

NAME OF SPECIES: <i>Tussilago farfara</i>	
Synonyms: None (3)	
Common Name: Colts foot, Horsehoof, Coughwort, Bull's Foot, and Foalswort (4)	Cultivars? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	2. <u>Abundance:</u> Low
	3. <u>Geographic Range:</u> Oneida and Winnebago counties
	4. <u>Habitat Invaded:</u> Disturbed Areas <input checked="" type="checkbox"/> Undisturbed Areas <input type="checkbox"/>
	5. <u>Historical Status and Rate of Spread in Wisconsin:</u> The first sighting was in 1941 in Winnebago Co. The only other reported sighting has been in Oneida county on 8/31/06 on the shoreline of Sureshot Lake.
	6. <u>Proportion of potential range occupied:</u> Low
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends):</u> CT, DC, DE, IL, IN, KY, MA, MD, ME, MI, MN, NC, NH, NJ, NY, OH, PA, RI, TN, VA, VT, WA, WV, and Canada (1)
III. Invasive in Which Habitat Types	1. Upland <input checked="" 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 checked="" type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp (shrub) <input checked="" type="checkbox"/> Marsh <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Other: lake shore, ditchbanks, waste ground, exposed banks, disturbed forest understory, and near areas of garden cultivation (3)
IV. Habitat Affected	1. <u>Soil types favored or tolerated:</u> Prefers clays, silts, loams, silt loams, silty clay loams, sandy loams, and sands. Does best in moist but not saturated clay soils (7). Tolerates soil pH values of 6.6 to 7.5 (neutral), 7.6 to 7.8 (mildly alkaline), or 7.9 to 8.5 (alkaline) (2).
	2. <u>Conservation significance of threatened habitats:</u>
V. Native Range and Habitat	1. <u>List countries and native habitat types:</u> Europe, western Asia, and northwestern Africa (7)
VI. Legal Classification	1. <u>Listed by government entities?</u> Alabama- Class A noxious weed, Connecticut- Invasive banned, Massachusetts- Prohibited, and in Oregon- "A" designated weed/quarantine (1)
	2. <u>Illegal to sell?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. <u>Type of plant:</u> Annual <input type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input checked="" type="checkbox"/> Vine <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/>
	2. <u>Time to Maturity:</u> Late Winter/Early Spring (2) of the second year (7)
	3. <u>Length of Seed Viability:</u> less than five months (7)
	4. <u>Methods of Reproduction:</u> Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes:</u> Produces vegetative by rhizomes (7) where low-density populations have greater vegetative reproduction.
	5. <u>Hybridization potential:</u>

II. Climate	<p>1. <u>Climate restrictions</u>: Tolerates USDA Zones 4a-6b, needs sun to partial shade, and requires consistently moist soil (2). Prefers cool, moist climates, tolerates 19 to 33 inches, requires an elevation from sea level to 3,497 feet, and level to sloping topography (7). Likely to be found on steep, erosional slopes, especially road cuts (7).</p> <p>2. <u>Effects of potential climate change</u>:</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 type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/> Wind <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Other:</p> <p><u>Intentional</u>: Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: folk medicine Other:</p> <p>2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control</u>: Perennial, some shade tolerance. Adaptable reproductive system- studies suggest <i>Tussilago farfara</i> in situations of harsh environments or interspecific competition allocates less biomass to seed production and more biomass to rhizome production; and conversely allocates more biomass to seed production in nutrient rich sites and little competition. Seedlings and juveniles are reported fast growing and tolerant to a wide range of changeable external conditions and low nutrient environments. Possibly facultatively autogamous; although other studies indicate self-incompatibility and depend on cross-pollination. Reported to be relatively resistant to air pollution. When seeds are produced, each plant is reportedly capable of producing about 3500 seeds. Can also exhibit effective clonal reproduction via rhizomes (5).</p>
IV. Ability to go Undetected	1. HIGH <input type="checkbox"/> MEDIUM <input checked="" type="checkbox"/> LOW <input type="checkbox"/>
C. DAMAGE POTENTIAL	
I. Competitive Ability	<p>1. <u>Presence of Natural Enemies</u>: No</p> <p>2. <u>Competition with native species</u>: N/a</p> <p>2. <u>Rate of Spread</u>: - changes in relative dominance over time: - change in acreage over time: HIGH(1-3 yrs) <input type="checkbox"/> MEDIUM (4-6 yrs) <input checked="" type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/> Notes:</p>
II. Environmental Effects	<p>1. <u>Alteration of ecosystem/community composition?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Slightly- Can form large stands and reduce the numbers of native species in the herb layer. No evidence of significant or major alteration of community composition (5).</p> <p>2. <u>Alteration of ecosystem/community structure?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Slightly- Can form near monospecific stands changing the</p>

