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| NAME OF SPECIES: Polygonum perfoliatum L. (1) | |
| Synonyms: Ampelygonum perfoliatum (L.) Roberty & Vautier, Persicaria perfoliata (L.) H. Gross (4) | |
| Common Name: Asiatic tearthumb (1). Asiatic tearthumb, devil's-tail tearthumb, mile-a-minute-vine, mile-a-minute-weed, minuteweed, tearthumb (4). | |
| A. CURRENT STATUS AND DISTRIBUTION | |
| I. In Wisconsin? | 1. YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| | 2. Abundance: |
| | 3. Geographic Range: |
| | 4. Habitat Invaded: Disturbed Areas <input type="checkbox"/> Undisturbed Areas <input type="checkbox"/> |
| | 5. Historical Status and Rate of Spread in Wisconsin: |
| | 6. Proportion of potential range occupied: |
| II. Invasive in Similar Climate Zones | 1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Where (include trends): The introduction of P. perfoliatum occurred in the late 1930's to a nursery site in York County, Pennsylvania produced a successful population of this plant. It is speculated that the seed was spread with Rhododendron stock. (4) Currently escaped in the East from Virginia north to Rhode Island and west to Ohio. (5) |
| | III. Invasive in Similar Habitat Types |
| 1. Upland <input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Dune <input type="checkbox"/> Prairie <input type="checkbox"/> Aquatic <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Grassland <input type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp <input type="checkbox"/> Marsh <input type="checkbox"/> Lake <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Other: Generally colonizes open, disturbed areas. Light—at least 63% of the available sunlight—is required for this species to successfully colonize a site. Areas that have "little canopy cover, sparse vegetation, a good moisture regime, a protective leaf mulch, and continual disturbance... are vulnerable". This species is commonly found in roadsides, ditches, rights-of-way, vacant lots, clearcuts and young tree farms, and other disturbed habitats. It may also be found in wet meadows that may support rare wetland plants and in natural riparian and floodplain areas. (5) | |
| IV. Habitat Effected | 1. Soil types favored or tolerated: Mile-a-minute has a preference for moist soils, but can survive relatively low soil moisture, especially areas with abundant leaf litter (5). It also occurs in environments that are extremely wet with poor soil structure (4). |
| | 2. Conservation significance of threatened habitats: While at this time mile-a-minute weed is not nearly as widespread as kudzu in the U.S, it is rapidly spreading and could present as great a threat to native biodiversity as kudzu in the near- to medium-term (5). |
| V. Native Habitat | 1. List countries and native habitat types: P. perfoliatum's native range is from India to Eastern Asia, China, and the islands from Japan to the Philippines; it is also native to Nepal, Burma, Manchuria, Korea, Taiwan and the Malay Peninsula. (4) |
| VI. Legal Classification | 1. Listed by government entities? Alabama: Class A noxious weed; Connecticut: Invasive, banned; Massachusetts: Prohibited; North Carolina: Class A noxious weed; Ohio: Prohibited noxious weed; Pennsylvania: Noxious weed; South Carolina: Plant pest (1) |

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| | 2. <u>Illegal to sell?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Connecticut; Massachusetts; Ohio; Pennsylvania. (1) |
| B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS | |
| I. Life History | <p>1. <u>Type of plant:</u> Annual <input checked="" type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input type="checkbox"/> Vine <input checked="" type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/></p> <p>2. <u>Time to Maturity:</u> Can reach reproductive maturity very early in the season and can alter the allocation of energy from vegetative growth to earlier reproduction when intraspecific competition is high. Will produce seeds as early as July, and seeds can germinate as early as March (5).</p> <p>3. <u>Length of Seed Viability:</u> Seed viability is 3 years (5).</p> <p>4. <u>Methods of Reproduction:</u> Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes:</u> Fruits in September (3)</p> <p>5. <u>Hybridization potential:</u> NA</p> |
| II. Climate | <p>1. <u>Climate restrictions:</u> The plant is a tender annual and dies at the first frost but the seeds must undergo a minimum 8 week period of temperatures 10 degrees C or below in order to break dormancy and germinate (5).</p> <p>2. <u>Effects of potential climate change:</u> May be able to move further north.</p> |
| III. Dispersal Potential | <p>1. <u>Pathways - Please check all that apply:</u></p> <p><u>Unintentional:</u> Bird <input checked="" type="checkbox"/> Animal <input checked="" type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/> Wind <input type="checkbox"/> Water <input checked="" type="checkbox"/> Other: Birds can disperse the seeds moderately long distances as can water (fruit can remain buoyant for 7-9 days). Seeds are also inadvertently transported in nursery stock. (5) Transport of seeds short distances by native ant species has been observed. These seed-carrying ants may play an important role in the survival and germination of the seeds of mile-a-minute weed. Other animals observed eating mile-a-minute weed fruits are chipmunks, squirrel and deer. (4)</p> <p><u>Intentional:</u> Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: <input type="checkbox"/> Other:</p> <p>2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control:</u> This incredibly fast growing, annual vine can reach 20 - 25 ft in 6 - 8 weeks (3). The ability of mile-a-minute to attach to other plants with its recurved barbs and climb over the plants to reach an area of high light intensity is a key to its survival(4). Can reach reproductive maturity very early in the season and can alter the allocation of energy from vegetative growth to earlier reproduction when intraspecific competition is high (5).</p> |
| IV. Ability to go Undetected | 1. HIGH <input type="checkbox"/> MEDIUM <input type="checkbox"/> LOW <input checked="" type="checkbox"/> |
| C. DAMAGE POTENTIAL | |

