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| **NAME OF SPECIES:** *Valeriana officinalis* L. | |
| **Synonyms:** | |
| **Common Name:** Garden heliotrope, garden valerian, Greek valerian, common valerian, valerian | **Cultivars?** YES ☒ NO ☐ |
| **A. CURRENT STATUS AND DISTRIBUTION** | |
| I. In Wisconsin? | 1. YES ☒ NO ☐ |
| | 2. Abundance: There are 61 herbarium specimens on record in Wisconsin (1). |
| | 3. Geographic Range: Garden valerian is found in 18 counties throughout the state (1,2). |
| | 4. Habitat Invaded:<br>Disturbed Areas ☒ Undisturbed Areas ☐ |
| | 5. Historical Status and Rate of Spread in Wisconsin: First herbarium specimen was recorded in 1890 (1). |
| | 6. Proportion of potential range occupied: In Wisconsin, it is thought that a large percentage of vulnerable sites are as yet unoccupied (6). |
| II. Invasive in Similar Climate Zones | 1. YES ☒ NO ☐<br>Where (include trends): Found in 21 states across the United States, mostly concentrated in the northeast part of the country. Garden valerian is considered potentially invasive and banned in Connecticut (3). Reported as invasive in Illinois (5). Also established in Canada, where it invades similar habitats (6). |
| III. Invasive in Which Habitat Types | 1. Upland ☒ Wetland ☒ Dune ☐ Prairie ☐ Aquatic ☐<br>Forest ☒ Grassland ☒ Bog ☐ Fen ☐ Swamp ☒<br>Marsh ☒ Lake ☐ Stream ☒ Other: Found in open disturbed areas including open woodlands, grasslands, and roadsides (5). |
| IV. Habitat Affected | 1. Soil types favored or tolerated: V. officinalis can tolerate both wet and dry soils (4). It can grow in most soil types, but prefers chalky, clay, loamy, and sandy soil types. It also prefers neutral soil pH (10). |
| | 2. Conservation significance of threatened habitats: Although Garden Valerian typically invades disturbed habitats, it can spread from those disturbed habitats to areas of higher conservation significance, such as mesic forests, wet meadows and wooded swamps (6). Several populations recently found in Sauk Co, in and near Devils Lake St. Park. |
| V. Native Range and Habitat | 1. List countries and native habitat types: Native to temperate Asia and Europe (4). |
| VI. Legal Classification | 1. Listed by government entities? Listed by Connecticut as potentially invasive and banned (3). |
| | 2. Illegal to sell? YES ☒ NO ☐<br>Notes: CT |
| **B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS** | |
| I. Life History | 1. Type of plant: Annual ☐ Biennial ☐ Monocarpic Perennial ☐<br>Herbaceous Perennial ☒ Vine ☐ Shrub ☐ Tree ☐ |
| | 2. Time to Maturity: 2-5 years to maturity (10). Seedlings in the wild state take several years to reach the flowering stage, but under cultivation may flower their second year (12). |

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| | 3. Length of Seed Viability: Often less than 2 years (11). |
| | 4. Methods of Reproduction: Asexual ☒ Sexual ☒<br>Notes: Reproduces by seed. In some situations, it also reproduces vegetatively by short aerial stolons and short rhizomes (6). Seedlings in the wild state take several years to reach the flowering stage, but under cultivation may flower their second year. Vegetatively species occasionally produce bulbils in the leaf axils. In some situations, it also reproduces vegetatively by epigeal and hypogeal stolons (12). |
| | 5. Hybridization potential: |
| II. Climate | 1. Climate restrictions: USDA Zones 4a-9b |
| | 2. Effects of potential climate change: |
| III. Dispersal Potential | 1. Pathways - Please check all that apply:<br><br>Unintentional: Bird ☐ Animal ☒ Vehicles/Human ☒<br>Wind ☒ Water ☒ Other: Roadside mowing spreading seed<br><br>Intentional: Ornamental ☒ Forage/Erosion control ☐<br>Medicine/Food: Medicinal uses (7) Other: |
| | 2. Distinguishing characteristics that aid in its survival and/or inhibit its control: Garden valerian's capacity for vegetative reproduction allows it to form dense colonies (6). |
| IV. Ability to go Undetected | 1. HIGH ☐ MEDIUM ☐ LOW ☒ |
| C. DAMAGE POTENTIAL | |
| I. Competitive Ability | 1. Presence of Natural Enemies: In New Zealand, valerian appears to be relatively free of diseases and pests. *Phoma* spp. and *Sclerotinia* spp have been identified in infected plants in New Zealand soils, along with a grass grub (8). |
| | 2. Competition with native species: The vigorous growth habit and the self-sowing seeds enable this species to displace native vegetation (5). Typically inhabits somewhat disturbed habitats, but has often been observed to spread from these disturbed areas into a variety of more natural communities, such as wet meadows and wooded swamps. This species may establish in high-quality examples of these natural communities, particularly when the communities naturally have fully or partially open canopies (6). |
| | 2. Rate of Spread:<br>-changes in relative dominance over time:<br>-change in acreage over time:<br>HIGH(1-3 yrs) ☐ MEDIUM (4-6 yrs) ☒ LOW (7-10 yrs) ☐<br>Notes: Although much of the United States appears climatically suitable for this species, past and present spread of established populations do not appear to be particularly rapid, although it does appear to be currently increasing in some regions (6). |

