

*Heracleum mantegazzianum* [简体中文](#) [正體中文](#)

**System:** Freshwater

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Apiales	Apiaceae

**Common name** barszcz mantegazyjski (Polish), Herkulesstaude (German), barszcz mantegazziego (English), cartwheel flower (English), hiid-karuputk (English), berce de Mantegazzi (French), kjempebjørnkjeks (Norwegian), kaukasianjättiputki (Finnish), wild rhubarb (English), jättejörnlöka (English), kaukasisk jättefloka (English), kæmpe-bjørneklo (Danish), bjarnarkló (English), mantegaci latvanis (English), giant cow parsnip (English), berce de caucase (English), giant cow persicum (English), berce du caucase (French), Riesenbärenklau (German), giant hogweed (English), Kaukasischer Bärenklau (German), kaukasisk jättefloka (Swedish), mantegaco barštis (English), tröllahvönn (English), jättefloka (English)

**Synonym** *Heracleum asperum*, M. Bieb.  
*Heracleum giganteum*, Fischer ex Hornem.  
*Heracleum lehmannianum*, Bunge  
*Heracleum persicum*, Desf. Ex Fischer  
*Heracleum sibiricum*, Sphalm  
*Heracleum stevenii*, Manden  
*Heracleum villosum*, Fischer ex Sprengel

**Similar species** *Heracleum lanatum*, *Heracleum maximum*

**Summary** *Heracleum mantegazzianum* is native to Asia and has been introduced into Europe and North America. It is characterised by its size and may grow to 4.5 to 6 metres in height. It is most common along roadsides, vacant lots, streams and rivers, and can be considered an invasive freshwater weed. It forms a dense canopy, out-competing native riparian species and results in an increase in soil erosion along the stream banks where it occurs. *Heracleum mantegazzianum* germinates from early spring throughout the growing season, after exposure to winter temperatures. *H. mantegazzianum* exudes a clear watery sap that sensitises the skin to ultraviolet radiation which can result in severe burns. Populations in urban and suburban areas represent an increasing public health hazard. Glyphosate is considered the most effective herbicide.



[view this species on IUCN Red List](#)

## Species Description

*Heracleum mantegazzianum*, or giant hogweed, is a perennial, monocarpic herb in the carrot and parsley family, Apiaceae (Krinke, *et al*, 2005). It is very tall, typically growing to 3-4 meters in height and may exceed 5 meters (Page *et al*, 2006). Its inflorescences are white, sometimes pinkish, compound umbels up to 80 cm across with 30-150 rays (Neilson *et al*, 2005; EPPO, 2006). Individual flowers are on pedicels 10-20 mm long and have petals up to 12 mm long (EPPO, 2006). Terminal umbels are the largest and are surrounded by satellite umbels and additional umbels may occur on auxiliary stems (Krinke *et al*, 2005). Stems are rigid, stout, and typically 5-10 cm in diameter. Stems and leaf stalks are either completely or spotted dark reddish-purple in color, hollow, and produce postulate bristles that produce phototoxic sap (Neilson *et al*, 2005; EPPO, 2006). *H. mantegazzianum* has a thick, yellow branching taproot 15 cm in diameter and up to 60 cm long (Page *et al*, 2006; EPPO, 2006). Leaves are alternate with lower leaves 1-2.5 meters long, compound, irregularly shaped in ternate or pinnate segments, deeply lobed, and irregularly toothed. Upper leaves are smaller and sometimes not divided with longer petioles and more inflated sheaths. Leaves are usually pubescent on the underside when young and glabrous above (Page *et al*, 2006). Fruits are dry schizocarps consisting of two mericarp seeds 6-18 mm long, 4-10 mm wide and about 1 mm thick, which are joined until ripening. Mericarps are elliptical, flattened, and emarginate at the apex with thin low dorsal ridges and broadly winged lateral ridges (Page *et al*, 2006; Tiley *et al*, 1996). The endosperm is oily and mature fruits have a strong resinous smell (Tiley *et al*, 1996).

## Notes

The sap of *Heracleum mantegazzianum* causes a skin reaction that sensitizes skin to sunlight that results in severe swelling in blisters. Contact of skin to the plant should be avoided (Westbrooks, 1991).

## Lifecycle Stages

The seeds of giant hogweed germinate from early spring and continue throughout the growing season. Cold winter temperatures are necessary to break dormancy (EPPO, 2006). Seedlings initiate a vegetative rosette pattern of growth for the first season that may last 3-4 years (PBPI, undated; Pergl & Perglova, 2006). This phase allows rapid growth and dense development to outgrow and shade out competitive vegetation. *H. mantegazzianum* may postpone flowering until conditions are favorable and sufficient reserves are stored. When it does flower it flowers early and in great abundance (Neilson *et al*, 2005). Seedlings reach high densities of several thousand/m<sup>2</sup> (Klingenstein 2007), and seed banks reach densities of up to 12,000/m<sup>2</sup> (Neilson *et al*, 2005). On average only 10% of plants flower each year while remainders survive in the rosette stage to the next year (Klingenstein, 2007). In winter foliage dies back and re-grows from the stem and taproot in the spring (Pysek, 1991; PBPI, undated).

