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# Invasive Plants of Wisconsin

## Poison Hemlock (*Conium maculatum*)

Authors: Brendon Panke and Mark Renz[1]

Biennial, primarily germinates in the spring and fall, but seedlings can emerge throughout the growing season. Plants flower in 2nd year. Flowering stems are stout, hairless, hollow, ridged, up to 10' tall and branch extensively. Lower stem and branches have distinctive reddish-purple markings.

**CAUTION:** All parts of the plant are toxic especially the roots and seeds. Environmental factors can affect the concentration of poisonous alkaloids. Do not ingest any part of this plant.

**Legal Classification in WI:** Prohibited/Restricted

**Leaves:** Stem leaves are 8-16" long, triangular in outline, alternate, pinnately compound 3-4 times, shiny, hairless, and parsley like. The leaves, when crushed, emit a musty odor reminiscent of mice. Rosette leaves are similar to leaves found on the stem.

**Flowers:** Late spring to midsummer. White, arranged in broad umbels 1.5-2.5" across. Umbels are found at the end of stems and comprised of 12-16 smaller flowers.

**Fruits & seeds:** Fruit composed of two seeds. Seeds are approximately 0.11-0.16" in length, ridged, and flattened on the sides.

**Roots:** White taproot.

**Similar species:** Queen Anne's lace (*Daucus carota*) has no reddish-purple markings on the stem, hairy leaves and larger, less rounded umbels. It is also much shorter than hemlock (1-3' tall). Cow parsnip (*Heracleum lanatum*) has palmately compound leaves and lacks reddish-purple coloring on its stem.

**Ecological threat:**

- Invades disturbed areas, damp areas, ditches, roadsides, railroads, fence-rows, and timber lots.
- Seeds are readily transported by water.
- Highly toxic to animals if ingested.

[1] Associate research specialist and assistant professor of agronomy, College of Agricultural and Life Sciences, University of Wisconsin-Madison, and Cooperative Extension, University of Wisconsin-Extension.

## CONTROL METHODS:

### Non-Chemical control

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| Removal – Pull if soil conditions allow for the removal of the entire taproot. If flowers are present, bag material and dispose of in a landfill to avoid potential for seed spread. |
| Mowing – Mowing just after the emergence of flower heads, but before seeds are formed can be effective. Monitor populations and repeat mowing if concerned about seed production from re-sprouting plants. Care must be taken not to mow when mature seeds are present as this can spread seed to other areas. Cut the entire tap root with a sharp shovel or spade 1-2" below the surface. |
| Prescribed burning – Spring burns can kill germinating seedlings and can suppress above ground growth of established plant depending on fire intensity. After the fire, established plants will quickly re-sprout and reinvade areas; this management method is not recommended unless integrated with other techniques. Fire may benefit other species well adapted to this management (e.g. prairie grasses), resulting in improved competition with hemlock. A hand-held propane torch can be effective for treating seedlings. |
| Biocontrol – The hemlock moth (*Agonopterix alstroemeriana*) is a species specific insect that feeds on hemlock foliage, buds, immature seeds, stem tissues and flowers in the spring and early summer. The moth is prevalent in the Northeastern and Northwestern United States and is spreading towards the central United States. While moths are commercially available, control is highly variable. To release bio-control agents in Wisconsin contact the Wisconsin Department of Agriculture, Transportation, and Consumer Protection for required permit. |
| Manipulation of the environment – Establishment and maintenance of vigorous species may effectively compete with established populations as well as prevent the establishment of hemlock at a site. |

### Chemical control[2]

| Foliar – Apply directly to individual plants or broadcast across an infested area. Broadcasted foliar applications are typically the most cost effective treatment in dense infestations. Use lower rates on smaller plants and less dense populations and higher rates on larger plants and denser populations. | |
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| Active Ingredient (A.I.):<br>2,4-D<br><br>Common product name:<br>Many | Rate – *broadcast*: 1.0 lb a.e./A<br>*spot*: 0.5 - 0.8% (0.02 - 0.03 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury. |

[2] Herbicide information is based on label rates and reports by researchers and land managers. Products known to provide effective control or in common use are included. Those that do not provide sufficient control or lack information for effectiveness on target species have been omitted. References to pesticide products in this publication are for your convenience and not an endorsement of one product over a similar product. You are responsible for using pesticides in accordance with the label directions. *Read the label before any application.*

