



VEGETATION MANAGEMENT GUIDELINE

Wild Parsnip (*Pastinaca sativa* L.)

SPECIES CHARACTER

DESCRIPTION

Wild parsnip has a long, thick, conic and fleshy taproot. Rising from the root is a light green, hollow, deeply-grooved, erect stem that grows 2 - 5 feet (0.6 - 1.5 meters) tall. Leaves are alternate, pinnately compound and branched with saw-toothed edges. Each leaf has 5-15 ovate to oblong leaflets with variably toothed edges and deep lobes. The lower leaves are long and stalked while upper leaves are sessile and much reduced. The small, 5-petaled flowers are yellow, bloom from June through September, and arranged in 2 - 6 inch (5 - 15 cm) broad umbels at the top of slender stems or branches. Each compound flat umbel has 15 - 25 primary rays. The blossoms give rise to a fruit termed a schizocarp that is broadly oval and 0.25 inch (6 mm) long. The mericarps (segments of the fruit) are 0.25 inch (6 mm) wide, elliptic, flattened with lateral ribs, and straw-colored when mature.

SIMILAR SPECIES

Wild parsnip is distinguished from other species in the parsley family by its yellow flowers and its pinnately compound leaves that are divided once into more than five leaflets. Wild parsnip should be accurately identified before attempting any control measures. If identification of wild parsnip is in doubt, the plant's identity should be confirmed by a knowledgeable individual and/or by consulting appropriate manuals or keys.

DISTRIBUTION

This member of the carrot family has escaped from cultivation and is common throughout the North America including Canada. It has been reported from Alaska and all of the continental U.S. except Florida, Alabama, Georgia, and Mississippi. In Illinois, wild parsnip has been recorded from every county and can become a serious problem in mesic prairies.

HABITAT

Although this Eurasian native thrives in rich, moist, alkaline soils, it can survive under most conditions. Wild parsnip is commonly found along roadsides and in pastures and fields.

LIFE HISTORY

Wild parsnip is a biennial that exists as a basal rosette for at least one year and then flowers and dies. Like its relative the carrot,



wild parsnip produces a rosette of large, grooved, upright leaves and stores reserves in a large, fleshy taproot during the first year. A hollow flowering stem whose leaves are much smaller is sent up from the center of the rosette in a subsequent growth season. Wild parsnip often flowers and sets seed during its second year, although it may not flower until subsequent years.

The edible roots of wild parsnip were consumed in ancient Greece and Rome and cultivars are still grown for food today. The root develops its sweet taste after being exposed to cold. Some people are sensitive to the touch of the leaves and soon develop a rash if their skin contacts the leaves or sap of the plant in the presence of sunlight. A very painful, blistering rash can develop. For some people, scars can persist for several months or longer. Wild parsnip is most irritating at the time of flowering.

EFFECTS UPON NATURAL AREAS

Well-established prairies are not likely to be invaded by parsnip, but it can become quite abundant on prairie edges and in disturbed patches within otherwise high-quality prairies. Once established at the edges, parsnip can spread into adjacent high-quality areas.

CONTROL RECOMMENDATIONS

Warning-- Care should be taken to avoid skin contact with the toxic sap of the plant by wearing gloves, long-sleeved shirts and long pants. Washing with soap and clean water immediately after contact can reduce, but may not prevent, skin irritation.

Although eradication of this exotic is desirable from a human safety as well as ecological standpoint, in some situations the best control measure is to do nothing. In high-quality prairies, aggressive growth by native species sometimes can outcompete and eventually displace the parsnip.

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY MECHANICAL

The best control is achieved by methods such as hand pulling, digging, and cutting of plants or clipping of umbels to prevent seed development. Seeds usually do not remain viable if they are in the ground more than four years, so the species can be controlled if there is no outside seed source. Pulled plants should be removed so seeds do not develop on site and plants do not re-sprout. Wild parsnip is easiest to pull right after a good rain or during a drought when the root shrinks. After a spring burn, wild parsnip rosettes are among the first plants to emerge and can be easily detected and dug out to control its abundance along prairie edges.

