

## WEED RISK ASSESSMENT FORM

Botanical name: *Heracleum mantegazzianum* Sommier & Levier

Common name: giant hogweed

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**Outcome score:**

<b>A. Climatic Comparison</b>		
This species is present or may potentially establish in the following eco-geographic regions:		
1 South Coastal	Yes	
2 Interior-Boreal	Yes	
3 Arctic-Alpine	Yes	

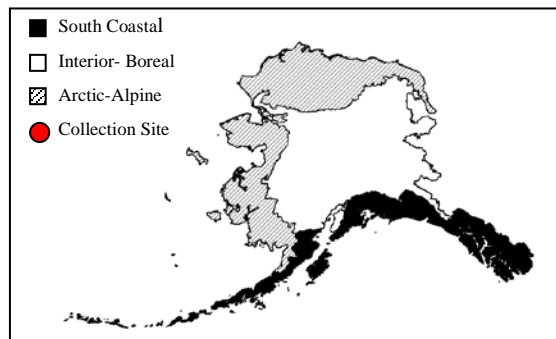
<b>B. Invasiveness Ranking</b>	Total (Total Answered*)	Total
	Possible	
1 Ecological impact	40 (40)	33
2 Biological characteristic and dispersal ability	25 (25)	22
3 Ecological amplitude and distribution	25 (25)	17
4 Feasibility of control	10 (10)	9
Outcome score	100 (100) <sup>b</sup>	81 <sup>a</sup>
Relative maximum score†		0.81

\* For questions answered "unknown" do not include point value for the question in parentheses for "Total Answered Points Possible."

† Calculated as <sup>a/b</sup>.

**A. CLIMATIC COMPARISON:**

	1.1. Has this species ever been collected or documented in Alaska?
	Yes – continue to 1.2
No	No – continue to 2.1
	1.2. Which eco-geographic region has it been collected or documented (see inset map)? <i>Proceed to Section B. Invasiveness Ranking.</i>
	South Coastal
	Interior-Boreal
	Arctic-Alpine



Documentation: *Heracleum mantegazzianum* has not been documented in Alaska (AK Weeds Database 2004, Hultén 1968, UAM 2004, Welsh 1974).

Sources of information:

AK Weeds Database. 2004. Database of exotic vegetation collected in Alaska. University of Alaska, Alaska Natural Heritage Program – US Forest Service – National Park Service Database. Available: <http://akweeds.uaa.alaska.edu/>

Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 p.

University of Alaska Museum. University of Alaska Fairbanks. 2004.

<http://hispidamuseum.uaf.edu:8080/home.cfm>

Welsh, S. L. 1974. Anderson's flora of Alaska and adjacent parts of Canada. Brigham University Press. 724 pp.

2.1. Is there a 40% or higher similarity (based on CLIMEX climate matching) between climates anywhere where the species currently occurs and

a. Juneau (South Coastal Region)?

Yes Yes – record locations and similarity; proceed to Section B.  
Invasiveness Ranking

No

b. Fairbanks (Interior-Boreal)?

Yes Yes – record locations and similarity; proceed to Section B.  
Invasiveness Ranking

No

c. Nome (Arctic-Alpine)?

Yes Yes – record locations and similarity; proceed to Section B.  
Invasiveness Ranking

No

– If “No” is answered for all regions, reject species from consideration

Documentation: Using CLIMEX matching program, climatic similarity between Juneau and areas where the species is documented is high. Introduced range of the species includes Eskdalemuir, United Kingdom (Tiley et al. 1996) and Kristiansund, Norway (Lid and Lid 1994), which has a 63% and 53% climatic match with Juneau. Range of the species includes Røros and Dombås, Norway (Lid and Lid 1994), which has a 76% and 63% climatic match with Nome, and 55% and 53% climatic match with Fairbanks respectively. Thus establishment of *Heracleum mantegazzianum* in South Coastal, Interior-Boreal and Arctic-Alpine ecogeographic regions may be possible.

Sources of information: CLIMEX for Windows, Version 1.1a. 1999. CISRO Publishing, Australia.

Hultén, E. 1968. Flora of Alaska and Neighboring Territories. Stanford University Press, Stanford, CA. 1008 p.

