
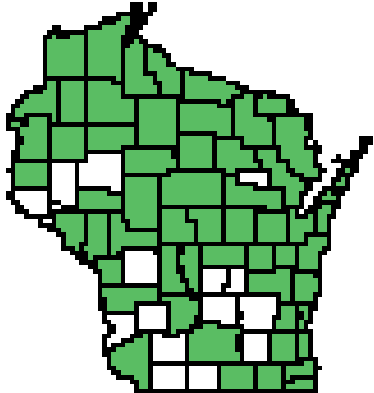


Aquatic Plant		True forget-me-not; European forget-me-not	
I. Current Status and Distribution			<i>Myosotis scorpioides</i>
a. Range	Global/Continental	Wisconsin	
Native Range Europe, Asia ^{1,2}			
	Figure 1: U.S and Canada Distribution Map ³	Figure 2: WI Distribution Map ⁴	
Abundance/Range Widespread: Locally Abundant: Sparse:	Eastern United States ¹ Great Lake States ¹ Pacific Northwest ¹	Lake Superior area ¹ Riparian areas Undocumented	
Range Expansion Date Introduced: Rate of Spread:	Great Lakes Basin, 1886 ⁽¹⁾ Rapid	First reported in 1894 ⁽⁴⁾ High; found throughout much of WI	
Density Risk of Monoculture: Facilitated By:	Can form dense monocultures ⁵ Wet habitats near waterbodies	Can be high Undocumented	
b. Habitat	Streams, rivers, lakeshores, wetlands, marshes, swamps, bogs, fens, springs, ponds, reservoirs, wet soils, moist woodlands, wet meadows, ditches, gardens ⁵		
Tolerance	Environmental tolerances undocumented		
Preferences	Disturbed habitats		
c. Regulation			
Noxious/Regulated:	CT, MA ^{2,3} ; NH ²		
Minnesota Regulations:	<i>Not regulated</i>		
Michigan Regulations:	<i>Not regulated</i>		
Washington Regulations:	<i>Not regulated</i>		
II. Establishment Potential and Life History Traits			
a. Life History	Herbaceous perennial rhizomatous creeping forb ⁴		
Fecundity	High		
Reproduction Importance of Seeds: Vegetative:	Reproduces by seeds ^{5,6} Produces stolons and can reproduce vegetatively ⁶		
Hybridization	Several ornamental cultivars		
Overwintering Winter Tolerance: Phenology:	High; plants hardy to about -20°C ⁽⁶⁾ Blooms May through September ⁴		

b. Establishment	
Climate Weather: Wisconsin-Adapted: Climate Change:	Temperate Yes Undocumented
Taxonomic Similarity Wisconsin Natives: Other US Exotics:	High; <i>M. laxa</i> , <i>M. verna</i> ⁴ High; several <i>Myosotis</i> spp. (<i>M. sylvatica</i> , <i>M. arvensis</i> , <i>M. discolor</i> , & <i>M. stricta</i> in Wisconsin ⁴)
Competition Natural Predators: Natural Pathogens: Competitive Strategy: Known Interactions:	Undocumented <i>Birka cinereipes</i> (sawfly) ⁷ ; <i>Dasineura</i> sp. (gall midge) ⁸ Undocumented Forms associations with mycorrhizal fungi ⁹
Reproduction Rate of Spread: Adaptive Strategies:	High Can produce abundant seed and spread by vegetative fragmentation ⁵
Timeframe	Undocumented

c. Dispersal	
Intentional: Unintentional: Propagule Pressure:	Ornamental ^{1,2} ; medicinal cultivation ¹ Water/wind currents; escape from cultivation ¹ ; seed contaminant ² ; waterfowl ⁵ High; fragments relatively easily accidentally introduced



Figure 3: Courtesy of Patrick J. Alexander, USDA-NRCS PLANTS Database³
Figure 4: Courtesy of R.A. Howard, USDA-NRCS PLANTS Database³