Cutting the plant below the root crown with a spade or sharp shovel is a fast, effective, and efficient control measure if it is done shortly after flowering begins and before seeds have matured. Cutting or grinding a concave notch in the cutting end of the spade or shovel prevents it from sliding around the taproot. After cutting, the plant should be pulled to ensure the taproot was severed and removed from the site. If the taproot is not completely severed, re-sprouting may occur. Since the plants do not all bloom at the same time, the area should be rechecked several weeks after the first cutting

and the following 2 - 3 years for newly flowering plants.

If the population consists of only a few plants, the umbels can be clipped after the flowers develop, but before the seeds mature. Umbels should be clipped into a bag or bucket and removed from the site to prevent dispersion of seed. Sites should be checked periodically after the initial clipping to ensure new flowers have not developed.

Although the practices of hand-pulling, digging, and cutting have been successful in small areas with scattered plants, these practices can become difficult and time-consuming if patches containing hundreds of plants have been allowed to spread unchecked.

CHEMICAL

If mechanical methods have failed to control wild parsnip or are not feasible, spot application of herbicide to basal rosettes is a recommended treatment. For high quality sites, herbicides developed for selective broadleaf control are recommended. Triclopyr (Garlon 3A, Tahoe 3A) is a broadleaf specific herbicide that can control wild parsnip. For Garlon 3A and Tahoe 3A, a 0.8% active ingredient (a.i.) solution is recommended. Garlon 3A and Tahoe 3A are rainfast in 3 hours. 2-4,D herbicides, such as Platoon, Savage CA, Weedar 64, Five Star, are also broadleaf specific and effective. Platoon should be applied a 0.5% a.i. solution, Savage CA as a 0.4% a.i. solution, Weedar as a 0.2% a.i. solution and Five Star as a 0.8% a.i. solution.

Apply the herbicides to thoroughly cover the plants. **Do not spray so heavily that herbicide drips off the target species.** Care should be taken to avoid spraying non-target plants. The herbicide should be applied while backing away from the area to avoid walking through wet herbicide. Personal protective wear is recommended when applying herbicide. Do not spray triclopyr or 2-4,D over open water, lakes, rivers, streams or creeks. By law, herbicides may only be applied as per label instructions and by licensed herbicide applicators or operators when working on public properties.

RECOMMENDED PRACTICES IN BUFFER AND SEVERELY DISTURBED SITES

Same as for high quality areas.

For severely disturbed sites and buffer areas, non-selective herbicides such as glyphosate, available under a variety of trade names including Roundup, may be used. A 1.0% active ingredient solution should be applied to individual plants with a hand sprayer in fall or spring when wild parsnip is actively growing and most native vegetation is dormant. Late fall and early spring application minimizes the potential harm to non-target species. It may be necessary to treat the same area annually until missed plants and plants originating from the seed bank are eliminated. Roundup is rainfast in six hours.

Apply the herbicide to individual wild parsnip basal rosettes. Applications made between March-May or August- October are most effective. Repeated applications of this chemical made in early spring before the flower stalk begins to elongate will reduce infestation of wild parsnip.

FAILED OR INEFFECTIVE PRACTICES

Poorly timed cutting or mowing may increase both number of seedlings and percentage

of plants that survive to maturity. Mowing probably favors parsnip maturation by allowing more sunlight to reach immature parsnip plants, which are too low to be damaged by the mower. Mowing also reduces the density, height, and flowering of other species that are potentially good competitors against wild parsnip.

Burning does not directly control parsnip because it removes litter and taller plants, which may provide favorable conditions for wild parsnip rosettes to develop. However, periodic burning maintains the vigor of native plants, allowing them to better compete with wild parsnip.

The parsnip webworm damages some individual plants severely, but is not known to eradicate entire stands and is not likely to be useful as a biocontrol agent.