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| II. Environmental Effects | 1. Alteration of ecosystem/community composition?<br>YES ☒ NO ☐<br>Notes: Several sources noted that this species displaces native plant species. Its capacity for vegetative reproduction allows it to form dense colonies (6). |
| | 2. Alteration of ecosystem/community structure?<br>YES ☒ NO ☐<br>Notes: Often becomes abundant and sometimes even dominant in favorable habitats. Its capacity for vegetative reproduction allows it to form dense colonies. These colonies likely alter the density and/or cover of the herbaceous layer (6). |
| | 3. Alteration of ecosystem/community functions and processes?<br>YES ☐ NO ☒<br>Notes: This species has been cultivated in North America as a medicinal and ornamental plant for more than 150 years and has been established outside cultivation for at least 90 years. However, no reports of impacts on ecosystem processes or system-wide parameters were found (6). |
| | 4. Allelopathic properties? YES ☐ NO ☐<br>Notes: |
| **D. SOCIO-ECONOMIC EFFECTS** | |
| I. Positive aspects of the species to the economy/society: | Notes: Used medicinally, as flavoring for foods, and in essential oils (9). Also sold as an ornamental.<br><br>Based on the 2011 WNA Economic Impact Survey, the following information was reported for this plant. Out of the 204 nurseries responding, 7 reported selling this plant. 7 reported it comprised <1% of their gross plant sales. 0 reported it comprised 1 – 2.9% of their gross plant sales. The estimated total dollar amount contributed to Wisconsin's economy by this plant is $17,180. It ranks 39th among the 63 taxa surveyed. The estimated wholesale value of plants in production is $3,500. The majority of respondents said it took <6 months to produce this plant. The trend for the 2011 season was to remain unchanged (14). |
| II. Potential Socio-Economic Effects of Requiring Controls: | Positive:<br>Negative: |
| III. Direct and indirect Socio-Economic Effects of Plant : | Notes: |
| IV. Increased Costs to Sectors Caused by the Plant:: | Notes: |
| V. Effects on human health: | Notes: Valeriana is used to reduce tension and anxiety, over-excitability and hysterical states. It is a valuable treatment for insomnia, the sedative effect due to the valepotriates and the isovaleric acid, which is also responsible for the characteristic smell of valerian. Documented research has noted a mild hypnotic action in both normal sleepers and insomniacs, indicated by a beneficial effect on sleep latency, wake-time after sleep, frequency of waking, nocturnal motor activity, inner restlessness and tension and quality of sleep (7). |

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| VI. Potential socio-economic effects of restricting use: | Positive:<br>Negative: |
| **E. CONTROL AND PREVENTION** | |
| I. Costs of Prevention (please be as specific as possible): | Notes: |
| II. Responsiveness to prevention efforts: | Notes: |
| III. Effective Control tactics: (provide only basic info) | Mechanical ☒ Biological ☐ Chemical ☒<br>Times and uses: Small stands and isolated plants can be relatively easily controlled by hand-pulling, since plants are relatively shallow-rooted and are often easy to pull out when the soil is moist. The stems are brittle, so they easily break off making uprooting difficult. Because this species is rosette-forming, mowing is not a viable control option, although it can be used to prevent seed set.. Medium-sized stands can presumably be controlled using commonly available herbicides (e.g. glyphosate, 2,4-D, triclopyr), although little or no published information exists to confirm the efficacy of this approach. For very large stands, late spring burning may be useful in fire-adapted communities (6). |
| IV. Costs of Control: | Notes: This species appears to have a transient seed bank allowing control to be accomplished quickly (6). |
| V. Cost of prevention or control vs. Cost of allowing invasion to occur: | Notes: |
| VI. Non-Target Effects of Control: | Notes: |
| VII. Efficacy of monitoring: | Notes: |
| VIII. Legal and landowner issues: | Notes: Because this species predominantly establishes as an escape from horticultural cultivation, many infestations are likely to be located on or near private land (6). |
| **F. HYBRIDS AND CULTIVARS AND VARIETIES** | |
| I. Known hybrids?<br><br>YES ☐ NO ☐ | Name of hybrid:<br><br>Names of hybrid cultivars: |
| II. Species cultivars and varieties | Names of cultivars, varieties and any information about the invasive behaviors of each: |

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| | Notes: Subordinate taxa (13):<br>V. officinalis var. latifolia; syn: V. dageletiana Nakai ex F. Maek.<br><br>V. officinalis var. officinalis; syn: V. stubendorfii Kreyer ex Kom.<br><br>A respondent to the nursery survey reported that this species is too invasive for most gardens; another commented that it is listed as native by many herbaria. (15) |

## G. REFERENCES USED:

☒ UW Herbarium (Madison or Stevens Point)
☒ WI DNR
☐ Bugwood (Element Stewardship Abstracts)
☐ Native Plant Conservation Alliance
☒ IPANE
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| 14 | Wiegrefe, Susan. 2011. Wisconsin Nursery Association Survey of the Economic impact of potentially invasive species in Wisconsin |
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**Author(s), Draft number, and date completed:** Emily St. Aubin, Draft 1, 03/01/2011

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