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| I. Competitive Ability | <p>1. <u>Presence of Natural Enemies</u>: Japanese Beetles (7).</p> <p>2. <u>Competition with native species</u>: Large infestations of mile-a-minute weed eventually reduce native plant species in natural areas. Small populations of extremely rare plants may be eliminated entirely. (4) In a comparison of changes in plant diversity on sites with and without mile-a-minute weed in Virginia, plant diversity was reduced in the first year in plots with mile-a-minute weed, compared to controls. Loss of native plant species diversity from mile-a-minute weed affects wildlife species by reducing or eliminating their food plants and habitats. (7)</p> <p>3. Rate of Spread: -changes in relative dominance over time: -change in acreage over time: HIGH(1-3 yrs) <input checked="" type="checkbox"/> MEDIUM (4-6 yrs) <input type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/> Notes: Since it escaped a nursery in York County, PA in the 1930s, this species has been steadily expanding its range and there is no reason to assume range expansion is not continuing. As of 2005, it had expanded 300 miles out from its initial occurrence. This incredibly fast growing, annual vine can reach 20 - 25 ft in 6 - 8 weeks (3). Many sources note that this species is spreading rapidly, and it is estimated that the current range is only about 20 percent of the estimated possible range for this species.(5)</p> |
| II. Environmental Effects | <p>1. <u>Alteration of ecosystem/community composition?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Overgrows and outcompetes native vegetation (5).</p> <p>2. <u>Alteration of ecosystem/community structure?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: In more open areas and forest edges this vine can form a dense mat that covers everything, including small trees and shrubs (5) (6).</p> <p>3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Large infestations can cover and block light from all plants below, weakening and eventually killing them; will eventually reduce native plant species in natural areas (5).</p> <p>4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:</p> |
| D. SOCIO-ECONOMIC Effects | |
| I. Positive aspects of the species to the economy/society: | Notes: Medicinal uses for: Abscess; Alexiteric; Bite(Snake); Boil; Circulation; Diuretic; Dysentery; Dysuria; Enteritis; Fever; Hematuria; Trauma; Tumor. (2). |
| II. Potential socio-economic effects of requiring controls: Positive: Negative: | Notes: NA |
| III. Direct and indirect socio-economic effects of plant: | Notes: Because it can smother tree seedlings, mile-a-minute weed has a negative effect on Christmas tree farms, forestry operations on pine plantations and reforestation of natural areas. It has the |

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| | <p>potential to be a problem to nursery and horticulture crops that are not regularly tilled as a cultivation practice. (4)</p> <p>This weed is a particular threat to forest regeneration. In commercial forest areas where mile-a-minute weed has affected regeneration, costs ranging from about \$60 to \$500/ha are incurred for site preparation, weed management (e.g., herbicides, burning), and labor to replant seedlings (Charles Brown, pers. comm.). Unfortunately, in both commercial and natural regeneration areas, this weed is difficult to control with a single herbicide application due to prolonged persistence of seeds in the soil. Mile-a-minute weed can invade apple orchards. Mile-a-minute weed also infests recreational and residential areas, and the dense, prickly thickets formed by this weed are especially bothersome to people and their pets. (7)</p> |
| IV. Increased cost to sectors caused by the plant: | Notes: NA |
| V. Effects on human health: | Notes: NA |
| VI. Potential socio-economic effects of restricting use: Positive: Negative: | Notes: NA |
| E. CONTROL AND PREVENTION | |
| I. Costs of Prevention (including education; please be as specific as possible): | Notes: NA |
| II. Responsiveness to prevention efforts: | Notes: NA |
| III. Effective Control tactics: | <p>Mechanical <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/></p> <p>Times and uses: Mechanical control can be done by mowing or hand pulling, especially before seed set. For chemical control, herbicides with surfactants may be needed to wet the leaves. Two broad spectrum, non-selective herbicides are glyphosphate (Round-up and other brand names) and Finale. The seed from this weed germinates in late spring. Applying a pre-emergence that is effect against broad leaf weeds in late spring will prevent the annual germinating seeds from emerging. (3) (5)</p> |
| IV. Minimum Effort: | Notes: With seed survival at 4 years, monitoring needs to be continued for at least that long (5). |
| V. Costs of Control: | Notes: |
| VI. Cost of prevention or control vs. Cost of allowing invasion to occur: | Notes: |
| VII. Non-Target Effects of Control: | Notes: Herbicides may have a negative effect on native species. |
| VIII. Efficacy of monitoring: | Notes: |
| IX. Legal and landowner issues: | Notes: |

F. REFERENCES USED:

- UW Herbarium
- WI DNR
- TNC
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

| Number | Reference |
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| 2 | 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/cgi-bin/npgs/html/taxon.pl?29263 (02 May 2007) |
| 3 | Stanton Gill, Regional Specialist, Central Maryland Research and Education Center, University of Maryland, Cooperative Extension Service. http://www.agnr.umd.edu/users/cmrec/art3.htm |
| 4 | Okay, J.G. 2005. Fact Sheet: Mile-a-minute Weed. Plant Conservation Alliance's Alien Plant Working Group Weeds Gone Wild: Alien Plant Invaders of Natural Areas. http://www.nps.gov/plants/alien/fact/pope1.htm |
| 5 | NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer . (Accessed: May 2, 2007). |
| 6 | Czarapata, Elizabeth J. 2005. Invasive Plants of the Upper Midwest: An Illustrated Guide to their Identification and Control. The University of Wisconsin Press, Madison, WI. |
| 7 | Wu, Yun; C. Reardon, and Ding Jian-qing. Mile-a-Minute Weed. In: Van Driesche, R., et al., 2002, Biological Control of Invasive Plants in the Eastern United States, USDA Forest Service Publication FHTET-2002-04, 413 p. http://www.invasive.org/eastern/biocontrol/26MileAMinute.html |
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