



Brendon Panke and Mark Renz

Invasive plants can thrive and aggressively spread beyond their natural range, disrupting ecosystems. The *Management of Invasive Plants in Wisconsin* series explains how to identify invasive plants and provides common management options. Management methods recommend specific timings for treatment, as well as expected effectiveness. For more information, go to: fyi.uwex.edu/weedsci/category/invasive-plants-of-wisconsin.

A3924-04

Canada thistle

(*Cirsium arvense*)

Canada thistle is a 2–6' herbaceous, creeping perennial with slender, upright, grooved stems that branch only at the top. Stems are slightly hairy when young and progressively hairier as the plant matures.

Legal classification in Wisconsin:

Restricted

Leaves: Alternate, attached directly to stem (sessile), simple, and oblong.

Leaves are irregularly lobed and tapered with spiny, toothed margins. Amount of spininess and lobing varies between plants.

Flowers: Midsummer to early fall.

Numerous, small (0.5–0.75" wide), purple to pink (rarely white) flower heads. Plants are either male or female (dioecious).

Fruits and seeds: Seeds are small, light brown, tapered, and loosely attached to a feathery tuft of hair. Seeds seldom remain attached to these hairs.

Roots: Reproduces clonally by creeping roots that grow laterally in soil, up to 10–12' per year. Also produces taproots that may grow more than 6' deep. Readily regenerates from root fragments.

Similar species: Canada thistle is distinguished from all other thistles by creeping lateral roots, dense clonal growth, and small dioecious flower heads.

Ecological threat:

- Invades open natural areas such as prairies, savannas, glades, dunes, streambanks, sedge meadows, and forest openings. It also invades croplands, pastures, forest openings, lawns and gardens, roadsides, ditches, and waste sites.
- Canada thistle is prevalent in grasslands, such as pastures and Conservation Reserve Program (CRP) land.



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A3924-30

Leafy spurge

(*Euphorbia esula*)

Learly spurge is an herbaceous, creeping perennial, 6–36" tall. Stems are smooth and often grow in clusters from an extensive, deep root system. A white, milky latex is present in all parts of the plant.

Legal classification in Wisconsin:
Restricted

Leaves: Leaves are linear, alternate, and have slightly wavy, smooth margins with a bluish green color. Leaves are 0.25–0.5" wide and 1–4" long.

Flowers: Late spring to summer. The flowers are small, green, and are borne in clustered yellow-green bracts. These bracts develop in late spring, and the flowers develop within the bracts by early summer.

Fruits and seeds: Seeds are 0.08" long, oblong, gray to purple, and are borne in pods which contain three seeds. When mature, seed capsules shatter, scattering seeds.

Roots: Brown, woody roots with pinkish buds. Plants have a taproot, which may extend to the water table, and lateral roots that can extend to 15' beyond the main taproot.

Similar species: A number of native species also have white, milky sap (e.g., milkweed species and flowering spurge), but milkweed species have a distinct long seedpod, and flowering spurge is distinguished by white flowers. Cypress spurge (*Euphorbia cyparissias*) is another non-native species that is often confused with leafy spurge. Cypress spurge has a similar flower, but is a shorter plant (6–15" tall) with needle-like leaves.

Ecological threat:

- Invades grasslands, pastures, prairies, and old fields.
- Can drastically reduce (50–75%) productivity of grasslands.

Non-chemical control Removal

Effectiveness in season: 50–70%
Season after treatment: < 50%

Pulling is only appropriate for suppression of very small populations or populations in their first year of growth. Older populations do not respond well to pulling because it is difficult to remove the entire root. If the root is not removed, it will resprout.

Cultivation

Effectiveness in season: 50–70%
Season after treatment: < 50%

Intensive cultivation can eradicate populations. Cultivate 4" deep 2–4 weeks after leafy spurge emerges in the spring; for 1–2 years, continue to cultivate at three-week intervals until the ground freezes. Success has also been documented if leafy spurge is cultivated twice each fall for three years. Cultivation can spread roots into previously uninfested areas.





