



## Dyer's Woad

Invasive plants such as dyer's woad may degrade plant communities and reduce suitable habitat for livestock and wildlife. This plant has limited distribution in Montana, and early detection and eradication are management priorities. Contact your local Extension agent or weed coordinator for more information.

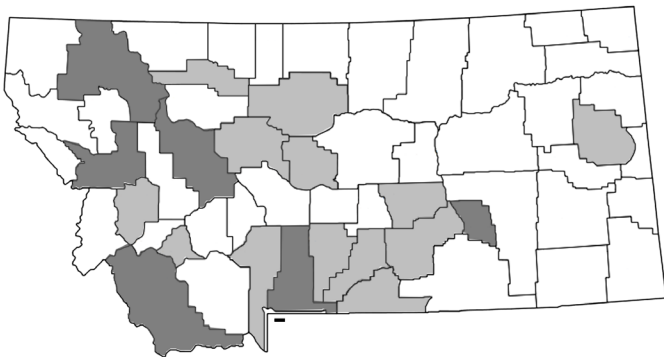
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### DYER'S WOAD WAS FIRST FOUND IN MONTANA

in 1934 and has since been found in 19 Montana counties. However, due to a focused early detection and rapid response strategy, dyer's woad has been eradicated from 13 counties and populations of the plant are now found in only Beaverhead, Flathead, Missoula, Park, Lewis & Clark, and Treasure Counties (Figure 1). This plant is listed as a Priority 1A species on Montana's noxious weed list, meaning management priorities are early detection and eradication. Dyer's woad management in Montana is coordinated by the Montana Dyer's Woad Cooperative Project, a collection of county weed districts, state and federal agencies, private landowners, volunteers, and non-governmental organizations, that leads detection and eradication efforts, as well as setting statewide goals for management. To help further the goals of this project, it is crucial to be aware of this plant and its identification, and to contact local weed management entities if suspect plants are found.

**Species name:** *Isatis tinctoria* **Family:** Brassicaceae

**Identification:** Dyer's woad plants are usually between one and four feet tall with a long, sturdy taproot up to five feet deep. They have small, yellow flowers with four petals, and flowers are in a flat-topped arrangement (Figure 2). Leaves are bluish-green with a cream-colored midvein. Young rosette leaves have short, soft hairs while stem leaves are hairless and rubbery with bases that clasp the stem (Figure 3, page 2).



**FIGURE 1.** Dyer's woad has been reported in 19 Montana counties, but is now present in only six counties due to early detection and eradication efforts. Dark grey indicates the species is currently present in the county, and light grey indicates dyer's woad was reported in that county and has been eradicated.

The leaves also have a cabbage-like texture. The stem of the plant is often reddish-purple. Seed pods hang in a unique pendulum-like manner. Each seed pod contains one seed and is ½ - ¾ inch long with a teardrop shape. Seed pods start green and turn dark purple to black as they mature (Figure 4, page 2).

**Distribution and Habitat:** The native range of dyer's woad is eastern Europe and western Asia. In the United States this species is problematic in states adjacent to Montana and it is listed as a noxious weed in Idaho, Oregon, Utah, Washington, and Wyoming. Dyer's woad establishes best on rocky, dry soils in disturbed habitats such as roadsides, fence lines, pastures, and railroad rights-of-way. It is also somewhat shade tolerant, meaning it can persist in the understory of forests and other vegetation, though it is usually found in open areas.

**Biology, Spread and Impacts:** Dyer's woad usually grows as a biennial, meaning it forms a rosette in the first year and flowers, sets seed, and dies the second year. However, it sometimes displays an annual or perennial life history. This species reproduces only by seeds which are produced from early summer through fall. Each dyer's woad plant



**FIGURE 2.** Dyer's woad is from one to four feet tall with small yellow flowers in a flat-topped arrangement. Photo by Noelle Orloff.



**FIGURE 3.** Dyer's woad leaves have a distinctive cream-colored midvein. Stem leaves are hairless and rubbery with clasping bases. Photo by Amber Burch.

may produce between 350 and 500 seeds. Most seeds fall close to the parent plant, but they can travel longer distances when moved by humans, water, or wildlife. For example, in Montana there is an association between dyer's woad populations and roads, railroads, and other human travel corridors. Dyer's woad can be problematic in rangeland, pastures, and cropland, where it reduces the productivity of these systems. This species decreases grazing capacity of rangelands and wildlands for both livestock and wildlife.

**Management:** Dyer's woad management in Montana is currently coordinated by the Montana Dyer's Woad Cooperative Project, and management priorities are education, prevention, and eradication. Known populations of the plant are monitored by cooperators and detector dogs, and each year plants are hand-pulled or treated with herbicides. Preventing seed production is critical for eradication efforts as dyer's woad only reproduces by seed. To prevent new infestations, make sure vehicles, equipment, and outdoor gear are clean, and use weed seed-free forage for livestock. Learn to identify this



**FIGURE 4.** Dyer's woad has yellow flowers with four petals and pendulum-like, teardrop-shaped seed pods that turn black at maturity. Photo by Amber Burch.

species and report new populations to your local Extension agent or weed district. If you find a new population that is more than half a mile from a known population, there is a \$50 bounty available. Small patches of dyer's woad can be controlled by handpulling or cutting below the root crown with a hoe or shovel. If plants have seed pods, bag plants securely in garbage bags and dispose of them in the garbage.

### Additional resources

[http://www.msuinvasiveplants.org/documents/mt\\_noxious\\_weeds/dyers\\_woad.pdf](http://www.msuinvasiveplants.org/documents/mt_noxious_weeds/dyers_woad.pdf)

### Acknowledgements

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**If you are suspicious that you may have found dyer's woad, contact Amber Burch of the Montana Dyer's Woad Task Force at 406-925-1346.**

**You can also contact your local Extension agent or weed coordinator, or the Montana State University Extension Schutter Diagnostic Lab, <http://diagnostics.montana.edu/>.**



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