REFERENCES

- Eckardt, N. 1987. Element stewardship abstract for *Pastinaca sativa* - wild parsnip. The Nature Conservancy, Arlington, Virginia. 4 pp.
- Fernald, M. L. 1950. Gray's Manual of Botany, eighth edition. American Book Co., New York. 1632 pp.
- Jaques, H. E. and R. E. Wilkinson. 1979. How to know the weeds, third edition. William C. Brown Co. Publishers, Dubuque, Iowa. 323 pp.
- Jeffery, L. S. and H. J. Lorenzi. 1987. Weeds of the United States and their control. Van Nostrand, Reinhold Co., New York. 257 pp.
- Kline, V. M. 1981. Mowing to Control Wild Parsnip (Wisconsin). Restoration and Management Notes 1(1):33.
- Kline, Dr. V. M. 1976. Effects of mowing on wild parsnip: six year study (Wisconsin). Restoration and Management Notes 4(2):113.
- Mohlenbrock, R. H. 1986. Guide to the vascular flora of Illinois. Southern Illinois University Press, Carbondale. 507 pp.
- USDA, NRCS. 2006. The PLANTS Database (<http://plants.usda.gov>, 5 September 2006). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

PERSONAL COMMUNICATIONS

- Abrell, Brian. 1988. Division of Nature Preserves, Department of Natural Resources, Indianapolis, Indiana.
- Apfelbaum, Steve. 1988. Applied Ecological Services, Juda, Wisconsin.
- Betz, Robert. 1988. Northwestern University of Illinois, Chicago, Illinois.
- Martin, Mark. 1988. Wisconsin Department of Natural Resources, Madison, Wisconsin.
- Nyboer, Randy. 1988. Division of Natural Heritage, Illinois Department of Conservation, Springfield, Illinois.

Written for the Illinois Nature Preserves Commission by:

Jill Kennay and George Fell
Natural Land Institute
320 South Third Street
Rockford, Illinois 61108

Revised by:

Bob Edgin
Illinois Nature Preserves Commission
9940E 500th Ave.
Newton, Illinois 62448

Equal opportunity to participate in programs of the Illinois Nature Preserves Commission (INPC), Illinois Department of Natural Resources (IDNR) and those funded by the U.S. Fish and Wildlife Service and other agencies is available to all individuals regardless of race, sex, national origin, disability, age, religion or other non-merit factors. If you believe you have been discriminated against, contact the funding source's civil rights office and/or the Equal Employment Opportunity Officer, IDNR, One Natural Resources Way, Springfield, Ill. 62702-1271; 217/785-0067; TTY 217/782-9175.

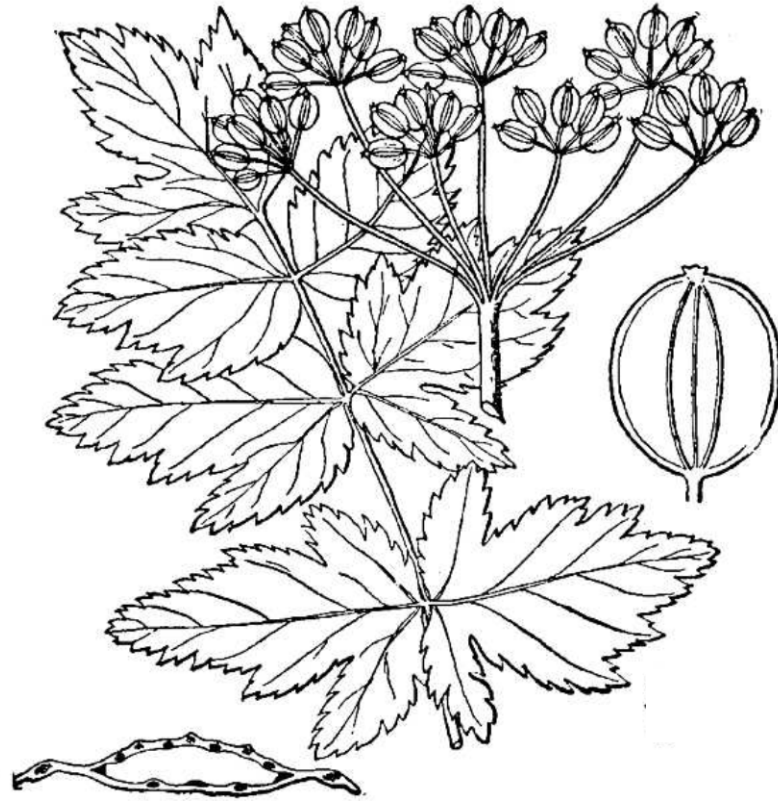


Image courtesy of: Britton, N.L., and A. Brown. 1913. Illustrated flora of the northern states and Canada. Vol. 2: 634. Courtesy of Kentucky Native Plant Society. Scanned by Omnitek Inc.