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A3924-19

Field bindweed

(*Convolvulus arvensis*)

Field bindweed is a perennial vine that can exceed 6' in length and form dense mats.

Legal classification in Wisconsin: Not regulated

Leaves: Leaves have square cotyledons, are dark green, have prominent veins, and are indented at the tip. True leaves are triangular, alternate, and both with and without hairs. Leaf bases have outward pointed lobes. Typically 1–2" long.

Flowers: July through August. Tubular, white to pink, and 0.75" in diameter. Found alone or in groups of 2–4 at the end of long stalks arising where the leaf attaches to the stem (leaf axil). Bracts are located on stalks 1" below flower.

Fruits and seeds: Oval to round capsule. Two seeds per capsule that are dark brownish gray and about 0.125" long.

Roots: Perennial root system. Initial taproot sends out lateral roots, which produce additional vertical roots. Buds along horizontal roots give rise to new plants.

Similar species: Hedge bindweed (*Calystegia sepium*) is distinguished by square leaf bases and large bracts beneath the flowers. Wild buckwheat (*Polygonum convolvulus*) is distinguished by inward-pointing leaf bases and a sheath at the base of each node (ocrea).

Ecological threat:

- Invades nurseries, agronomic crops, and fencerows. Not a threat in natural areas unless they are disturbed.

Non-chemical control Removal

Effectiveness in season: 90–100%
Season after treatment: < 50%

Pulling and digging are effective techniques for individual plant control if all perennial roots are removed from the soil. This is difficult unless plants are establishing or soil is amenable to pulling. These techniques should be implemented before plants flower.

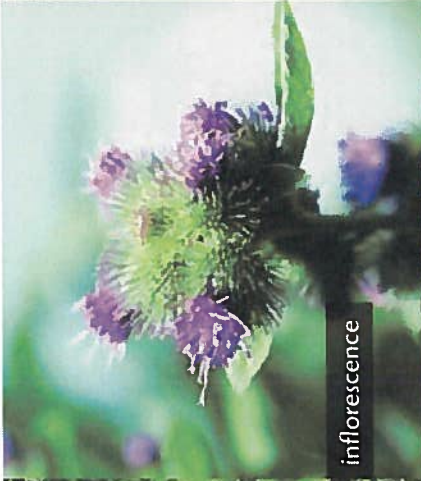
Cultivation

Effectiveness in season: 90–100%
Season after treatment: < 50%

Intensive cultivation controls newly emerged seedlings and may reduce established populations, especially if integrated with other control methods. Timely cultivations every 1–2 weeks, beginning when the plant is in the bud stage, but before any flowers open, will eradicate plants if repeated for several years. Cultivation, however can spread roots into previously uninfested areas. When pairing cultivation with herbicide treatments, delay cultivation for at least seven days after herbicide application.

BURDOCK

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inflorescence



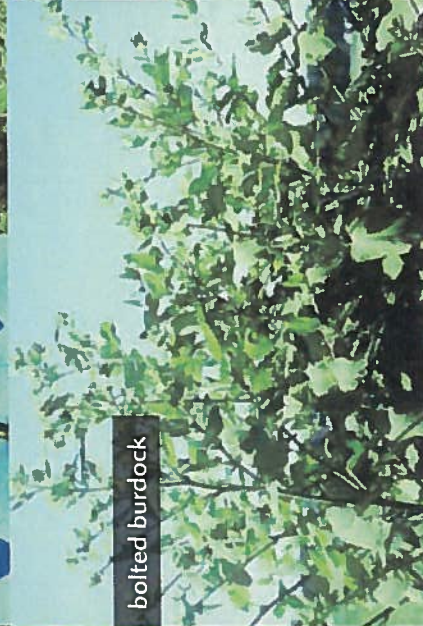
rosette leaves



underside of rosette leaf



seedling



bolted burdock



2-year-old (dead) and 1-yr-old plant (rosette)



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A3924-07

Garlic mustard

(*Alliaria petiolata*)

Garlic mustard is an herbaceous biennial with stems 1–4' tall as flowering plant. First-year plants form a basal rosette that remains green through the winter. Second-year plants produce one to several flowering stems.