Lid, J. and D. T. Lid. 1994. Flora of Norway. The Norske Samlaget, Oslo. Pp. 1014.

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Weeds of Alaska Database. 2004. AKEPIC Mapping Project Inventory Field Data. Alaska Natural Heritage Program, University of Alaska – US Forest Service – National Park Service. Available: <http://akweeds.uaa.alaska.edu/>

## B. INVASIVENESS RANKING

### 1. ECOLOGICAL IMPACT

#### 1.1. Impact on Ecosystem Processes

- |    |   |    |
|----|---|----|
| A. | No perceivable impact on ecosystem processes  | 0  |
| B. | Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild influence on soil nutrient availability)   | 3  |
| C. | Significant alteration of ecosystem processes (e.g., increases sedimentation rates along streams or coastlines, reduces open water that are important to waterfowl)   | 7  |
| D. | Major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., the species alters geomorphology; hydrology; or affects fire frequency, altering | 10 |

community composition; species fixes substantial levels of nitrogen in the soil making soil unlikely to support certain native plants or more likely to favor non-native species)

U. Unknown

Score **8**

**Documentation:**

Identify ecosystem processes impacted:

Giant hogweed results in a reduction of native species and an increase in soil erosion along stream banks in winter (Noxious Weed Control Program 2003, Tiley and Philp 1992, Wright 1984). The availability of nutrients increases in areas infested by giant hogweed due to the large amount of easily decomposed biomass (Pysek and Pysek 1995).

Rational:

Sources of information:

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].

Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of vegetation science* 6 (5): 711-718.

Tiley, G.G.D. and Philp B. 1992. Strategy for the control of giant hogweed (*Heracleum mantegazzianum*) on the River Ayr in Scotland. *Aspects of Applied Biology* 29: 463-466.

Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). *New Scientist*. 101(1404): 44.

**1.2. Impact on Natural Community Structure**

- A. No perceived impact; establishes in an existing layer without influencing its structure 0
- B. Influences structure in one layer (e.g., changes the density of one layer) 3
- C. Significant impact in at least one layer (e.g., creation of a new layer or elimination of an existing layer) 7
- D. Major alteration of structure (e.g., covers canopy, eradicating most or all layers below) 10
- U. Unknown

Score **7**

**Documentation:**

Identify type of impact or alteration:

Giant hogweed has the ability dominate native communities with up to 50-100% cover (Pysek and Pysek 1995).

Rational:

Sources of information:

Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of vegetation science* 6 (5): 711-718.

**1.3. Impact on Natural Community Composition**

- A. No perceived impact; causes no apparent change in native populations 0
- B. Influences community composition (e.g., reduces the number of individuals in one or more native species in the community) 3
- C. Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the community) 7
- D. Causes major alteration in community composition (e.g., results in the extirpation of one or several native species, reducing biodiversity or change the community composition towards species exotic to the natural community) 10
- U. Unknown

Score **8**

**Documentation:**

Identify type of impact or alteration:

Giant hogweed replaces native vegetation (Noxious Weed Control Program 2003, Tiley and Philp 1992, Tiley et al. 1996, Wright 1984).

**Rational:**

In studies of Pysek and Pysek (1995), invaded vegetation was 40.5% less species rich than surrounding vegetation. Eleven species, which were not present in not-invaded vegetation, recruited in areas invaded by giant hogweed. These species are mainly other invasive plants (*Alopecurus pratensis*, *Dactylis glomerata*, *Elymus repens*, *Cirsium arvense*, *Lupinus polyphyllus*, and *Tanacetum vulgare*).

**Sources of information:**

- Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].
- Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of vegetation science* 6 (5): 711-718.
- Tiley, G.G.D. and Philp B. 1992. Strategy for the control of giant hogweed (*Heracleum mantegazzianum*) on the River Ayr in Scotland. *Aspects of Applied Biology* 29: 463-466.
- Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. *Journal of Ecology* 84: 297-319.
- Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). *New Scientist*. 101(1404): 44.