## Uses

*Heracleum mantegazzianum* is a very popular ornamental. Many introductions to new locations are the result of its planting in ornamental gardens or growth for use in flower arranging. *H. mantegazzianum* is reportedly widely planted in Switzerland by beekeepers to increase food resources for bees. The dried fruits of the plant are used as a spice in Iranian cooking (Westbrooks, 1991). *H. mantegazzianum* has been cultivated for silage in Russia and has been suggested as a forage crop in Poland (EPPO, 2006).

## Habitat Description

In its native range, *Heracleum mantegazzianum* is found on forest edges and glades, in riparian zones, and in mountainous areas with annual rainfall of 1000-2000 mm and a temperate continental climate of hot summers and cold winters. In nonnative locations, giant hogweed is typically introduced to ornamental gardens and spreads along river courses, roadsides, railways, vacant lots and other disturbed locations to invade sunny, moist locations (EPPO, 2006; EIAS, 2003; Pysek & Prach, 1993; Pysek & Pysek, 1995; Tiley *et al*, 1996; Washington State Department of Ecology, undated). Cold winters are required to ensure germination, but may also be necessary for flowering. It is most associated with temperate deciduous forest and mixed conifer forest vegetation zones (EPPO, 2006). Although it is generally a plant of open ground, *H. mantegazzianum* can establish and grow successfully in edges of clearings and partially shaded habitats, preferring moist conditions for much of the year, but can tolerate moderate summer droughts (Tiley *et al*, 1996). It is usually found on alkaline or only slightly acidic soils, from pH 6.0 to 8.5, and appears to be favored by soils with high nitrogen content. Occurrence of giant hogweed along riverbanks is usually associated with sandy or silty soils, but it is also recorded on a wide range of soil textures from gravels to clay and highly organic or waterlogged soils are also tolerated. (EPPO, 2006).

## Reproduction

*Heracleum mantegazzianum* is an amphimictic perennial whose flowers are insect pollinated and self compatible (EPPO, 2006). It is also monocarpic and only reproduces once, usually in its third or fourth year (Pergl & Perglova, 2006; Page *et al*, 2006). Reproduction is done only by seeds which are copiously produced, from 5,000-100,000 per plant (EPPO, 2006). Seeds remain viable for up to 7 years and possibly longer (CEH, 2004). Flowering typically lasts from June to August. Flowers are compound umbels with 30-150 rays per flower and a total of more than 80,000 flowers can occur on a single plant (Klingenstein, 2007). Fruits are broadly winged schizocarps composed of two mericarps 6-18 mm long and 4-10 mm wide (Krinke *et al*, 2005; Tiley *et al*, 1996).

## General Impacts

*Heracleum mantegazzianum* is considered to be one of the most problematic invasive plants in Europe (Pysek *et al*, 1998). It produces a toxic sap that causes a painful and problematic phototoxic reaction. It establishes dense monocultures that threaten natural ecosystems. It is also known to increase erosion of river and stream banks and to be a problematic weed in both agricultural and urban environments.

The sap of *H. mantegazzianum* causes a phytotoxic reaction when in contact with the skin and exposed to sunlight (Klingenstein, 2007). Toxic furanocoumarins or psoralens are stored as biologically active aglycones in sap in the oil channels or ducts in the leaves, stems, roots, flowers and seeds. When they come in contact with the skin they cause an extreme sensitivity to sunlight called phytophotodermatitis (CEH, 2004). The phototoxic reaction is can be activated by ultraviolet radiation only 15 minutes after contact, with a sensitivity peak between 30 min and two hours (Klingenstein, 2007). It can lead to severe slow healing burns or scarring (EIAS, 2003). Blistering occurs 24-48 hours after exposure to sunlight and dense post inflammatory hyper-pigmentation is visible after 3-5 days and may persist for up to 6 years (CEH, 2004; Klingenstein, 2007). Gardeners, landscape workers, and children are at particular risk. Since the plant itself is painless workers or children in contact with the plant may continue exposure to the sap for hours (Klingenstein, 2007). Its hazard to human health causes *H. mantegazzianum* to lower the recreational value of invaded lands (Pergl & Perglova, 2006).

Giant hogweed changes species composition and reduces species diversity of native plant communities (Neilson *et al*, 2005). It establishes dense stands that displace and suppress the growth of native flora, especially in disturbed areas and riparian zones (CEH, 2004; Neilson *et al*, 2005; Page, 2006). *H. mantegazzianum* outcompetes native plants by shading them out, growing leaves above resident herbs and grasses (Thiele & Otte, 2007). It may also have allelopathic properties (Page, 2006).

Its replacement of native vegetation results in other effects to ecosystems and likely causes far reaching impacts. It displaces native riparian vegetation and then causes bank erosion in the winter it dies back (Page, 2000). Such instability of river banks caused by giant hogweed poses a serious threat to salmon spawning habits in Ireland (Caffrey, 1999). *H. mantegazzianum* is also known to hybridize with European native *Heracleum sphondylium* (Klingenstein, 2007), and be a problematic weed to agricultural and urban environments (Page, 2006).