Legal classification in Wisconsin:

Restricted

Leaves: First-year plants are 2–4" tall rosettes with 3–4 heart-shaped leaves, with a toothed margin. Second-year plants produce a flowering stalk with alternate, triangular leaves that are 2–3" wide. Foliage emits a distinct onion or garlic smell when crushed.

Flowers: Late spring to early summer of second year, producing numerous small, white, four-petaled flowers.

Fruits and seeds: Fruits are slender capsules (siliques) 1–2.5" long and contain a single row of oblong black seeds with a distinct ridge.

Roots: Taproot that often has a distinctive S-shaped curve near the top of the root.

Similar species: Creeping charlie (*Glechoma hederacea*) is often confused with garlic mustard, but its prostrate growth with stolons allows for differentiation from garlic mustard.

Ecological threat:

- Invades upland forests, floodplain forests, savannas, yards, and roadsides. It is typically found in shaded areas, but can be found in full sun. Invasion of forests usually begins along the wood's edge, and progresses via streams, animal trails, and disturbed areas.

- Exudes antifungal chemicals into the soil that disrupt associations between mycorrhizal fungi and native plants, suppressing native plant growth.

Non-chemical control Removal

Effectiveness in season: 90–100%
Season after treatment: < 50%

Pulling or cutting the root from the stem before flowering are effective individual plant control techniques. Pull if soil conditions allow for the removal of the taproot. Pulling second-year plants is easier than pulling first-year rosettes. Alternately, cut the entire taproot with a sharp shovel or spade 1–2" below the surface. If flowers are present, bag material and dispose of it in a landfill to avoid potential for seed spread.





Wild parsnip

(*Pastinaca sativa*)

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Wild parsnip is an herbaceous plant that establishes as a rosette with upright leaves persisting for at least one year. Plants flower in subsequent years (typically 2nd or 3rd year), but after plants flower, they die (monocarpic perennial). Flowering stems are stout, hollow, grooved, and up to 5' tall.

Caution: Sap contact with skin in the presence of sunlight can cause a rash that often leads to blisters and discoloration of the skin (phytophotodermatitis). Wear gloves, long sleeves, and pants when handling.

Legal classification in Wisconsin:

Restricted. The garden parsnip vegetable is the same species as the invasive form. The garden form is not restricted.

Leaves: Rosette leaves are pinnately compound with 5–15 broad, ovate to oblong leaflets. Stem leaves are alternate, with 2–5 pairs of opposite, sharply toothed leaflets. Petioles wrap around the stem. Upper stem leaves are reduced to narrow bracts.

Flowers: Late spring to midsummer. Numerous, small, five-petaled, yellow flowers in flat umbels 2–6" wide at the tops of stems and branches.

Fruits and seeds: Seeds are approximately 0.25" in diameter, flat, round, yellowish, and slightly ribbed.

Roots: Deep taproot

Similar species: Wild parsnip is

distinguished from other species in the parsley family by its yellow flowers and pinnately compound leaves, which are divided once into more than five leaflets. Golden alexander (*Zizia aurea*; native) can be distinguished from parsnip by its earlier flowering time, shorter stature, less open appearance, and 2–3 pairs of leaflets. Prairie parsley (*Polytaenia nuttallii*; native) can be distinguished from parsnip by its oblong leaflets with few teeth and rounded umbels.

Ecological threat:

- Invades prairies, oak savannas, fens, old fields, pastures, and roadsides.
- Thrives in disturbed habitats and along edges of many habitat types.
- Can invade undisturbed grasslands.
- Seeds are readily transported by water.