**1.4. Impact on higher trophic levels (cumulative impact of this species on the animals, fungi, microbes, and other organisms in the community it invades)**

- |  |    |
|--|----|
| A. Negligible perceived impact   | 0  |
| B. Minor alteration  | 3  |
| C. Moderate alteration (minor reduction in nesting/foraging sites, reduction in habitat connectivity, interference with native pollinators, injurious components such as spines, toxins) | 7  |
| D. Severe alteration of higher trophic populations (extirpation or endangerment of an existing native species/population, or significant reduction in nesting or foraging sites)         | 10 |
| U. Unknown   |    |

Score 

10
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**Documentation:**

**Identify type of impact or alteration:**

The plant is a public health hazard, causing severe dermatitis. Similar injury has been reported in birds and animals. The flowers of giant hogweed are insect-pollinated and it may alter local pollination ecology. This plant produces coumarins that have antifungal and antimicrobial properties. Numerous phytophagous animals and parasites are recorded for giant hogweed (Noxious Weed Control Program 2003, Tiley et al. 1996, Wright 1984). Hybrids between *H. mantegazzianum* and *H. sphondylium* occur where the two grow in the same location (Stewart and Grase 1984, Tiley and Philp 1992).

**Rational:**

**Sources of information:**

- Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].
- Stewart, F. and J. Grace. 1984. An experimental study of hybridization between *Heracleum mantegazzianum* Sommier & Levier and *H. sphondylium* L. subsp. *sphondylium* (Umbelliferae). *Watsonia* 15: 73-83.
- Tiley, G.G.D. and Philp B. 1992. Strategy for the control of giant hogweed (*Heracleum mantegazzianum*) on the River Ayr in Scotland. *Aspects of Applied Biology* 29: 463-466.
- Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. *Journal of Ecology* 84: 297-319.
- Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). *New Scientist*. 101(1404): 44.

Total Possible	40
Total	33

## 2. BIOLOGICAL CHARACTERISTICS AND DISPERSAL ABILITY

### 2.1. Mode of reproduction

- A. Not aggressive reproduction (few [0-10] seeds per plant and no vegetative reproduction) 0
- B. Somewhat aggressive (reproduces only by seeds (11-1,000/m<sup>2</sup>)) 1
- C. Moderately aggressive (reproduces vegetatively and/or by a moderate amount of seed, <1,000/m<sup>2</sup>) 2
- D. Highly aggressive reproduction (extensive vegetative spread and/or many seeded, >1,000/m<sup>2</sup>) 3
- U. Unknown

Score 

3
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#### Documentation:

Describe key reproductive characteristics (including seeds per plant):

Giant hogweed reproduces by numerous seeds (from between 27,000 to over 50,000 seeds on a vigorous plant Pysek 1991, Tiley et al. 1996, Noxious Weed Control Program 2003).

Rational:

Sources of information:

- Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].
- Pysek, P. 1991. *Heracleum mantegazzianum* in the Czech Republic – the dynamics of spreading from the historical perspective. *Folia geobotanica and phytotaxonomica* 26: 439-454.
- Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. *Journal of Ecology* 84: 297-319.
- Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). *New Scientist*. 101(1404): 44.

### 2.2. Innate potential for long-distance dispersal (bird dispersal, sticks to animal hair, buoyant fruits, wind-dispersal)

- A. Does not occur (no long-distance dispersal mechanisms) 0
- B. Infrequent or inefficient long-distance dispersal (occurs occasionally despite lack of adaptations) 2
- C. Numerous opportunities for long-distance dispersal (species has adaptations such as pappus, hooked fruit-coats, etc.) 3
- U. Unknown

Score 

2
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#### Documentation:

Identify dispersal mechanisms:

The majority of seeds fall near the maternal plant. Wind disperse seeds a short distance (Pysek and Prach 1993, Tiley et al. 1996, Wright 1984). Long-distance dispersal occurs naturally along water courses. The fruits float in water for up to three days. Most seeds and seedlings were found within 10 m of the colony and few more than 50 m away (Clegg and Grace 1974).

Rational:

Sources of information:

- Glegg, L.M. and J. Grace. 1974. The distribution of *Heracleum mantegazzianum* (Somm. & Levier) near Edinburgh. *Transactions of Botanical Society of Edinburgh* 42: 223-229.
- Pysek, P. and K. Prach. 1993 July. Plant invasions and the role of riparian habitats: a comparison of four species alien to Central Europe. *Journal of Biogeography*

20 (4): 413-420.

