

NAME OF SPECIES: Galeopsis tetrahit L. (1)	
Synonyms: Galeopsis tetrahit L. var. arvensis Schlecht. ; Galeopsis tetrahit L. var. tetrahit (2). Galeopsis bifida Boenn.; Galeopsis praecox Jord.; Galeopsis reichenbachii Reut.; Tetrahit nodosum Moench (7).	
Common Name: Brittle-stem hemp-nettle, common hemp-nettle, hemp-nettle (1). Also known as: Dog nettle, Bee nettle, Flowering nettle, wild hemp, ironweed, ironwort, simon's weed (7). – in mint family	
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> 2. <u>Abundance</u> : More than 26 recorded occurrences in WI (1); however hemp-nettle is vastly unreported in the state. Dominant herb in Presque Isle floodplain. Large patches in Copperfalls State Park, and has been found in other state parks and forests. 3. <u>Geographic Range</u> : Reported from 15 counties in WI (1) 4. <u>Habitat Invaded</u> : Meadows, riversides, shaded ditch, sugar maple woods, dry forest, mixed hardwoods, oak woods, boreal forest, cliff, northern lowland forest, sand dunes, and rarely in southern lowland forest (1). Disturbed Areas <input checked="" type="checkbox"/> Undisturbed Areas <input checked="" type="checkbox"/> 5. <u>Historical Status and Rate of Spread in Wisconsin</u> : First recoded in WI in 1946 (1). Common along North WI roadsides and logging areas. 6. <u>Proportion of potential range occupied</u> : This species has probably so naturalized at a landscape level that it is under reported. Maybe preceded by earthworms.
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends)</u> : Northern US and Canada (4) (6). Hemp-nettle was well naturalized in North America (the US and Canada) by the 1800's (7).
III. Invasive in Similar Habitat Types	1. Upland <input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Dune <input checked="" 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 <input type="checkbox"/> Marsh <input type="checkbox"/> Lake <input checked="" type="checkbox"/> Stream <input checked="" type="checkbox"/> Other: Pastures, fields (1), (7)
IV. Habitat Effected	1. <u>Soil types favored or tolerated</u> : Found over a wide range of temperatures but is considerably inhibited by dry to moist soil moisture levels, suggesting that soil moisture may be more significant than temperature in limiting distribution. Hemp-nettle shows a significant preference for the moister, richer black and gray soils in Canada. The optimum pH range for growth has been determined to be between 5 and 6. (7). 2. <u>Conservation significance of threatened habitats</u> : Some of the forest habitats are listed as S1-S3. (9).
V. Native Habitat	1. <u>List countries and native habitat types</u> : From Europe: Denmark; Finland; Ireland; Norway; Sweden; United Kingdom; Austria; Belgium; Czechoslovakia; Germany; Hungary; Netherlands; Poland; Switzerland; Belarus; Estonia; Latvia; Lithuania; Russian Federation - European part [w.]; Ukraine; Albania; Bulgaria; Greece; Italy; Romania; Yugoslavia; France [incl. Corsica]; Portugal; Spain (3). Hemp-nettle prefers a cool, damp climate in its native Europe (7),