## Management Info

The Giant Hogweed Best Practice Manual provides up to date knowledge about all relevant aspects of the biology, ecology, taxonomy and management of invasive hogweeds. Background information and management guidelines mainly refers to Giant Hogweed (*H. mantegazzianum*) but is also usable for the closely related *H. sosnowskyi* and *H. persicum*.

The manual is available in eight different languages from: [English](#), [Czech](#), [Danish](#), [Dutch](#), [German](#), [French](#), [Latvian](#), and [Russian](#)

The European and Mediterranean Plant Protection Organization (EPPO) datasheet on the hogweed provides information on options available for the control of this species including regulatory status.

Please follow this link for a [summary of management options available for the control of the hogweed](#)

## Pathway

*H. mantegazzianum* has been introduced to Europe, the United Kingdom, Canada and the United States as a garden curiosity (The Washington State Department of Ecology (UNDATED)).

**Principal source:** [European and Mediterranean Plant Protection Organization \(EPPO\), 2006. EPPO data sheet on Invasive Plants \*Heracleum mantegazzianum\*](#)  
[Centre for Ecology and Hydrology, 2004. Information Sheet 4: Giant Hogweed. Natural Environment Research Council. Centre for Aquatic Plant Management.](#)  
[Nielsen, C., H.P. Ravn, W. Nentwig and M. Wade \(eds.\), 2005. The Giant Hogweed Best Practice Manual. Guidelines for the management and control of an invasive weed in Europe. Forest & Landscape Denmark, Hoersholm, 44 pp.](#)

**Compiler:** National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

**Review:** Anon

**Publication date:** 2011-02-23

## ALIEN RANGE

[1] AUSTRALIA	[1] AUSTRIA
[1] BELGIUM	[5] CANADA
[1] CZECH REPUBLIC	[1] DENMARK
[1] ESTONIA	[1] EUROPE
[1] FINLAND	[1] FRANCE
[2] GERMANY	[1] HUNGARY
[1] ICELAND	[1] IRELAND
[1] ITALY	[1] LATVIA
[1] MEDITERRANEAN AREA	[1] NETHERLANDS
[1] NEW ZEALAND	[1] NORWAY
[1] POLAND	[1] SLOVAKIA
[1] SWEDEN	[1] SWITZERLAND
[1] UKRAINE	[1] UNITED KINGDOM
[13] UNITED STATES	

## BIBLIOGRAPHY

**86** references found for *Heracleum mantegazzianum*

### Management information

[Alien Plants in Ireland, 2007. \*Heracleum mantegazzianum\*](#)

**Summary:** The database of alien plants in Ireland contains detailed information on 715 alien plant taxa currently occurring in (semi-) natural habitats in Ireland (both the Republic and Northern-Ireland). This database was developed in 2006 at the School of Natural Sciences, Trinity College Dublin, as part of the BioChange project, funded by the Environmental Protection Agency (EPA), Ireland.

Available from: <http://www.biochange.ie/alienplants/index.php> [Accessed April 26 2007]

This page available from: [http://www.biochange.ie/alienplants/result\\_species.php?species=598&lang=latin&p=i](http://www.biochange.ie/alienplants/result_species.php?species=598&lang=latin&p=i) [Accessed 26 April 2007]

[Alien Species in Poland 2006 \*Heracleum mantegazzianum\*](#)

**Summary:** Available from: <http://www.iop.krakow.pl/ias/Gatunek.aspx?spID=102> [Accessed 18 March 2010]

Andersen, Ulla Vogt; Calov, Birgitte, 1996. Long-term effects of sheep grazing on giant hogweed (*Heracleum mantegazzianum*) *Hydrobiologia*. 340(1-3). 1996. 277-284.

Bremner, Alison; Park, Kirsty, 2007. Public attitudes to the management of invasive non-native species in Scotland. *Biological Conservation*. 139(3-4). OCT 2007. 306-314.

Caffrey, J. M., 1999. Phenology and long-term control of *Heracleum mantegazzianum*. *Hydrobiologia*. (415). Nov. 15, 1999. 223-228.

Caffrey, Joseph M., 2001. The management of giant hogweed in an Irish river catchment. *Journal of Aquatic Plant Management*. 39 January, 2001. 28-33.

[Centre for Ecology and Hydrology, 2004. Information Sheet 4: Giant Hogweed. Natural Environment Research Council. Centre for Aquatic Plant Management](#)

**Summary:** Available from: <http://www.nerc-wallingford.ac.uk/research/capm/pdf%20files/4%20Giant%20Hogweed.pdf> [Accessed 25 March 2010]

Collingham, Yvonne C.; Wadsworth, Richard A.; Huntley, Brian; Hulme, Philip E., 2000. Predicting the spatial distribution of non-indigenous riparian weeds: Issues of spatial scale and extent. *Journal of Applied Ecology*. 37 (Supplement 1). September, 2000. 13-27.

Cook, Alex; Marion, Glenn; Butler, Adam; Gibson, Gavin, 2007. Bayesian inference for the spatio-temporal invasion of alien species. *Bulletin of Mathematical Biology*. 69(6). AUG 2007. 2005-2025.