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

2.3. Potential to be spread by human activities (both directly and indirectly – possible mechanisms include: commercial sales, use as forage/revegetation, spread along highways, transport on boats, contamination, etc.)

- A. Does not occur 0
- B. Low (human dispersal is infrequent or inefficient) 1
- C. Moderate (human dispersal occurs) 2
- D. High (there are numerous opportunities for dispersal to new areas) 3
- U. Unknown

Score

**Documentation:**

Identify dispersal mechanisms:

Giant hogweed has escaped from ornamental gardens and naturalizes easily. Despite prohibition of giant hogweed, it is sometimes misidentified and sold in nurseries. Dispersal also includes the use of seed heads in flower arrangements and it is spread along right-of-ways (Noxious Weed Control Program 2003, Tiley et al. 1996, Wright 1984).

Rational:

Sources of information:

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].  
Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.  
Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). New Scientist. 101(1404): 44.

2.4. Allelopathic

- A. No 0
- B. Yes 2
- U. Unknown

Score

**Documentation:**

Describe effect on adjacent plants:

There is no recorded allelopathy in this species.

Rational:

The large volume of literature on invasiveness of this species and lack of its mention suggests it is not allelopathic.

Sources of information:

2.5. Competitive ability

- A. Poor competitor for limiting factors 0
- B. Moderately competitive for limiting factors 1
- C. Highly competitive for limiting factors and/or nitrogen fixing ability 3
- U. Unknown

Score

**Documentation:**

Evidence of competitive ability:

Giant hogweed is very competitive due to its quick early-season growth, tolerance of shade, and very large leaf area (Noxious Weed Control Program 2003, Pysek and Pysek 1995).

Rational:

Sources of information:

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].  
Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of vegetation science* 6 (5): 711-718.

2.6. Forms dense thickets, climbing or smothering growth habit, or otherwise taller than the surrounding vegetation

- A. No 0
- B. Yes 2
- U. Unknown

Score

Documentation:

Describe grow form:

Giant hogweed has the ability to shade out the surrounding vegetation due to its height and large leaves (Noxious Weed Control Program 2003, Pysek and Pysek 1995, Wright 1984).

Rational:

Sources of information:

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].  
Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. *Journal of vegetation science* 6 (5): 711-718.  
Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). *New Scientist*. 101(1404): 44.

2.7. Germination requirements

- A. Requires open soil and disturbance to germinate 0
- B. Can germinate in vegetated areas but in a narrow range or in special conditions 2
- C. Can germinate in existing vegetation in a wide range of conditions 3
- U. Unknown

Score

Documentation:

Describe germination requirements:

Under field conditions germination and establishment is best in open vegetation with adequate light and moisture. However, germination also occurs in under vegetation (Tiley et al. 1996).

Rational:

Sources of information:

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. *Journal of Ecology* 84: 297-319.

2.8. Other species in the genus invasive in Alaska or elsewhere

- A. No 0
- B. Yes 3
- U. Unknown

Score

Documentation:

Species:

*Heracleum sphondylium* is another introduced species, but it is not listed as an invasive (USDA 2002).

Sources of information:

USDA (United States Department of Agriculture), NRCS (Natural Resource

Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

2.9. Aquatic, wetland, or riparian species

- A. Not invasive in wetland communities 0
- B. Invasive in riparian communities 1
- C. Invasive in wetland communities 3
- U. Unknown

Score 

3
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**Documentation:**

Describe type of habitat:

In its native habitat giant hogweed occurs in forest edges and glades, often at stream sides in montane (Pysek 1991 or Tiley et al. 1996, Pysek and Prach 1993, Wright 1984). In Europe its primary colonization has been along watercourses (Clegg and Grace 1974, Pysek 1991). Pysek (1991) reported habitat type where the species has been recorded: 42% occurred in a ponds, valleys, river banks, road verges, and railway tracks, 41.5% occurred in human-made, disturbed habitats including garbage dumps, parks, and gardens, and 15.7% occurred in semi-natural habitats such as shrub lands, meadows, and forests

Rational:

Sources of information:

Glegg, L.M. and J. Grace. 1974. The distribution of *Heracleum mantegazzianum* (Somm. & Levier) near Edinburgh. Transactions of Botanical Society of Edinburgh 42: 223-229.