	density of the herbaceous layer. No evidence of significant or major alteration of structure (5).
	3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes: Lack of study due to absence of impact (5).
	4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
D. SOCIO-ECONOMIC EFFECTS	
I. Positive aspects of the species to the economy/society:	Notes: May be use for erosion control on steep banks, but may not be very useful (7). Based on the 2011 WNA Economic Impact Survey, the following information was reported for this plant. Out of the 204 nurseries responding, 0 reported selling this plant (9).
II. Potential Socio-Economic Effects of Requiring Controls:	Positive: 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: Coltsfoot is considered toxic. It contains chemicals called hepatotoxic pyrrolizidine alkaloids (PAs) that can damage the liver or cause cancer (6).
VI. Potential socio-economic effects of restricting use:	Positive: 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 <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/> Times and uses: Chemical: This species is resistant to many of the more commonly-used and/or selective herbicides (e.g. 2,4-D, dicamba, MCPA, 2-4DB). One study in England found a mixture of 2-(2,4,5-trichlorophenoxy) propionic acid (silvex) and MCPA (2-methyl-4-chloropheonoxyacetic acid) gave 90% control in a wheat crop. A 2% solution of glyphosate or triclopyr and water plus a non-ionic surfactant using a tank or backpack sprayer to thoroughly cover all leaves. Treatments should be done in the summer when the leaves of coltsfoot are fully developed (8). Mechanical: Mechanical removal of plants can be challenging, initial infestations may be controlled by hand pulling. It is critical that all of the underground portions of the plant are removed. Pulling when the ground is moist may make it easier to remove the entire plant. Residual roots left in the soil may resprout and possibly create several new plants. Hand pull before the plant has set seed to reduce the further spread (8).
V. Cost of prevention or control	Notes:

vs. Cost of allowing invasion to occur:	
VI. Non-Target Effects of Control:	Notes:
VII. Efficacy of monitoring:	Notes:
VIII. Legal and landowner issues:	Notes:
F. HYBRIDS AND CULTIVARS AND VARIETIES	
I. Known hybrids? YES <input type="checkbox"/> NO <input type="checkbox"/>	Name of hybrid: Names of hybrid cultivars:
II. Species cultivars and varieties	Names of cultivars, varieties and any information about the invasive behaviors of each:
	Notes:

G. REFERENCES USED:

- UW Herbarium (Madison or Stevens Point)
- WI DNR
- Bugwood (Element Stewardship Abstracts)
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

Number	Reference
1	United States Department of Agriculture. Natural Resources Conservation Service. Plants Database. < http://plants.usda.gov/java/profile?symbol=TUFA >
2	Dave's Garden. Guides and Information. < http://davesgarden.com/guides/pf/go/1117/ >
3	Burke Museum of Natural History and Culture. Vascular Plants. < http://biology.burke.washington.edu/herbarium/imagecollection.php?ID=723 >
4	http://www.tussilago-farfara.com/
5	Cornell University and Sea Grant New York Cooperative Extension. Funded by NYS DEC and USDA APHIS. < http://nyis.info/PlantAssessments/Tussilago.farfara%20NYS.pdf >
6	http://www.webmd.com/vitamins-supplements/ingredientmono-730-COLTSFOOT.aspx?activeIngredientId=730&activeIngredientName=COLTSFOOT
7	Jordan, M.J., G. Moore and T.W. Weldy. 2008. Invasiveness ranking system for non-native plants of New York. Unpublished. The Nature Conservancy, Cold Spring Harbor, NY; Brooklyn Botanic Garden, Brooklyn, NY; The Nature Conservancy, Albany, NY. http://www.fs.fed.us/database/feis/plants/forb/tusfar/all.html
8	United States Department of Agriculture, Forest Service. 2003. Southeast exotic pest plant council invasive plant manual. Tussilago farfara. < http://www.se-eppc.org/manual/TUFA.html > [Accessed on 24 April 2009].
9	Wiegrefe, Susan. 2011. Wisconsin Nursery Association Survey of the Economic impact of potentially invasive species in Wisconsin

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