Dawson, F. Hugh; Holland, David, 1999. The distribution in bankside habitats of three alien invasive plants in the U.K. in relation to the development of control strategies. *Hydrobiologia*. (415). Nov. 15, 1999. 193-201.

[European and Mediterranean Plant Protection Organization \(EPPO\), 2006. EPPO data sheet on Invasive Plants \*Heracleum mantegazzianum\*](#)

**Summary:** The [EPPO Reporting Service](#) is a monthly information report on events of phytosanitary concern. It focuses on new geographical records, new host plants, new pests (including invasive alien plants), pests to be added to the EPPO Alert List, detection and identification methods etc. The EPPO Reporting Service is published in English and French.

Available from: <http://archives.eppo.org/EPPORreporting/2005/Rse-0509.pdf> [Accessed 28 November 2005]

[European and Mediterranean Plant Protection Organization \(EPPO\), 2006. EPPO data sheet on Invasive Plants \*Heracleum mantegazzianum\*](#)

**Summary:** Available from: [http://www.eppo.org/QUARANTINE/plants/Heracleum\\_mantegazzianum/HERMZ\\_ds.pdf](http://www.eppo.org/QUARANTINE/plants/Heracleum_mantegazzianum/HERMZ_ds.pdf) [Accessed 27 March 2010]

Gren, Ing-Marie; Isacs, Lina; Carlsson, Mattias, 2009. Costs of Alien Invasive Species in Sweden. *Ambio*. 38(3). MAY 2009. 135-140.

Global Invasive Species Database (GISD) 2026. Species profile *Heracleum mantegazzianum*.

Available from: <https://iucngisd.org/gisd/species.php?sc=418> [Accessed 13 June 2026]

Hansen, Steen Ole; Hattendorf, Jan; Wittenberg, Ruediger; Reznik, Sergey Ya.; Nielsen, Charlotte; Ravn, Hans Peter; Nentwig, Wolfgang., 2006b. Phytophagous insects of giant hogweed *Heracleum mantegazzianum* (Apiaceae) in invaded areas of Europe and in its native area of the Caucasus. *European Journal of Entomology*. 103(2). APR 6 2006. 387-395.

Hattendorf, Jan; Hansen, Steen O.; Reznik, Sergey Ya.; Nentwig, Wolfgang, 2006. Herbivore impact versus host size preference:

Endophagous insects on *Heracleum mantegazzianum* in its native range. *Environmental Entomology*. 35(4). AUG 2006. 1013-1020.

Hulme, Philip E., 2006. Beyond control: wider implications for the management of biological invasions. *Journal of Applied Ecology*. 43(5). OCT 2006. 835-847.

[InvasiveSpecies Ireland, 2008. Best Practice Management Guidelines. Giant Hogweed \*Heracleum mantegazzianum\*](#)

**Summary:** Available from: <http://invasivespeciesireland.com/files/public/BPM%20Guidance/Giant%20Hogweed%20BPM.pdf> [Accessed 25 March 2010]

[King County, Department of Natural Resources and Parks, 2007. Best Management Practices Giant hogweed \*Heracleum mantegazzianum\* Apiaceae Class A Noxious Weed](#)

**Summary:** Available from: <http://your.kingcounty.gov/dnrp/library/water-and-land/weeds/BMPs/hogweed-control.pdf> [Accessed 25 March 2010]

[Klingenstein, F. 2007. NOBANIS \*Heracleum mantegazzianum\*. From: Online Database of the North European and Baltic Network on Invasive Alien Species - NOBANIS \[www.nobanis.org\]\(http://www.nobanis.org\), Date of access x/x/200x.](#)

**Summary:** Available from: [http://www.nobanis.org/files/factsheets/Heracleum\\_mantegazzianum.pdf](http://www.nobanis.org/files/factsheets/Heracleum_mantegazzianum.pdf) [Accessed 27 March 2010]

Krinke, Lukas; Moravcova, Lenka; Pysek, Petr; Jarosik, Vojtech; Pergl, Jan; Perglova, Irena, 2005. Seed bank of an invasive alien, *Heracleum mantegazzianum*, and its seasonal dynamics. *Seed Science Research*. 15(3). SEP 2005. 239-248.

[Meinlschmidt, E. & R. Dittrich, 2005. Investigations into the chemical control of \*Heracleum mantegazzianum\*. Sächsisches Landesanstalt für Landwirtschaft, Fachbereich Pflanzliche Erzeugung, Referat Pflanzenschutz](#)

**Summary:** Available from: [http://www.smul.sachsen.de/landwirtschaft/download/pflanzliche\\_Erzeugung/Poster\\_HERMA\\_2005\\_final.pdf](http://www.smul.sachsen.de/landwirtschaft/download/pflanzliche_Erzeugung/Poster_HERMA_2005_final.pdf) [Accessed 27 March 2010]

Moravcova, Lenka; Perglova, Irena; Pysek, Petr; Jarosik, Vojtech; Pergl, Jan, 2005. Effects of fruit position on fruit mass and seed germination in the alien species *Heracleum mantegazzianum* (Apiaceae) and the implications for its invasion. *Acta Oecologica*. 28(1). JUL-AUG 2005. 1-10.