Pysek, P. 1991. *Heracleum mantegazzianum* in the Czech Republic – the dynamics of spreading from the historical perspective. Folia geobotanica and phytotaxonomica 26: 439-454.

Pysek, P. and K. Prach. 1993 July. Plant invasions and the role of riparian habitats: a comparison of four species alien to Central Europe. Journal of Biogeography 20 (4): 413-420.

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). New Scientist. 101(1404): 44.

Total Possible 

25
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Total 

22
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**3. DISTRIBUTION**

3.1. Is the species highly domesticated or a weed of agriculture

- A. No 0
- B. Is occasionally an agricultural pest 2
- C. Has been grown deliberately, bred, or is known as a significant agricultural pest 4
- U. Unknown

Score 

0
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**Documentation:**

Identify reason for selection, or evidence of weedy history:

Giant hogweed is not considered an agricultural weed.

Rational:

Sources of information:

3.2. Known level of impact in natural areas

- A. Not known to cause impact in any other natural area 0
- B. Known to cause impacts in natural areas, but in dissimilar habitats and climate zones than exist in regions of Alaska 1



- C. Known to cause low impact in natural areas in similar habitats and climate zones to those present in Alaska 3
- D. Known to cause moderate impact in natural areas in similar habitat and climate zones 4
- E. Known to cause high impact in natural areas in similar habitat and climate zones 6
- U. Unknown

Score 4

**Documentation:**

Identify type of habitat and states or provinces where it occurs:

Giant hogweed's infestations are located along streams and rivers in Washington State (Noxious Weed Control Program 2003). In Scotland giant hogweed invades grasslands and woodlands (Tiley et al. 1996). Giant hogweed was observed in mixed riparian communities, where it became entirely dominant (Clegg and Grace 1974). In the Czech Republic giant hogweed replaces native vegetation in meadows, shrubs, forest, and forest margins (Pysek 1991, Pysek and Pysek 1995).

Sources of information:

Glegg, L.M. and J. Grace. 1974. The distribution of *Heracleum mantegazzianum* (Somm. & Levier) near Edinburgh. Transactions of Botanical Society of Edinburgh 42: 223-229.

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].

Pysek, P. 1991. *Heracleum mantegazzianum* in the Czech Republic – the dynamics of spreading from the historical perspective. Folia geobotanica and phytotaxonomica 26: 439-454.

Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. Journal of vegetation science 6 (5): 711-718.

Tiley, G.E.D., S.D. Felicite and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

**3.3. Role of anthropogenic and natural disturbance in establishment**

- A. Requires anthropogenic disturbances to establish 0
- B. May occasionally establish in undisturbed areas but can readily establish in areas with natural disturbances 3
- C. Can establish independent of any known natural or anthropogenic disturbances 5
- U. Unknown

Score 3

**Documentation:**

Identify type of disturbance:

Disturbed habitats such as open disturbed communities are more easily invaded by giant hogweed. However, it can also invade closed communities such as grasslands and woodlands (Pysek and Pysek 1995, Tiley et al. 1996).

Rational:

Sources of information:

Pysek, P. and A. Pysek. 1995. Invasion by *Heracleum mantegazzianum* in different habitats in the Czech Republic. Journal of vegetation science 6 (5): 711-718.

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

**3.4. Current global distribution**

- A. Occurs in one or two continents or regions (e.g., Mediterranean region) 0
- B. Extends over three or more continents 3
- C. Extends over three or more continents, including successful introductions in arctic or subarctic regions 5
- U. Unknown

Score 5

**Documentation:**

**Describe distribution:**

Giant hogweed is native to the Caucasus Mountains and southwestern Asia. It has naturalized throughout central Russia and Europe. It was introduced to Australia, New Zealand, Canada, and the United States (Tiley et al. 1996, USDA, ARS 2005). It has been recorded from arctic and subarctic regions in Norway (Lid and Lid 1995).

