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Giant Hogweed (*Heracleum mantegazzianum* (Sommer & Levier)

syn. *Heracleum caucasicum*, *Heracleum giganteum*)

aka Parsnip Tree, Giant Cow Parsnip

Provincial Designation: Prohibited Noxious

Overview:

Giant hogweed is a short-lived perennial member of the carrot family Apiaceae. It is native to the western Caucasus (western Georgia, between Russia & Turkey), and was introduced to Europe (early 1800's) & North America as an ornamental because of its dramatic size (3 to 5 m in height⁷) – it is one of the largest herbs in Europe. It reproduces via seed and re-sprouts annually from its tuberous root stocks. A deep, thick taproot develops over the growing years, developing branches and can reach 15 cm diameter at the crown by flowering.⁷

Seeds need exposure to winter temperatures/cold stratification in humid soils² and can germinate throughout the growing season.⁵ Giant hogweed produces a rosette of large leaves for the first few years of its life. The large leaves shade out competing vegetation (including other hogweed seedlings) and 'feed' the growing taproot. Several years after germination, it produces a flowering stalk and then dies after flowering and seed set (i.e., it is monocarpic). It forms a dense canopy, suppressing growth of native plants and associated fauna⁵, and can result in winter erosion after stalks die back. Flowers are hermaphroditic (having both male & female organs) but require pollination, generally from insects.

This plant's most striking feature aside from size is the injury it inflicts. Stem & leaf stalks are covered with stiff, hairy, pustules containing a clear, watery sap that sensitizes skin to UV radiation, which can cause painful burns and blistering – blisters can result in purple to black scars – and in some cases causes hospitalization. Skin sensitivity to sunlight may persist.⁶

The first known horticultural record of *Heracleum mantegazzianum* is on the Kew Botanic

Garden's seed list in 1817 (under the name *Heracleum giganteum*) and this was probably the start of spread of the species in Europe. The first UK naturalized population was recorded in 1828 and soon after it spread rapidly across Europe.² It is known to exist in the wild in BC and Ontario, to date mainly in temperate areas. However, overwintering roots and sprouting shoots have survived -17 °C in Scotland.⁷

Habitat:

Giant hogweed grows in moist soils, high in organic content - typical of riparian habitats. It prefers disturbed, sunny to partly sunny sites. Seeds and plants do not survive waterlogged soils.

Identification:

Stems: Stems are single, stout and hollow, with dark reddish-purple spots, and 5-10 cm diameter. Stems and leaf stalks are covered with stiff hairs and pustules containing sap.

Leaves: Leaves are alternate, compound, having 3 leaflets which are deeply lobed with sharply toothed leaf margins, and can be as large as 1 to 1.5 m. Upper surface of the leaf is almost hairless. Upper leaves are progressively smaller and almost sessile⁷. Leaf stalks are purple-spotted.

Flowers: Flowers are white (sometimes pinkish), large, compound umbels with rounded tops, up to 1 m diameter. Petals can be 1 cm long and sepals are triangular with prominent calyx teeth.⁷ Fruits are flat and oval, about 1cm long with dark colored oil tubes (varies from 2 to 5).⁷ Seed longevity is known to be greater than seven years.⁵

Seed: Seed capsules are 1.5-3.5 cm long and



up to 1.5 cm wide and contain up to 16 seeds which are 4-7 mm long and 2-4 mm wide. Seeds require cold stratification before germination.

Prevention:

Do not purchase and grow Giant hogweed plants or seeds. Giant hogweed requires disturbance to establish so it is important to maintain/re-store desirable vegetation in habitats suitable for invasion. Seeds generally fall at the base of the parent plant but survive transport by water and this is the main means of seed dispersal. Avoid movement of seed-contaminated soil - also a source of dispersal. Eradication efforts in a district of Germany have cost from 42,000 to 100,000 Euros annually.⁵

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Giant Hogweed (continued)

Control:

Any Giant hogweed control is best done in spring when the plants are small. Removal of flower heads need to be done before fruits turn green to avoid spreading seed.¹ Seeds can travel long distances by water. It is very important to wear protective gloves and clothing – a disposable paint suit and gloves works well – and also protect the face and eyes.

