

NAME OF SPECIES: <i>Centaurea diffusa</i>	
Synonyms: <i>Acosta diffusa</i> (Lam.) Sojak (4)	
Common Name: Diffuse knapweed Knapweed and tumble knapweed (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> Unknown
	3. <u>Geographic Range:</u>
	4. <u>Habitat Invaded:</u> Primarily undisturbed Disturbed Areas <input checked="" type="checkbox"/> Undisturbed Areas <input checked="" type="checkbox"/>
	5. <u>Historical Status and Rate of Spread in Wisconsin:</u> March 5, 2008 Manitowoc
	6. <u>Proportion of potential range occupied:</u> very low
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends):</u> WA, OR, ID, NV, CA, AZ, UT, MT, WY, CO, NM, NE, MO, WI, IL, MI, IN, OH, KY, TN, NJ, CT, and MA (1) It infests an estimated area of over 1,264,000 hectares in the western United States, and the area infested is increasing an estimated 18 percent per year (4)
	III. Invasive in Which Habitat Types 1. Upland <input type="checkbox"/> Wetland <input type="checkbox"/> Dune <input type="checkbox"/> Prairie <input checked="" type="checkbox"/> Aquatic <input type="checkbox"/> Forest <input type="checkbox"/> Grassland <input checked="" type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp <input type="checkbox"/> Marsh <input checked="" type="checkbox"/> Lake <input type="checkbox"/> Stream <input type="checkbox"/> Other: Most abundant in disturbed and overgrazed lands but it can also invade undisturbed grasslands, shrublands, and riparian communities; riparian areas, sandy river shores, gravel banks, rock outcrops, rangelands, pastures, roadsides, and waste areas (5).
IV. Habitat Affected	1. <u>Soil types favored or tolerated:</u> Prefers light, dry, porous soils and has a northern limit of 53°N Latitude (4)
	2. <u>Conservation significance of threatened habitats:</u> Prairie remnants are exceedingly rare in WI.
V. Native Range and Habitat	1. <u>List countries and native habitat types:</u> Asia minor, the Balkans, and the southern portion of the former Soviet Union, especially the Ukraine and Crimea (4)
VI. Legal Classification	1. <u>Listed by government entities?</u> Noxious weed in Washington, Oregon, California, Nevada, Arizona, New Mexico, Utah, Idaho, Colorado, Wyoming, Montana, North Dakota, South Dakota, and Nebraska (1)
	2. <u>Illegal to sell?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: some of the above states.
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. <u>Type of plant:</u> Annual <input checked="" type="checkbox"/> Biennial <input checked="" type="checkbox"/> Monocarpic Perennial <input checked="" type="checkbox"/> Herbaceous Perennial <input type="checkbox"/> Vine <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/> generally a short-lived perennial (3)
	2. <u>Time to Maturity:</u> Flowering occurs from July to September (1)
	3. <u>Length of Seed Viability:</u> Up to 18 months
	4. <u>Methods of Reproduction:</u> Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes:</u>

	5. <u>Hybridization potential:</u>
II. Climate	1. <u>Climate restrictions:</u> It thrives in semi-arid and arid conditions (4).
	2. <u>Effects of potential climate change:</u> Climate change could provide an extended growing season in the north
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 type="checkbox"/> Other: contaminant in seed and hay. Seed dispersal is mainly by wind; mature plants break off at ground level and become tumbleweeds or become attached to vehicles (5). <u>Intentional:</u> Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: _____ Other: _____
	2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control:</u> It thrives in semi-arid and arid conditions, (4) can produce up to 18,000 seeds,(4) and is allelopathic (4). C. diffusa is extremely aggressive and can quickly dominate disturbed habitats (5).
	IV. Ability to go Undetected
1. HIGH <input checked="" type="checkbox"/> MEDIUM _____ LOW <input type="checkbox"/> Easily mistaken for more common knapweeds	
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. <u>Presence of Natural Enemies:</u>
	2. <u>Competition with native species:</u> Quickly takes over as it will create intense competition for limited soil moisture (4), as well as damage other plants around it with cnicin (4, 5). Threatens rare plants (5).
	2. 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:
II. Environmental Effects	1. <u>Alteration of ecosystem/community composition?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Allelopathic and can displace native vegetation in undisturbed areas (5).
	2. <u>Alteration of ecosystem/community structure?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: A winter-hardy biennial or short-lived perennial – a highly competitive and aggressive species that forms dense colonies (5).
	3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Causes soil erosion and diminishes soil quality... Allelopathic – may hinder the reestablishment of other species even after C. diffusa is removed (5).

	<p>4. Allelopathic properties? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/></p> <p>Notes: The highest concentrations of cnicin are found in the leaves. It makes its way into the soil by way of leaching or decomposition of leaves (4). Produces a chemical that inhibits the root growth of other species and prevents them from competing for soil moisture and nutrients (5).</p>
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D. SOCIO-ECONOMIC EFFECTS

I. Positive aspects of the species to the economy/society:	Notes: None – noxious weed
II. Potential Socio-Economic Effects of Requiring Controls:	Positive: Would minimize spread Negative: May be difficult to control
III. Direct and indirect Socio-Economic Effects of Plant :	Notes: No known effects in WI, but in western states degrades pastures and hay and injure animals
IV. Increased Costs to Sectors Caused by the Plant::	Notes: Significant impacts to agriculture (hay-producers + graziers). May cause injury to the mouth and digestive tract of grazing animals. (4) Can greatly reduce the value of hay and can decrease the value of the land. Other losses include soil erosion, and reductions in wildlife populations due to the decrease in forage production (4)
V. Effects on human health:	Notes: none
VI. Potential socio-economic effects of restricting use:	Positive: Would minimize spread. Negative: Only unintentional transport would be impacted.

E. CONTROL AND PREVENTION

I. Costs of Prevention (please be as specific as possible):	Notes: May require inspection of seed and hay imports into the state
II. Responsiveness to prevention efforts:	Notes: Should be effective
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: If confined to small, well-defined areas should be pulled by hand or treated with a herbicide as soon as detected to avoid spread of the weed. (3) Tordon, Banvel, and chemicals that contain clopyralid such as Transline, Curtail (clopyralid plus 2,4-D), and Redeem (clopyralidplus triclopyr) are effective. (4)
IV. Costs of Control:	Notes: Depends on site. May be similar to spotted knapweed. Management is difficult and usually requires a combination of methods over more than 5 years (5).
V. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes: Prevention will be cost-effective, especially to large animal agriculture. Management is difficult and usually requires a combination of methods over more than 5 years (5).
VI. Non-Target Effects of Control:	Notes: herbicides could affect non-target plants
VII. Efficacy of monitoring:	Notes: Requires training to differentiate from other knapweeds. Only easily visible when flowering.
VIII. Legal and landowner issues:	Notes: Prohibited status may require controls wherever found

F. HYBRIDS AND CULTIVARS AND VARIETIES

I. Known hybrids? YES <input type="checkbox"/> NO <input checked="" 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: None exist

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	http://www.invasive.org/browse/subinfo.cfm?sub=4472
2	http://www.eddmaps.org/distribution/usstate.cfm?sub=4472
3	http://www.ag.ndsu.edu/pubs/plantsci/weeds/w1146.pdf
4	http://wiki.bugwood.org/Centaurea_diffusa
5	NatureServe. 2011. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer . (Accessed: December 13, 2011).

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