[National Agricultural Pest Information System \(NAPIS\), 2009. Pest Tracker: Reported Status of Giant Hogweed - \*Heracleum mantegazzianum\*](#)

**Summary:** Available from: <http://pest.ceris.purdue.edu/searchmap.php?selectName=PFQAQC&maptype=yearly&mapyear=2009> [Accessed 27 March 2010]

Nehrbass, Nana; Winkler, Eckart, 2007. Is the Giant Hogweed still a threat? An individual-based modelling approach for local invasion dynamics of *Heracleum mantegazzianum*. *Ecological Modelling*. 201(3-4). MAR 10 2007. 377-384.

Nehrbass, Nana; Winkler, Eckart; Mullerova, Jana; Pergl, Jan; Pysek, Petr; Perglova, Irena, 2007. A simulation model of plant invasion: long-distance dispersal determines the pattern of spread. *Biological Invasions*. 9(4). JUN 2007. 383-395

Nielsen, Charlotte; Hartvig, Per; Kollmann, Johannes., 2008b. Predicting the distribution of the invasive alien *Heracleum mantegazzianum* at two different spatial scales. *Diversity & Distributions*. 14(2). MAR 2008. 307-317.

[Nielsen, C., H.P. Ravn, W. Nentwig and M. Wade \(eds.\), 2005. The Giant Hogweed Best Practice Manual. Guidelines for the management and control of an invasive weed in Europe. Forest & Landscape Denmark, Hoersholm, 44 pp.](#)

**Summary:** The manual provides information about as many relevant aspects as possible of the biology, ecology and management of tall invasive hogweeds in Europe: Taxonomy and genetics, development and phenology (seasonal changes and growth cycle), population dynamics, interactions with soil, nutrients, vegetation cover, land use change and control options. This brochure is also available in eight languages at the project homepage [www.giant-alien.dk](http://www.giant-alien.dk).

Available from: [http://www.giant-alien.dk/pdf/Giant\\_alien\\_uk.pdf](http://www.giant-alien.dk/pdf/Giant_alien_uk.pdf) [Accessed 21 October 2005]

[Nielsen, C., H.P. Ravn, W. Nentwig and M. Wade \(eds.\), 2005. The Giant Hogweed Best Practice Manual. Guidelines for the management and control of an invasive weed in Europe. Forest & Landscape Denmark, Hoersholm, 44 pp.](#)

**Summary:** The Giant Alien project under the 5th Framework Programme of the European Union has taken an integrated approach to develop just such a sustainable strategy for invasive alien weed management in Europe. The project started in January 2002 and finished in April 2005. This manual mainly refers to *Heracleum mantegazzianum* but is also usable for the closely related *H. sosnowskyi* and *H. persicum*. One overall objective of our project was to provide all European authorities (e.g. municipalities, counties, districts, highway agencies, environment agencies) and private landowners with scientifically based but simple and practical management methods to reduce the abundance and prevent further spread of the invasive hogweeds.

The manual is available in eight different languages from: [English](#), [Czech](#), [Danish](#), [Dutch](#), [German](#), [French](#), [Latvian](#), and [Russian](#)

Pennsylvania Bureau of Plant Industry. UNDATED. *Heracleum mantegazzianum*. Plant Pests, Diseases & Weeds.

**Summary:** Information on identification, management, treatment to exposure, distribution, and growth of species.

[Pergl, J. and I. Perglova, 2006. \*Heracleum mantegazzianum\*: Delivering Alien Invasive Species Inventories for Europe \(DAISIE\)](#)

**Summary:** Available from: [http://www.europe-aliens.org/pdf/Heracleum\\_mantegazzianum.pdf](http://www.europe-aliens.org/pdf/Heracleum_mantegazzianum.pdf) [Accessed 27 March 2010]

Pergl, Jan; Perglova, Irena; Pysek, Petr; Dietz, Hansjoerg, 2006. Population age structure and reproductive behavior of the monocarpic perennial *Heracleum mantegazzianum* (Apiaceae) in its native and invaded distribution ranges. *American Journal of Botany*. 93(7). JUL 2006. 1018-1028.

Protopopova, Vera V.; Shevera, Myroslav V.; Mosyakin, Sergei L., 2006. Deliberate and unintentional introduction of invasive weeds: A case study of the alien flora of Ukraine. *Euphytica*. 148(1-2). MAR 2006. 17-33.

Pysek, Petr; Jarosik, Vojtech; Mullerova, Jana; Pergl, Jan; Wild, Jan, 2008. Comparing the rate of invasion by *Heracleum mantegazzianum* at continental, regional, and local scales. *Diversity & Distributions*. 14(2). MAR 2008. 355-363.

Pysek, Petr; Kopecky, Miroslav; Jarosik, Vojtech; Kotkova, Pavla, 1998. The role of human density and climate in the spread of *Heracleum mantegazzianum* in the Central European landscape. *Diversity & Distributions*. 4(1). Jan., 1998. 9-16.

Pysek, Petr; Kucera, Tomas; Puntieri, Javier; Mandak, Bohumil, 1995. Regeneration in *Heracleum mantegazzianum*: Response to removal of vegetative and generative parts. *Preslia (Prague)*. 67(2). 1995. 161-171.