III. Damage Potential	
a. Ecosystem Impacts	
Composition	Competes with native plants in wet habitats ¹
Structure	Can alter canopy layer and water flow
Function	May reduce nutrients available to native plants ¹⁰
Allelopathic Effects	Undocumented
Keystone Species	Undocumented
Ecosystem Engineer	Undocumented
Sustainability	Undocumented

Biodiversity	Undocumented
Biotic Effects	Undocumented
Abiotic Effects	Undocumented
Benefits	Provides shelter and food for macroinvertebrates ¹
b. Socio-Economic Effects	
Benefits	Ornamental trade; medicinal properties
Caveats	Risk of release and population expansion outweigh benefits of use
Impacts of Restriction	Increase in monitoring, education, and research costs
Negatives	Contains pyrrolizidine alkaloids which are toxic to mammals ^{10,11}
Expectations	Undocumented
Cost of Impacts	Decline in ecological integrity; increased research expenses
“Eradication” Cost	Undocumented
IV. Control and Prevention	
a. Detection	
Crypsis:	High; very similar to other <i>Myosotis</i> spp. and <i>Lappula squarrosai</i> ¹⁰
Benefits of Early Response:	Management before seed is set may be beneficial to long-term control
b. Control	
Management Goal 1	Control
Tool:	Herbicides (MCPA, Basagran, 2,4-D, Faneron, mecoprop) ¹²
Caveat:	Some herbicides are non-selective; negative non-target impacts to native species
Cost:	Undocumented
Efficacy, Time Frame:	Undocumented

¹ Cao, L. 2008. *Myosotis scorpioides*. USGS Nonindigenous Aquatic Species Database, Gainesville, FL.

Retrieved March 7, 2012 from: <http://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=2686>

² USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. Retrieved March 7, 2012 from: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?24815>

Retrieved March 7, 2012 from: <http://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=2686>

³ United States Department of Agriculture, Natural Resource Conservation Service. 2011. The PLANTS Database. National Plant Data Center, Baton Rouge, LA, USA. Retrieved March 7, 2012 from: <http://plants.usda.gov/java/profile?symbol=MYSC>

⁴ University of Wisconsin – Madison. 2005. Family - Boraginaceae. Wisconsin Botanical Information System Wisflora. Retrieved March 7, 2012 from: <http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=MYOSCO>

⁵ Invasive Plant Atlas of New England (IPANE). 2012. *Myosotis scorpioides*. Retrieved March 7, 2012 from: <http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=75>

⁶ Plants for a Future Database. 2012. *Myosotis scorpioides*, Water forget-me-not. Retrieved March 8, 2012 from: <http://www.pfaf.org/user/Plant.aspx?LatinName=Myosotis+scorpioides>

⁷ Vikberg, V., M. Nuorteva. 1997. On the rearing of *Nesoselandria morio* (Fabricius) and *Birka cinereipes* (Klug) (Hymenoptera, Tenthredinidae), with descriptions of their larvae. Entomologica Fennica 8(1):27-38.

⁸ Skuhrava, M., V. Skuhravy. 2004. Gall midges (Diptera, Cecidomyiidae) of the department Loiret (Central France). *Bulletin De La Societe Linneenne De Bordeaux* 32(4):291-301.

⁹ Šraj-Kržič, N., P. Pongrac, M. Klemenc, A. Kladnik, M. Regvar, A. Gaberščik. 2006. Mycorrhizal colonization in plants from intermittent aquatic habitats. *Aquatic Botany*. 85(4):331-336.

¹⁰ Alaska Natural Heritage Program. 2010. European forget-me-not, *Myosotis scorpioides* L. Retrieved March 8, 2012 from:
http://aknhp.uaa.alaska.edu/services/AKNHP.cfc?method=downloadDocumentByUsdaCode&documentType=species_bio&usdaCode=MYSC

¹¹ Resch, J., D. Rosberger, J. Meinwald, J. Appling. 1982. Biologically active pyrrolizidine alkaloids from the true forget-me-not, *Myosotis scorpioides*. *Journal of Natural Products* 45(3):358-362.

¹² Aamisepp, A. 1984. Weed control in grassland seed crops. *Svensk Frotidning* 53(3):31-32.