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| Active Ingredient (A.I.):<br>chlorsulfuron<br><br>Common product name:<br>Telar | Rate – *broadcast*: 1.5 – 2.5 oz/A (1.4 – 2.0 oz a.i./A)<br>*spot*: Equivalent to broadcast rates.<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution - Chlorsulfuron can remain active in the soil for months depending on application rate. Has potential to leach through soil into ground water under certain conditions. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination. |
| Active Ingredient (A.I.):<br>dicamba + 2,4-D<br><br>Common product name:<br>Outlaw | Rate – *broadcast*: 16 - 28 fl oz/A<br>(dicamba: 0.1 - 0.2 lb a.e./A + 2,4-D: 0.2 - 0.3 lb a.e./A)<br>*spot*: 0.8% (dicamba: 0.01 lb a.e./gal + 2,4-D: 0.01 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Rates of dicamba > 16oz/A (0.5 lb a.e./A) may cause stunting and discoloration of sensitive grasses, such as smooth brome. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury. |
| Active Ingredient (A.I.):<br>diuron<br><br>Common product name:<br>Diuron 80 DF | Rate – *broadcast*: 2 – 6 lb/A (1.6 – 4.8 lb a.i./A)<br>*spot*: Equivalent to broadcast rates.<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Applications can result in bare ground. In areas of dense vegetation and high rainfall there is a limit of 15 lb/A (12 lb a.i./A) in areas of lower rainfall and sparse vegetation the limit is 10 lb/A (8 lb a.i./A). Do not apply more than 2 times per year. |
| Active Ingredient (A.I.):<br>glyphosate<br><br>Common product name:<br>Roundup | Rate – *broadcast*: 1.0 - 2.25 lb a.e./A<br>*spot*: 1-2% (0.05 - 0.1 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Applications can result in bare ground as glyphosate is not selective. Use aquatically labeled product if potential exists for solution to contact open waters. |
| Active Ingredient (A.I.):<br>imazapic<br><br>Common product name:<br>Plateau | Rate – *broadcast*: 8 - 10 fl oz/A (0.13 - 0.16 lb a.e./A)<br>*spot*: 0.50 - 1.5% (0.01 - 0.03 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Has potential to leach through soil into ground water under certain conditions. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination. |

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| Active Ingredient (A.I.):<br>imazapic + glyphosate<br><br>Common product name:<br>Journey | Rate – *broadcast*: 17 - 32 fl oz/A<br>(imazapic: 0.1 - 0.2 lb a.e./A + glyphosate: 0.2 - 0.4 lb a.e./A)<br>*spot*: 1.2-3.6%<br>(imazapic: 0.01 - 0.03 lb a.e./gal + glyphosate: 0.02 - 0.05 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution - Has potential to leach through soil into ground water under certain conditions. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination. Applications can result in bare ground as glyphosate is not selective. |
| Active Ingredient (A.I.):<br>imazapyr<br><br>Common product name:<br>Arsenal | Rate – *broadcast*: 32 – 48 fl oz/A (0.5 – 0.75 lb a.e./A)<br>*spot*: 0.5 – 2.0% (0.02 - 0.04 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution - Applications can result in bare ground as imazapyr is not selective and can remain active in the soil for several months to over a year depending on application rate. Use aquatically labeled product if potential exists for solution to contact open waters. |
| Active Ingredient (A.I.):<br>metsulfuron<br><br>Common product name:<br>Escort | Rate – *broadcast*: 1.0 - 2.0 oz/A (0.6 – 1.2 oz a.i./A)<br>*spot*: 1.0 oz/100gal (0.3 - 1.2 oz a.i./100 gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution - Metsulfuron can remain active in the soil for months depending on application rate. Has potential to leach through soil into ground water under certain conditions. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground-water contamination. |
| Active Ingredient (A.I.):<br>picloram + 2,4-D<br><br>Common product name:<br>Grazon<br><br>Some products containing picloram are restricted use in Wisconsin. | Rate – *broadcast*: 32 - 48 fl oz/A<br>(picloram: 0.14 – 0.2 lb a.e./A + 2,4-D: 0.5 – 0.75 lb a.e./A)<br>*spot*: Equivalent to broadcast rates.<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination. Persists in soil for up to one year, especially active on legumes. Do not compost treated plants as herbicide can persist through composting process. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury. |

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| Active Ingredient (A.I.):<br>triclopyr<br><br>Common product name:<br>Tahoe 4 | Rate – *broadcast*: 32 fl oz/A (1.0 lb a.e./A)<br>*spot*: 1 - 2% (0.1 - 0.2 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Can volatize, avoid application during high temperatures and low humidity, especially when the application contacts impervious surfaces. Overspray or drift to desirable plants should be avoided as even minute quantities of the spray may cause severe injury. Use aquatically labeled product if potential exists for solution to contact open waters. |
| Active Ingredient (A.I.):<br>triclopyr + 2,4-D<br><br>Common product name:<br>Crossbow | Rate – *broadcast*: 64 - 128 fl oz/A<br>(triclopyr: 0.5 - 1.0 lb a.e./A + 2,4-D: 1.0 – 2.0 lb a.e./A)<br>*spot*: 1.0 - 1.5%<br>(triclopyr: 0.01 - 0.015 lb a.e./gal + 2,4-D: 0.02 - 0.03 lb a.e./gal)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Can volatize, avoid application during high temperatures and low humidity, especially when the application contacts impervious surfaces. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury. |
| Active Ingredient (A.I.):<br>triclopyr + clopyralid<br><br>Common product name:<br>Redeem R+P | Rate – *broadcast*: 29 - 37 fl oz/A<br>(triclopyr: 0.5 – 0.7 lb a.e./A + clopyralid: 0.17 – 0.22 lb a.e./A)<br>*spot*: 0.5 – 0.8%<br>(triclopyr: 0.01 – 0.02 lb a.e./A + clopyralid: 0.004 – 0.006 lb a.e./A)<br><br>Timing – Apply to rosettes in fall or spring, bolting, or flowering plants.<br><br>Caution – Can volatize, avoid application during high temperatures and low humidity, especially when the application contacts impervious surfaces. Do not apply where soils have a rapid to very rapid permeability (loamy sand to sand) and the water table is shallow, or to soils containing sinkholes, severely fractured surfaces, and soils which would allow direct introduction to an aquifer. Persists in soil for up to one year, especially active on legumes. Do not compost treated plants as herbicide can persist through composting process. Overspray or drift to desirable plants should be avoided, as even minute quantities of the spray may cause severe injury. |

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