[Pysek, P., M. J. W. Cock; W. Nentwig; and H. P. Raven \(Eds\), 2007. Ecology and Management of Giant Hogweed \(\*Heracleum mantegazzianum\*\). CABI January 2007 352 pages Hardback 978 1 84593 206 0](#)

**Summary:** The Giant Hogweed *Heracleum mantegazzianum* is a pernicious invasive species, with significant impact on human health due to its phytotoxic sap. From its native area, the Caucasus, it has spread across Europe creating serious environmental and health problems. This book, the output of a threeyear EU project involving 40 European experts, is an authoritative compendium of current knowledge on this amazing invasive plant and will facilitate improved management. It is an invaluable resource for both practitioner and student, and covers topics including taxonomy, genetics, reproduction, population ecology, and invasion dynamics. It also reviews the possibilities of mechanical, chemical and biological control. on this amazing invasive plant and will facilitate improved management. It is an invaluable resource for both practitioner and student, and covers topics including taxonomy, genetics, reproduction, population ecology, and invasion dynamics. It also reviews the possibilities of mechanical, chemical and biological control.

Description available from: <http://giant-alien.dk/pdf/book.pdf> [Accessed 27 March 2010]

Reznik, S. Ya.; Dolgovskaya, M. Yu.; Zaitzev, V. F.; Davidian, G. E.; Nentwig, W., 2008. On the possibility of the use of the weevil *Nastus fausti* Reitter (Coleoptera, Curculionidae, Entiminae, Nastini) for biological control of invasive species of Giant hogweeds (*Heracleum* spp. Entomologicheskoe Obozrenie. 87(3). 2008. 489-502

Richardson, David M.; Thuiller, Wilfried, 2007. Home away from home - objective mapping of high-risk source areas for plant introductions. Diversity & Distributions. 13(3). MAY 2007. 299-312.

Smither-Kopperl, Margaret, 2007. The first line of defense: Interceptions of federal noxious weed seeds in Washington. U S Forest Service Pacific Northwest Research Station General Technical Report PNW-GTR.(694). JUN 2007. 19-22.

Thiele, Jan and Annette Otte, 2007. Chapter 9. Impact of *Heracleum mantegazzianum* on invaded vegetation and human activities In Pysek P, Cock M. J. W, Nentwig W, Ravn H. P (eds., 2007) Ecology and Management of Giant Hogweed (*Heracleum mantegazzianum*). CAB International, pp 144-156.

Thiele, Jan; Johannes Kollmann; Bo Markussen & Annette Otte, 2009. Impact assessment revisited: improving the theoretical basis for management of invasive alien species. Biol Invasions DOI 10.1007/s10530-009-9605-2

Thiele, Jan; Otte, Annette, 2008. Hercules with Achilles Heel? The distribution of *Heracleum mantegazzianum* - nature conservation aspects on local, landscape and regional level. Naturschutz und Landschaftsplanung. 40(9). SEP 2008. 273-279.

Thiele, Jan; Schuckert, Ulrike; Otte, Annette, 2008. Cultural landscapes of Germany are patch-corridor-matrix mosaics for an invasive megaforb. Landscape Ecology. 23(4). APR 2008. 453-465.

[USDA, NRCS. 2010. \*Heracleum mantegazzianum\* Sommier & Levier giant hogweed: The PLANTS Database \(<http://plants.usda.gov>, 26 March 2010\). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.](#)

**Summary:** Available from: <http://plants.usda.gov/java/profile?symbol=HEMA17> [Accessed 27 March 2010]

Wadsworth, R. A.; Collingham, Y. C.; Willis, S. G.; Huntley, B.; Hulme, P. E., 2000. Simulating the spread and management of alien riparian weeds: Are they out of control? Journal of Applied Ecology. 37 (Supplement 1). September, 2000. 28-38.

Walker, N. F.; Hulme, P. E.; Hoelzel, A. R., 2005. Population genetics of an invasive species, *Heracleum mantegazzianum*: Implications for the role of life history, demographics and independent introductions. Molecular Ecology. 12(7). July 2003. 1747-1756.

Walker, N. F.; Hulme, P. E.; Hoelzel, A. R., 2009. Population genetics of an invasive riparian species, *Impatiens glandulifera*. Plant Ecology. 203(2). AUG 2009. 243-252.

[Washington State Department of Ecology. UNDATED. Technical Information About \*Heracleum mantegazzianum\* \(Giant Hogweed\). Water Quality Program: Non-Native Freshwater Plants.](#)

**Summary:** Information on description and variation, economic importance, distribution, habitat, history, growth, and management of species.

Available from: <http://www.ecy.wa.gov/programs/wq/plants/weeds/aqua012.html> [Accessed 21 October 2003].

[Westbrooks, R. G. 1991. \*Heracleum mantegazzianum\*. National Agricultural Pest Information System. \[Online Database\]](#)

**Summary:** Information on description and variation, economic importance, distribution, habitat, history, growth, and management of species.

Available from: <http://www.ceris.purdue.edu/napis/pests/ghw/facts.txt> [Accessed 21 October 2003].

Willis, S. G.; Hulme, P. E., 2002. Does temperature limit the invasion of *Impatiens glandulifera* and *Heracleum mantegazzianum* in the UK? Functional Ecology. 16(4). August, 2002. 530-539.

## General information

Colling, Guy; Krippel, Yves, 2001. Floristic notes. Observations made in Luxembourg (1998-1999). Bulletin de la Societe des Naturalistes Luxembourgeois.(101). 20 Janvier, 2001. 33-47.

[CONABIO. 2008. Sistema de información sobre especies invasoras en México. Especies invasoras - Plantas. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.](#)

**Summary: English:**

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Plants is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

**Spanish:**

La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como el hábitat, estado de la invasión en México, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la sección novedades, para conocer los cambios.

Especies invasoras - Plantas is available from: [http://www.conabio.gob.mx/invasoras/index.php/Especies\\_invasoras\\_-\\_Plantas](http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas) [Accessed 30 July 2008]

Dassonville, Nicolas; Vanderhoeven, Sonia; Vanparys, Valerie; Hayez, Mathieu; Gruber, Wolf; Meerts, Pierre, 2008. Impacts of alien invasive plants on soil nutrients are correlated with initial site conditions in NW Europe. *Oecologia* (Berlin). 157(1). AUG 2008. 131-140.

Dawe, N. K. and E. R. White. 1979. Giant cow parsnip (*Heracleum mantegazzianum*) on Vancouver Island, British Columbia. *Canadian Field Naturalist* 93: 82-83.

Geltman, D. V.; Buzunova, I. O.; Konechnaya, G. Yu, 2009. Plant Communities with the invasive species *Heracleum sosnowskyi*(Apiaceae) in the north west of European Russia. *Rastitel'nye Resursy*. 45(3). 2009. 68-75.

Gioria, Margherita; Osborne, Bruce, 2009. Assessing the impact of plant invasions on soil seed bank communities: use of univariate and multivariate statistical approaches. *Journal of Vegetation Science*. 20(3). JUN 2009. 547-556.

Hansen, S. O.; Hattendorf, J.; Nentwig, W., 2006a. Mutualistic relationship beneficial for aphids and ants on giant hogweed (*Heracleum mantegazzianum*). *Community Ecology*. 7(1). 2006. 43-52

Hejda, Martin; Pysek, Petr; Jarosik, Vojtech, 2009. Impact of invasive plants on the species richness, diversity and composition of invaded communities. *Journal of Ecology*. 97(3). MAY 2009. 393-403.

Henry, P.; Le Lay, G.; Goudet, J.; Guisan, A.; Jahodova, S.; Besnard, G., 2009. Reduced genetic diversity, increased isolation and multiple introductions of invasive giant hogweed in the western Swiss Alps. *Molecular Ecology*. 18(13). JUL 2009. 2819-2831.

[Huels, Joerg; Otte, Annette; Eckstein, R. Lutz, 2007. Population life-cycle and stand structure in dense and open stands of the introduced tall herb \*Heracleum mantegazzianum\*. \*Biological Invasions\*. 9\(7\). OCT 2007. 799-811](#)

[ITIS \(Integrated Taxonomic Information System\), 2005. Online Database \*Heracleum mantegazzianum\*](#)

**Summary:** An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from:

[http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p\\_action=containing&taxa=Heracleum+mantegazzianum&p\\_format=&p\\_ifx=plgl&p\\_lang=](http://www.cbif.gc.ca/pls/itisca/taxastep?king=every&p_action=containing&taxa=Heracleum+mantegazzianum&p_format=&p_ifx=plgl&p_lang=) [Accessed March 2005]

Jahodova, Sarka; Trybush, Sviatlana; Pysek, Petr; Wade, Max; Karp, Angela, 2007. Invasive species of *Heracleum* in Europe: an insight into genetic relationships and invasion history. *Diversity & Distributions*. 13(1). JAN 2007. 99-114.

Koutika, Lydie-Stella; Vanderhoeven, Sonia; Chapuis-Lardy, Lydie; Dassonville, Nicolas; Meerts, Pierre, 2007. Assessment of changes in soil organic matter after invasion by exotic plant species. *Biology & Fertility of Soils*. 44(2). DEC 2007. 331-341.

Koval, L. V., 2005. New floristic records of alien species of vascular plants in the Desna Plateau area (Sumy Region, Ukraine). *Ukrayins'kyi Botanichnyi Zhurnal*. 62(2). 2005. 243-247.

Milberg, Per, 1998. Aggressive invasive species. *Svensk Botanisk Tidskrift*. 92(6). 1998. 313-321.

Moravcova, Lenka; Pysek, Petr; Pergl, Jan; Perglova, Irena; Jarosik, Vojtech, 2006. Seasonal pattern of germination and seed longevity in the invasive species *Heracleum mantegazzianum*. *Preslia* (Prague). 78(3). SEP 2006. 287-301.

Morton J K, 1978. Distribution of Giant Cow-Parsnip (*Heracleum mantegazzianum*) in Canada. *Canadian Field-Naturalist*. 92(2). 1978. 182-185.

