MN NWAC Risk Assessment Worksheet (04-2011)	Common Name	*Latin Name*
	Purple Starthistle	***Centaurea calcitrapa***
Reviewer	**Affiliation/Organization**	**Date (mm/dd/yyyy)**
Monika Chandler	**Minn Dept of Ag**	**08/03/15**

Box	Question	Answer	Outcome
1	Is the plant species or genotype non-native?	Yes, it is native to southern Europe and North Africa (Roche and Roche 1990). It is primarily a biennial but can function as an annual or short-lived perennial.	Go to Box 3
3	Is the plant species, or a related species, documented as being a problem elsewhere?	It is a prohibited noxious weed in Arizona, California, Nevada, Oregon and Washington (USDA, NRCS 2015) It is a temporary noxious weed on Idaho's statewide early detection and rapid response list (www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/watchlist.php). Cal-IPC category is moderate (DiTomaso et al 2007).	Go to Box 6
6	Does the plant species have the capacity to establish and survive in Minnesota?		
	A. Is the plant, or a close relative, currently established in Minnesota?	Not recorded in Minnesota although some Centaurea species are established in Minnesota.	Go to Question B
	B. Has the plant become established in areas having a climate and growing conditions similar to those found in Minnesota?	It is in Iowa, Illinois, Indiana and Ontario (USDA, NRCS 2015). It is not documented in areas as cold as Minnesota and it is unknown if this species could establish in Minnesota.	If this species is not cold hardy for MN, it is not a risk **Do not list at this time**
7	Does the plant species have the potential to reproduce and spread in Minnesota?		
	A. Does the plant reproduce by asexual/vegetative means?	No	Go to Question C
	C. Does the plant produce large amounts of viable, cold-hardy seeds?	Large amount of seed is produced (Pitcairn et al 2002). Cold tolerance is unknown	Go to Question F if seed is hardy Go to Question D if seed is not hardy

Box	Question	Answer	Outcome
	D. If this species produces low numbers of viable seeds, does it have a high level of seed/seedling vigor or do the seeds remain viable for an extended period?	High numbers of seed are likely produced although definitive information was not found. Information on seed persistence in the seedbank was not found. Based upon other Centaurea, seedbank persistence is likely to be approximately 3-10 years.	Go to Question E
	E. Is this species self-fertile?	Information on the self-fertility of this species was not found. A related species, spotted knapweed (C. stoebe ssp. micranthos) is self-fertile (CDFA Encycloweedia)	Go to Question F
	F. Are sexual propagules – viable seeds – effectively dispersed to new areas?	Yes, seed can be moved with equipment, hay and livestock (Graham and Johnson 2003). Seed is also likely dispersed by wind, water and wildlife.	Go to Question I
	I. Do natural controls exist, species native to Minnesota, that are documented to effectively prevent the spread of the plant in question?	No	Go to Box 8
8	Does the plant species pose significant human or livestock concerns or has the potential to significantly harm agricultural production, native ecosystems, or managed landscapes?		
	A. Does the plant have toxic qualities, or other detrimental qualities, that pose a significant risk to livestock, wildlife, or people?	No	Go to Question B
	B. Does, or could, the plant cause significant financial losses associated with decreased yields, reduced crop quality, or increased production costs?	Yes, if the species is cold hardy in Minnesota. This species is not safe for animal feed and is outcompeting native species (Graham and Johnson 2003). It displaces forage and the long spines may hinder the movement of humans and livestock (Pitcairn et al 2002, Graham and Johnson 2003). In contrast, Graebner and Callaway (2012) state that *C. calcitrapa* has not become invasive but do not explain their statement.	Go to Box 9
	C. Can the plant aggressively displace native species through competition (including allelopathic effects)?	Degrades ecosystems (DiTomaso et al 2007, D'Antionio et al 2004). This species is aggressively displacing native species (Graham and Johnson2003).	Go to Box 9

Box	Question	Answer	Outcome
9	Does the plant species have clearly defined benefits that outweigh associated negative impacts?		
	A. Is the plant currently being used or produced and/or sold in Minnesota or native to Minnesota?	No	Go to Box 10
10	Should the plant species be enforced as a noxious weed to prevent introduction &/or dispersal; designate as prohibited or restricted?	Based upon available information, we cannot reliably predict whether this species will be problematic in Minnesota. This species should not be listed at this time.	
	A. Is the plant currently established in Minnesota?	No	
	B. Does the plant pose a serious human health threat?	No	
	C. Can the plant be reliably eradicated (entire plant) or controlled (top growth only to prevent pollen dispersal and seed production as appropriate) on a statewide basis using existing practices and available resources?	Yes	

Final Results of Risk Assessment

Review Entity	Comments	Outcome
NWAC Listing Subcommittee	It is unknown whether purple starthistle could establish in Minnesota. If this species establishes in a state or province with similar climate, this risk assessment should be revisited.	8/4/2015 - Do not list
NWAC Full-group	Voted 11 in favor and 0 opposed	NO REGULATORY ACTION. DO NOT LIST
MDA Commissioner		
FILE # **PurpleStarthistle_2015_MDARA00048PST**		

References:

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DiTomaso, J.M., S.F. Enloe and M.J. Pitcairn. 2007. Exotic plant management in California annual grasslands. Pages 281-296 in M.F.

Graebner, R.C. and R.M. Callaway. 2012. Invasive species grows faster, competes better and shows greater evolution toward increased seed size and growth than exotic non-invasive congeners. Plant Ecology 213(4):545-553.

Graham, J. and W. Johnson. 2003. Managing purple and Iberian starthistles. University of Nevada Cooperative Extension Fact Sheet 03-46.

Pitcairn, M.J., J.A. Young, C.D. Clements and J. Balciunas. 2002. Purple starthistle (*Centaurea calcitrapa*) seed germination. Weed Technology 16:452-456.

Roche, C. T. and B. F. Roche, Jr. 1990. Distribution and amount of four knapweed (*Centaurea* L.) species in eastern Washington. Northwest Science 62:242–253.

USDA, NRCS. 2015. The PLANTS Database (http://plants.usda.gov, 3 August 2015). National Plant Data Team, Greensboro, NC 27401-4901 USA.