Noxious Weed Survey/Treatment Guidelines - Giant Hogweed

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Scientific name: *Heracleum mantegazzianum* Sommier & Levier (Apiaceae)

Physical description: A biennial or perennial herb growing 8 to 15 feet tall, giant hogweed usually has a taproot or occasionally fibrous roots. The hollow stems are 2 to 4 inches in diameter with dark reddish-purple splotches and coarse white hairs. The deeply incised compound leaves grow up to 5 feet in width. Hairs on the underside of the leaf are stiff, dense and stubby (only about 0.25 mm long). Particularly characteristic are the short, coarse white hairs at the base of the petioles. The large umbrella-shaped flower heads are up to 2 1/2 feet in diameter across a flat top with numerous small flowers produced in mid-May through July. Plants flower the second, third or fourth year. Some plants are monocarpic and die after flowering; others are perennials and flower for several years. The plant produces flattened, 3/8-inch long oval dry fruits that have a broadly rounded base and broad marginal ridges. Plants sprout in the early spring (or late winter in mild years) from the roots or from seed.

Similar species: A similar related species *Heracleum maximum* Bartr. *(=H. lanatum* L. and *H. spondylum* L. subsp. *montanum)* (Common name cow parsnip) is often mistaken for GHW. Cow parsnip differs in that it reaches a maximum height of 6 feet. Unlike hogweed, the stem has little or no purple. Hairs on cow parsnip are fine and fuzzy (1 mm long) rather than coarse.

Other plants sometimes mistaken for GHW:

- Angelica (*Angelica atropurpurea* L.). Smooth hairless purple stem, growing to a maximum of 8 ft. Round white flowers less than one foot in diameter.
- Wild chervil (*Anthriscus sylvestris* (L.) Hoffm.). Seldom over 6 ft. Small white flower heads, finely dissected leaves.
- Poison Hemlock. (*Conium maculatum* L.) Purple spotted stem. Small white flower heads, finely dissected leaves
- Queen Anne's Lace or wild carrot (*Daucus carota* L.). Small white flower heads, often one dark central flower, finely dissected leaves
- Golden Alexanders. (Zizia aurea (L.) W.D.J Koch) Yellow flowers, Trifoliolate leaves.

Photos and identification information from King County in Washington are on line at: http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm.

An APHIS Cooperative Agricultural Pest Survey (CAPS) Fact Sheet is on line at http://www.ceris.purdue.edu/napis/pests/ghw/facts.txt

Origin and North American Distribution: GHW is a native of the Caucasus, which has been introduced to Europe, Great Britain, Canada, and the United States as an ornamental. It has

become established in New York, Pennsylvania, and Washington State. Reports of infestations have been received from Maine, Michigan and Washington D.C.

Quarantines: GHW is a Federal Noxious Weed and is listed as a State Noxious Weed by several states.

Dispersal: Seeds may be distributed and planted as an ornamental, or dried fruits of the plant may be imported as a spice or foodstuff called "golpar" in Iranian cooking. Birds may consume the fruits or mericarps and spread the seeds. Samples of the seeds tested at the APHIS Noxious Weed Containment Facility (Whiteville Plant Methods Center, Whiteville, North Carolina) were found to have a viability rate of 35%. Seeds landing on nearby water can float for three days before becoming waterlogged and sinking, and can travel great distances, particularly during flooding. This provides an effective mechanism of spread in riparian zones.

Survey Methodology: Contact garden clubs, Departments of Transportation, and others for assistance. Garden clubs have propagated and distributed the plant among members. Conduct visual survey of roadsides, other rights-of-way, stream banks, and marshy areas during the summer and fall in northern states. Do not touch this poisonous plant without gloves and protective clothing. Report number of negative and positive sites to the National Agricultural Pest Information System (NAPIS) (http://www.ceris.purdue.edu/napis/index.html) by county, date, and agency. It is especially effective to survey new areas during flowering, however, removal of seedheads during survey is desirable to deny reproduction.

Control: The preferred method of control is Integrated Pest Management (IPM). Site specific control methods need flexibility to match local management requirements.

Four to five years of prevention of seed production, with treatments to remove adult plants, and appropriate turf re-establishment seem adequate for eradication of a local population.

Property managers and cooperators may use these strategies:

Cultural Control. Mowing does not appear to be effective. The Pennsylvania Department of Agriculture (PDA) has used a roto-tiller and planted a lawn seed mix to return previously infested areas to a natural state. The tillage appears to speed up depletion of the seedbank.

Chemical Control. The Pennsylvania Department of Agriculture recommends utilizing both pre- and post-emergent herbicides, plus competitive vegetation. Over-seeding should be done with grass-seed mixtures recommended for the region. PDA applies Pre-M 60 DG (pendimethalin) at 1-1.5 oz. product/1000 sq. ft. to known infested areas in late March, before emergence of GHW seedlings. If germination of hogweed seed is noticed, Transline (clopralid) is added as tank-mix at 0.5 oz. product/1000 sq. ft. along with Pre-M (pendimethalin) at 1.5 oz product/1000 sq. ft. This treatment is used until other vegetation starts to grow. Post-emergent foliar spot treatments to the GHW leaves are initiated in mid-April using a tank-mix of 91% Thinvert as a carrier, with 7% Garlon 3A (triclopyr) and 2% Transline (clopyralid) using a specialty lo-vol forestry spray tip. Leaf coverage of approximately 15-20% with this mixture appears to be adequate for control. The low application volume and rapid uptake from this treatment method practically eliminates plant runoff. Seedheads should be removed by machete at the same time to deny reproduction. This treatment is also effective applied to cut stems as a basal drench. Herbicide applications may be done through the growing season, with soil treatments possible until snowfall covers the hogweed. In the late growing season, PDA uses Drive (quinchlorac) at 1 oz. product/A applied to turf for GHW seedling suppression after removal of adult plants earlier in the season.

Glyphosate is an effective herbicide, but it should be used with caution around desirable plants, and is more likely to require multiple treatments. The herbicides 2,4-D, TBA, MCPA, and dicamba may burn down foliage, but are not effective in controlling perennial GHW roots. Rodeo (glyphosate) has been recommended for wet areas. Protective clothing should be worn when applying herbicides or removing seedheads. In urban areas, plant materials should be double bagged in plastic, and buried or incinerated in an approved facility.

Biological Control**.** In Switzerland 12 phytophagous insect species found on native hogweed have been identified as possible candidates as biological control. Cattle and pigs are cited as possible biocontrol agents.

Environmental impact: GHW has naturalized in many of the places where it was first introduced. The plants thrive in many habitats but do particularly well where the soil has been disturbed, such as on wasteland, on riverbanks, and along railroads. It prefers moist soil and can quickly dominate ravines and stream banks. It can tolerate full shade, but prefers partial shade to full sunlight. Forest clearings and edges are a preferred habitat for GHW.

Benefits of control: Giant Hogweed is both a public health and environmental hazard, since humans, as well as dogs and other animals may be sensitive to its sap. Furocoumarins in GHW sap cause a skin reaction known as photo-dermatitis or photo-sensitivity. Exposure to the sap in sensitive individuals sensitizes the skin to UV light in sunlight and results in long-lasting swelling, blisters and eruptions of affected sites. Hyper-pigmentation in the affected area may remain for a year or more. In the 1970's, many cases of poisoning were seen in Great Britain where children played with the hollow stems of the plant as pea-shooters or telescopes. In 1998, cyclists complained that contact with “large green plants” left their legs covered in broken and bleeding skin. Contact with the eyes can lead to temporary or permanent blindness.

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