Mullerova, Jana; Pysek, Petr; Jarosik, Vojtech; Pergl, Jan, 2005. Aerial photographs as a tool for assessing the regional dynamics of the invasive plant species *Heracleum mantegazzianum*. *Journal of Applied Ecology*. 42(6). DEC 2005. 1042-1053.

Nehrbass, Nana; Winkler, Eckart; Pergl, Jan; Perglova, Irena; Pysek, Petr, 2006. Empirical and virtual investigation of the population dynamics of an alien plant under the constraints of local carrying capacity: *Heracleum mantegazzianum* in the Czech Republic. *Perspectives in Plant Ecology Evolution & Systematics*. 7(4). 2006. 253-262.

Nielsen, Charlotte; Heimes, Christine; Kollmann, Johannes., 2008a. Little evidence for negative effects of an invasive alien plant on pollinator services. *Biological Invasions*. 10(8). DEC 2008. 1353-1363.

Nilsson, Thomas; Berg, Lars M., 1999. Introduced organisms in the terrestrial environment in Sweden. *Fauna och Flora* (Stockholm). 94(2). July, 1999. 63-74.

Ochsmann, J., 1996. *Heracleum mantegazzianum* Sommier and Levier (Apiaceae) in Germany: Studies on biology, distribution, morphology, and taxonomy. *Feddes Repertorium*. 107(7-8). 1996. 557-595.

Otte, Annette; Franke, Rene, 1998. The ecology of the Caucasian herbaceous perennial *Heracleum mantegazzianum* Somm. et Lev. (Giant Hogweed) in cultural ecosystems of Central Europe. *Phytocoenologia*. 28(2). June 29, 1998. 205-232.

Page, Nicholas A.; Wall, Ronald E.; Darbyshire, Stephen J.; Mulligan, Gerald A., 2006. The biology of invasive alien plants in Canada. 4. *Heracleum mantegazzianum* Sommier & Levier. *Canadian Journal of Plant Science*. 86(2). APR 2006. 569-589.



# GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Heracleum mantegazzianum*

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- Perglova, Irena; Pergl, Jan; Pysek, Petr, 2006. Flowering phenology and reproductive effort of the invasive alien plant *Heracleum mantegazzianum*. *Preslia* (Prague). 78(3). SEP 2006. 265-285.
- Pysek, Petr, 1991. *Heracleum mantegazzianum* in the Czech republic: Dynamics of spreading from the historical perspective. *Folia Geobotanica et Phytotaxonomica*. 26(4). 1991. 439-454.
- Pysek, Petr; Krinke, Lukas; Jarosik, Vojtech; Perglova, Irena; Pergl, Jan; Moravcova, Lenka, 2007. Timing and extent of tissue removal affect reproduction characteristics of an invasive species *Heracleum mantegazzianum*. *Biological Invasions*. 9(3). APR 2007. 335-351.
- Pysek, Petr; Pysek, Antonin, 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of Vegetation Science*. 6(5). 1995. 711-718.
- Sauerwein, Bernd, 2004. *Heracleum mantegazzianum* Somm. et Lev., a remarkable Apiaceae in fallow margins and fallow land. *Philippia*. 11(4). 2004. 281-319.
- Thiele, Jan; Annette Otte and R. Lutz Eckstein, 2007. Chapter 8. Ecological needs, habitat preferences and plant communities invaded by *Heracleum mantegazzianum*. In Pysek P, Cock MJW, Nentwig W, Ravn HP (eds., 2007) *Ecology and Management of Giant Hogweed (Heracleum mantegazzianum)*. CAB International, pp 126-143.
- Thiele, Jan; Maike Isermann; Annette Otte & Johannes Kollmann, 2010. Competitive displacement or biotic resistance? Disentangling relationships between community diversity and invasion success of tall herbs and shrubs. *Journal of Vegetation Science* 21: 213-220, 2010
- Thiele, Jan; Otte, Annette, 2006. Analysis of habitats and communities invaded by *Heracleum mantegazzianum* Somm. et Lev. (Giant Hogweed) in Germany. *Phytocoenologia*. 36(2). JUN 14 2006. 281-320.
- Thiele, Jan; Otte, Annette, 2008. Invasion patterns of *Heracleum mantegazzianum* in Germany on the regional and landscape scales. *Journal for Nature Conservation* (Jena). 16(2). 2008. 61-71
- Tiley, G. E. D., Felicite S. Dodd and P. M. Wade, 1996. *Heracleum mantegazzianum* Sommier & Levier. *Journal of Ecology*, Vol. 84, No. 2 (Apr., 1996), pp. 297-319
- [USDA, ARS, 2010. Taxon: Heracleum mantegazzianum Sommier & Levier. National Genetic Resources Program. Germplasm Resources Information Network - \(GRIN\) \[Online Database\]. National Germplasm Resources Laboratory, Beltsville, Maryland.](#)
- Summary:** Available from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?18896> [Accessed 27 March 2010]
- Vanderhoeven, Sonia; Dassonville, Nicolas; Meerts, Pierre, 2005. Increased topsoil mineral nutrient concentrations under exotic invasive plants in Belgium. *Plant & Soil*. 275(1-2). AUG 2005. 169-179.