	arable land, woods, fens and wet heaths (8).
VI. Legal Classification	1. <u>Listed by government entities?</u> Yes. Noxious in AK, Alberta, Manitoba, and Quebec (2) (4).
	2. <u>Illegal to sell?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
<b>B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS</b>	
I. Life History	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 type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/> – <b>in mint family</b>
	2. <u>Time to Maturity:</u> Blooms in June - September (1).
	3. <u>Length of Seed Viability:</u> Seed are capable of surviving in the soil for only a few years (7).
	4. <u>Methods of Reproduction:</u> Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes:</u> In Europe, approximately 2800 seeds are produced per plant, germinating at 1 - 4 cm in depth, at low temperatures early in the year, but only after overwintering. Under artificial conditions, in Canada, average seed production per plant to be highest at 387. The plant is self-fertile and mainly autogamous, and does not reproduce vegetatively. (7)
	5. <u>Hybridization potential:</u> The species is considered by some authorities to have arisen as a natural hybrid between <i>Galeopsis pubescens</i> and <i>Galeopsis speciosa</i> . (7) (8)
II. Climate	1. <u>Climate restrictions:</u> Hemp-nettle prefers a cool, damp climate in its native Europe (7)
	2. <u>Effects of potential climate change:</u>
III. Dispersal Potential	1. <u>Pathways - Please check all that apply:</u>  <u>Unintentional:</u> Bird <input type="checkbox"/> Animal <input type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/> Wind <input checked="" type="checkbox"/> Water <input checked="" type="checkbox"/> Other: Mature seeds shed by the plant may be dispersed by wind and water, and in cultivated fields, seeds are scattered and spread by farm machinery during the operations of seeding, tillage and harvesting. Longer distance dispersal of this pest can also occur as a contaminant of crop seed. (7) Weed-free livestock feed and sanitation of farm machinery and logging equipment are important in preventing introduction into previously weed-free areas.  <u>Intentional:</u> Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: <input type="checkbox"/> Other:
	2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control:</u> Plants have high seed production and are self-fertile and mainly autogamous. Individual plants can develop considerable leaf area, even under low light intensities. (7). Tolerates shade to full sun.
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	1. <u>Presence of Natural Enemies</u> : NA
	2. <u>Competition with native species</u> : This weed can form dense stands in pastures, roadsides and other waste places. (7).
	3. Rate of Spread: -changes in relative dominance over time: -change in acreage over time: HIGH(1-3 yrs) <input type="checkbox"/> MEDIUM (4-6 yrs) <input type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/> Notes: NA
II. Environmental Effects	1. <u>Alteration of ecosystem/community composition?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: NA
	2. <u>Alteration of ecosystem/community structure?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: NA
	3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: NA
	4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: NA
D. SOCIO-ECONOMIC Effects	
I. Positive aspects of the species to the economy/society:	Notes: Some medicinal uses: Asthma; Blood; Bronchitis; Cancer; Diuretic; Expectorant; Lung; Resolvent; Spasm; Tuberculosis (3). Used by the Iriquois and Potawatami as an emetic and a pulmonary aid respectively (5).
II. Potential socio-economic effects of requiring controls: Positive: Negative:	Notes:
III. Direct and indirect socio-economic effects of plant:	Notes: Hemp-nettle is regarded as a serious competitor with crops for both moisture and soil nutrients, with reported yield losses of 24% in wheat and 25% in canola. Infestations of about 170 plants m <sup>-2</sup> reduced wheat yields by 24%, and a plant density of 400 hemp-nettle plants m <sup>-2</sup> reduced yields of oats and alfalfa by 30% and 85% respectively. Further, as densities of the weed are decreased, the remaining plants of this very "plastic" species may tend to become more widely branched resulting in little change in crop yield with reduced numbers of individual weeds. (7)
IV. Increased cost to sectors caused by the plant:	Notes: Costs to agriculture (see above). Also, the seeds of this weed are a serious contaminant of small grains and can cause difficulty in cleaning the crop seed. The plants also serve as a reservoir for the potato fungus, <i>Phoma exigua</i> , and the nematodes, <i>Ditylenchus dipsaci</i> , <i>Heterodera galeopsidis</i> and <i>Heterodera</i> spp. (7).
V. Effects on human health:	Notes: The plant is poisonous, causing paralysis. (8)
VI. Potential socio-economic effects of restricting use:	Notes:

Positive: Negative:	
<b>E. CONTROL AND PREVENTION</b>	
I. Costs of Prevention (including education; please be as specific as possible):	Notes:
II. Responsiveness to prevention efforts:	Notes:
III. Effective Control tactics:	Mechanical <input type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/> Times and uses: Hemp-nettle cannot be controlled by 2,4-D. MCPA is reported to be more active on the weed but results can be variable (7).
IV. Minimum Effort:	Notes:
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:
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
1	Wisconsin State Herbarium. 2007. WISFLORA: Wisconsin Vascular Plant Species ( <a href="http://www.botany.wisc.edu/wisflora/">http://www.botany.wisc.edu/wisflora/</a> ) Wisconsin, Madison, WI 53706-1381 USA.
2	USDA, NRCS. 2007. The PLANTS Database ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> , 19 April 2007). National Plant Data Center, Baton Rouge, LA, USA.
3	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?3168">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?3168</a>
4	Invaders Database Website: <a href="http://invader.dbs.umt.edu/scripts/esrimap.dll?name=Noxious_map&amp;Plant_Name=Galeopsis+tetrahit&amp;submit1=Submit">http://invader.dbs.umt.edu/scripts/esrimap.dll?name=Noxious_map&amp;Plant_Name=Galeopsis+tetrahit&amp;submit1=Submit</a>
5	Native American Ethnobotany - <a href="http://herb.umd.umich.edu/herb/search.pl?searchstring=Galeopsis+tetrahit">http://herb.umd.umich.edu/herb/search.pl?searchstring=Galeopsis+tetrahit</a>
6	NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, VA. Available <a href="http://www.natureserve.org/explorer">http://www.natureserve.org/explorer</a> . (Accessed: April 19, 2007).
7	North American Plant Protection Organization, Pest Fact Sheet. <a href="http://www.nappo.org/PRA-sheets/Galeopsistetrahit.pdf">http://www.nappo.org/PRA-sheets/Galeopsistetrahit.pdf</a>
8	Plants for a Future: Edible, medicinal and useful plants for a healthier world. <a href="http://www.pfaf.org/database/plants.php?">http://www.pfaf.org/database/plants.php?</a>
9	WDNR Natural Heritage Inventory Working List. <a href="http://www.dnr.state.wi.us/org/land/er/wlist/">http://www.dnr.state.wi.us/org/land/er/wlist/</a>

Author(s), Draft number, and date completed: Mariquita Sheehan, 1<sup>st</sup> Draft, 20 April 2007

Reviewer(s) and date reviewed: Dave Rogers, 28 August 2007.

Approved and Completed Date: