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Invasive Species Council of BC

FACTSHEET
APRIL 2019

Wild Parsnip *Pastinaca sativa*

About Wild Parsnip

Wild Parsnip is a biennial or short-lived monocarpic perennial that is a member of the carrot/parsley family. It has a thick, mostly unbranched, wiry and tough taproot that is white to yellowish brown. The taproot can grow as deep as 1.5 m; this enables plants to reach groundwater and survive for long periods during unfavourable growing conditions. Adventitious roots on the root axes contribute to the production of fine roots, which enhance the ability of enlarged, partly woody roots to absorb water and nutrients

It is native to Europe and was introduced to Canada as a root vegetable that escaped cultivation during European expansion to North America during the 17th and 18th century. It has since naturalized as a less palatable ''wild'' form.

Wild parsnip roots are edible, but the sap of the plant contains toxins. The toxins within the sap are furocoumarins and can cause phytophotodermatitis.

Distribution

This species has spread throughout most of North America. In Canada, wild parsnip occurs in all provinces and territories except Nunavut and has become localized in Newfoundland and Labrador, Northwest Territories, Prince Edward Island, and the Yukon Territories. Wild Parsnip has ravaged across BC.

Identification

Flowers: Its flower head is yellow, and very rarely, white. The flower head is shaped like a flat, curved surface & can be 10 -20cm across. Flowers are located on terminal and lateral stalks.

Stems: Flowering stem that is 2 to 5 centimeters thick and reaches 40 cm to 200 cm tall; angled (grooved) and covered in sparse hairs; hollow (except at the nodes); branches at the upper nodes.

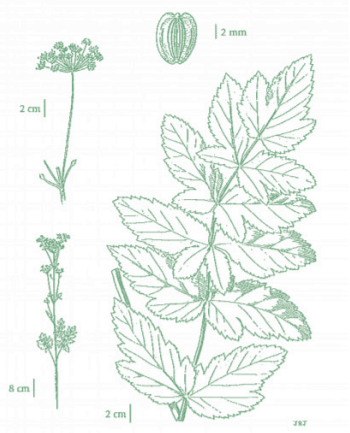
Leaves: Alternate, once or twice pinnately compound, to about 40 cm long, smooth or hairy; reduce in size and dissection as they travel up the stem. Stem leaves are relatively broad, coarsely toothed, usually single-lobed leaflets that are 510 cm long and arranged in opposite pairs. Upper stem leaves progressively reduce in size eventually appearing as narrow bracts.

Fruits: oval, 4-8 mm long, strongly flattened crosswise, glabrous. They range from straw-colored to light brown with 4 conspicuous dark oil tubes (vittae) on the outer surface and 2 4 on the inner surface. Seeds mature in mid-summer, but generally remain on the stems until late summer or autumn unless they are disturbed.

Similar Species: **Wild Parsnip could potentially be mistaken for similar plants in the parsley family.** However, it is distinguishable by its pinnately compound lower stem leaves with coarsely lobed and toothed leaflets; yellow flowers; and distinct parsnip odour.

In Canada, where few species within the family have yellow flowers, a rare white flowered morph of wild parsnip may be confused with other species. The larger dorsally flattened seeds distinguish Wild parsnip from similar species, including water parsnip, spotted water hemlock and poison hemlock (*Conium maculatum L.*), all of which have white flowers.

Although Wild parsnip seeds are somewhat similar to those of Heracleum and Angelica species, these latter plants have white flowers and broader leaves with greatly expanded petiole sheaths.



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Pinnately compound lower stem system

Lobed and toothed leaflets

Yellow flowers

Distinct parsnip odour

Ecological Characteristics

Habitat: Parsnip thrives in disturbed areas such as railway embankments, roadsides, trails, riverbanks, ditches, beaches, sloughs, forest clearings, abandoned mine sites, quarries, and other waste areas; and, more rarely, in pastures, cultivated fields, gardens, meadows, swampy lowlands, and grassy areas. This plant prefers dry soil, and is intolerant of the shade.

Reproduction: Reproduces primarily by seed. Normally plants need two seasons of growth before they can gather enough energy to support flowering. However, Wild Parsnip may remain in a vegetative state for four years before entering the reproductive stage.

Dispersal: In mid-summer the Wild Parsnip seeds mature, however unless they are disturbed (i.e. by mowing) they won't disperse until late summer or autumn. In the fall, seeds are dispersed by wind and water. Plants can also be dispersed through contaminated hay and wildlife/ livestock that consume the seeds.

Impacts

Economic: Wild parsnip can affect agriculture as it reduces the quality of agricultural forage crops such as hay, oats, and alfalfa, affecting sales. Chemical compounds in the plant are known to reduce weight gain and fertility in livestock that eat it. All of these affect the sales of forage and livestock. In addition, there is an associated cost to manage infestation.

