion by limiting soil disturbance and using weed-

free mulch, hay, crop and grass seed, top soil, and gravel. Monitor sites for new weeds where suspect material was used. Encourage outdoor users and construction crews to clean equipment and gear. If yellow starthistle is confirmed, hand-pulling is an effective means of control and is recommended if populations are small. There are many herbicides that are effective for control of yellow starthistle, including those with the active ingredients clopyralid, aminopyralid, and picloram.

### Additional Resources

*Yellow Starthistle: Identification, Biology and Integrated Management.* <http://msuextension.org/publications/AgandNaturalResources/MT201101AG.pdf>

*Yellow Starthistle Management Guide.* <http://www.cal-ipc.org/docs/ip/management/pdf/YSTMgmtweb.pdf>

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**FIGURE 4.** Dense populations of yellow starthistle can impede grazing and recreational opportunities due to the spiny nature of the plant. Photo by Steve Dewey, Utah State University, Bugwood.org.

If you suspect that you may have found yellow starthistle, contact the Montana Department of Agriculture, your Extension agent or county weed coordinator, or the Montana State University Schutter Diagnostic Lab, <http://diagnostics.montana.edu/>.



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