Grazing: Cattle, sheep, goats and hogs will graze Giant hogweed.⁷ Hog foraging will also destroy the roots.⁷ Interestingly, after WW II Russia experimented with hogweeds as silage.² *Invasive plants should never be considered as forage.*

Cultivation: Giant hogweed requires disturbance to establish so it is important to maintain/restore desirable vegetation in habitats suitable for invasion.

Mechanical: The most used method is to dig out as much of the root stock as possible, again easiest to do when the plants are young or early in the season. It is difficult to get the entire root on older plants so grubbing may have to be repeated if re-sprouting occurs. Cutting of the tap root 8-12 cm below ground level is effective in killing both flowering and non-flowering plants.⁷

Mowing will stimulate budding⁵, but repeated mowing may deplete root reserves.



All plant parts must be bagged and disposed of at landfill.

Chemical:⁸ Glyphosate is considered most effective – care must be taken to protect non-target vegetation when using non-selective herbicides. Always check product labels to ensure the herbicide is registered for use on the target plant in Canada by the Pesticide Management Regulatory Agency. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.

Biological: Limited research has been done but no biological control agents are currently available.⁷



RESOURCES

- The Giant Hogweed Best Practice Manual – *Guidelines for the management and control of an invasive weed in Europe* http://www.giant-alien.dk/pdf/Giant_alien_uk.pdf
- http://www.anpc.ab.ca/wiki/index.php/Heracleum_mantegazzianum
- <http://www.ontarioweeds.com/weed.php?w=HERMZ>
- <http://www.kingcounty.gov/environment/animalsandplants/noxious-weeds/weed-identification/giant-hogweed.aspx>
- <http://www2.worksafebc.com/Publications/Multimedia/Videos.asp?ReportID=34980>
- Giant Hogweed National Factsheet
- The Pacific Northwest Weed Management Handbook: http://uspest.org/pnw/weeds?33W_PROB.pdf

REFERENCES

- 1 O.F.A.H. Invading Species Awareness Program <http://www.invadingspecies.com/Invaders.cfm?A=Page&PID=31>
- 2 Ecology and Management of Giant Hogweed (*Heracleum mantegazzianum*). Edited by M J W Cock, W Nentwig, P Pysek, H P Ravn. January 2007
- 3 Wikipedia http://en.wikipedia.org/wiki/Giant_Hogweed
- 4 <http://dnr.wi.gov/invasives/fact/parsnip.htm>
- 5 Global Invasive Species Database <http://www.issg.org/database/species/ecology.asp?fr=1&si=418>
- 6 Page et al. (2005) The Biology of Invasive Alien Plants in Canada. Canadian Journal of Plant Science **86**: 569-589.
- 7 Tiley et al. (1996) Biological Flora of the British Isles. Journal of Ecology **84**: 297-319.
- 8 Always follow the product labels. The use of pesticides in any manner not published on the label or registered under the *Minor Use of Pesticides* regulation constitutes an offence under both the *Federal Pest Control Products Act* and *Alberta's Environmental Protection and Enhancement Act*.

Similar Looking Plants:

Cow Parsnip

Heracleum maximum



Leaves less divided, hairier on the upper surface, smaller – grows to 1-2 m, flowers

20 cm across - hollow stems – native to N.A. Seeds nearly identical to Giant hogweed.

Water hemlock

Cicuta maculata



Grows 1 to 1.5 m, much smaller flowers, bi-pinnate leaves with dark green, lance-shaped leaflets, native to N.A. Deadly poisonous.

Wild Parsnip

Pastinaca sativa



Yellow, umbellate flowers, plant juices cause photo-dermatitis, rashes and blistering.⁴ The USDA PLANTS Database considers this plant a Waif - an ephemeral introduction, not persistently naturalized in Canada.