**Rational:**

**Sources of information:**

Lid, J. and D. T. Lid. 1994. Flora of Norway. The Norske Samlaget, Oslo. Pp. 1014.  
Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.  
USDA, ARS, National Genetic Resources Program. *Germplasm Resources Information Network - (GRIN)* [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <http://www.ars-grin.gov/var/apache/cgi-bin/npgs/html/taxon.pl?300618> [January 28, 2005].

**3.5. Extent of the species U.S. range and/or occurrence of formal state or provincial listing**

- A. 0-5% of the states 0
- B. 6-20% of the states 2
- C. 21-50%, and/or state listed as a problem weed (e.g., “Noxious,” or “Invasive”) in 1 state or Canadian province 4
- D. Greater than 50%, and/or identified as “Noxious” in 2 or more states or Canadian provinces 5
- U. Unknown

Score 5

**Documentation:**

**Identify states invaded:**

Giant hogweed has been documented from Connecticut, Maine, Massachusetts, New Jersey, New York, Oregon, Vermont, and Washington. Giant hogweed is currently on the United States Federal noxious weed list. This plant is considered noxious in 12 US states, including Oregon and Washington (USDA 2002).

**Rational:**

**Sources of information:**

USDA (United States Department of Agriculture), NRCS (Natural Resource Conservation Service). 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

Total Possible 25

Total 17

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**4. FEASIBILITY OF CONTROL**

**4.1. Seed banks**

- A. Seeds remain viable in the soil for less than 3 years 0
- B. Seeds remain viable in the soil for between 3 and 5 years 2
- C. Seeds remain viable in the soil for 5 years and more 3
- U. Unknown

Score 3

**Documentation:**

**Identify longevity of seed bank:**

Seed longevity can be greater than seven years (Noxious Weed Control Program 2003).

**Rational:**

**Sources of information:**

Noxious Weed Control Program. 2003. King County Noxious Weed List. Giant hogweed (*Heracleum mantegazzianum*). Department of Natural Resources and Parks. Water and Land Resources Division. Washington. Available: <http://dnr.metrokc.gov/wlr/LANDS/weeds/hogweed.htm> [January 28, 2005].

4.2. Vegetative regeneration

- A. No resprouting following removal of aboveground growth 0
- B. Sprouts from roots or stumps 2
- C. Any plant part is a viable propagule 3
- U. Unknown

Score 

2
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Documentation:

Describe vegetative response:

Resprouting occurs from the base of the plant when flowering stems are cut above ground level. After the stem is cut, a tall canopy is re-established within two weeks (Tiley et al. 1996, Wright 1984).

Rational:

Sources of information:

Tiley, G.E.D., S.D. Felicite, and P.M. Wade. 1996. Biological flora of the British Isles. *Heracleum mantegazzianum* Sommier & Levier. Journal of Ecology 84: 297-319.

Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). New Scientist. 101(1404): 44.

4.3. Level of effort required

- A. Management is not required (e.g., species does not persist without repeated anthropogenic disturbance) 0
- B. Management is relatively easy and inexpensive; requires a minor investment in human and financial resources 2
- C. Management requires a major short-term investment of human and financial resources, or a moderate long-term investment 3
- D. Management requires a major, long-term investment of human and financial resources 4
- U. Unknown

Score 

4
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Documentation:

Identify types of control methods and time-term required:

Control of giant hogweed can include mechanical, chemical, and biological methods. Plants must be dug out entirely or the roots cut at least 3-4 inches below ground level. Cutting plant stems is ineffective. Herbicides have been used on this plant with variable effectiveness. Grazing by domestic herbivores in springtime may be effective. A coordinated control program is required over the whole infestation and surrounding areas, since fresh seed supplies continue to spread from uncontrolled plants. A minimum of 5 years of an intensive control is required to control giant hogweed (Wright 1984, Tiley and Philp 1992).

Rational:

Sources of information:

Tiley, G.G.D. and Philp B. 1992. Strategy for the control of giant hogweed (*Heracleum mantegazzianum*) on the River Ayr in Scotland. Aspects of Applied Biology 29: 463-466.

Wright, M. 1984. Giant hogweed: time for action is now (*Heracleum mantegazzianum*, Great Britain). New Scientist. 101(1404): 44.

Total Possible 

10
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Total 

9
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**Total for 4 sections Possible**

100
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**Total for 4 sections**

81
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