Ecological: The plant can form dense stands that outcompete native plants, reducing biodiversity.

Social: Wild Parsnip has a negative impact on society as a factor of health problems and potential poisoning. The stem, leaves, and flowers contain chemicals that can increase skin sensitivity to sunlight and cause severe dermatitis.

Best Management Practices

When managing Wild parsnip, ensure that you wear protective clothing, including waterproof gloves, long-sleeved shirts, pants and eye protection to reduce the exposure of skin to the plants sap. If sap contacts your skin, wash the affected area immediately with soap and cold water, & protect it from sunlight for at least 48 hours post-exposure, even if you don't show any symptoms. Severe cases may require hospitalization.

Prevention

- Do not purchase, trade, or grow Wild parsnip. Instead, grow regional native plants as they are naturally adapted to the local environment and are non-invasive. For non-invasive alternatives, see ISCBC's Grow Me Instead booklet (bcinvasives.ca).
- Maintain or establish healthy plant communities that are resistant to invasion by invasive plants.
- Avoid unloading, parking, or storing equipment and vehicles in infested areas.
- Remove plants, plant parts, and seeds from personal gear, clothing, pets, vehicles, and equipment before leaving the infested area.
- Wash vehicles, including tires and undercarriage, and equipment at designated cleaning sites before leaving infested areas.
- Ensure soil, gravel, and other fill material are not contaminated with Wild parsnip material before moving. If possible, leave all contaminated materials on site during construction activities and follow up with a treatment program; OR carefully transfer contaminated material to a suitable location where it can be treated

Mechanical Control

- **Digging/ pulling -** effective for small infestation (fewer than 100 plants). Remove as much of the taproot as you can using shovel or spade. Digging is most effective in the spring when the soil is moist and the taproot is more easily removed. Follow-up digging will be required every few weeks to deal with re-growth.
- **Mowing -** effective method for reducing seed production in small infestations. Mowing should be carried out when the primary umbel begins flowering (May to June) and before the seeds set in the late summer or early fall. Cut plants will likely re-sprout after mowing and mowing should be repeated (up to three times) to ensure no seeds are produced from regrowth.
- **Cutting (flower heads) -** is an effective method for reducing seed production in small infestations however, there is also an increased risk of exposure to the plants toxic sap. Removing flower heads must be repeated over the growing season as new umbels can form on lower branches. All removed flower heads should be placed in plastic bags and disposed of (see disposal section) as flowers can still go to seed even after removal from the plant.


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Biological Control

There are no biocontrol agents available for Wild parsnip in British Columbia.

Chemical Control

Herbicide recommendations and use must first consider site characteristics and be prescribed based on site goals and objectives. Herbicide labels and other sources of information must be reviewed before selecting and applying herbicides.

» Effective herbicides include 2,4-D amine, picloram, glyphosate, aminopryalid or diflufenzopry/dicamba.

» Foliar herbicide applications are most effective in spring on actively growing plants, followed with a subsequent summer application for late sprouts.

» Stem injections or "cut stem and inject" methods are effective after heavy sap flow in the spring but are currently not a registered application technique.

Application of pesticides on Crown land must be carried out following a confirmed Pest Management Plan (Integrated Pest Management Act) and under the supervision of a certified pesticide applicator. https://www2.gov.bc.ca/gov/content/environment/pesticides-pest-management

Disposal

Note: Disposal of invasive plants varies by regions within BC. If you would like specific information on how to dispose of your invasive plants, please contact your local government/ regional district.

» Chemically treated material can be left on site to compost.

» Bag all manually removed plant material and be careful to avoid dispersing the seeds.

» Dispose of flower heads and plants at a transfer station for disposal. This will ensure the plant matter is properly transported and disposed of at the landfill. All cut plant parts should undergo deep burial (at least 5 m deep) at a landfill.

» Do not compost or put in yard waste.


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References/Links

» Cabi Invasive Species Compendium; https://www.cabi.org/isc/search/?q=Wild+parsnip

» Cabi Wild Parsnip Factsheet: https://www.cabi.org/isc/datasheet/39028

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» Ivie, G. W., Holt, D. L., Ivey, M. C. 1981. Natural toxicants in human foods: psoralens in raw and cooked parsnip root. Science (Wash D. C.), 213: 909-910.

» OFAH/OMNRF Invading Species Awareness Program. (2012). Wild Parsnip. Retrieved from: www.invadingspecies.com.

» Wild Parsnip Highlights: https://bcinvasives.ca/news-events/recent-highlights/sap-from-invasive-weed-can-burn-skin/


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Thank you to the BC Ministry of Environment and the BC Ministry of Transportation and Infrastructure for providing project funding, and to those who advised the development of these management recommendations

Additional Comntact info