MN NWAC Risk Assessment Worksheet (04-2011)	Common Name	*Latin Name*
	Common Tansy (includes all varieties/cultivars)	***Tanacetum vulgare* L. formerly known as *Chrysanthemum vulgare***
Reviewer	**Affiliation/Organization**	**Date (mm/dd/yyyy)**
Monika Chandler	**MN Dept. of Agriculture**	**08/12/13**

Native to temperate Europe and Asia, common tansy began its history in North America as a useful species. Colonists deliberately imported it from Europe for medicinal, culinary, and insect repellent purposes. Tansy was used to treat a wide range of medical conditions such as worms, epilepsy, and gout (Short, 1746; Woodville, 1792; and Millspaugh, 1894) although overdoses were very serious and sometimes resulted in convulsions and death (Millspaugh, 1894). Illegal use of tansy as an abortifacient continued until the nineteenth century (Weber, 2003). Culinary uses included tansy cheese (Morrell, 1901) and as a flavoring of puddings, omlettes, cakes, and tarts (Haughton, 1978), and Puritan Easter cakes (Peattie, 1936). Tansy leaves were rubbed on meat to prevent decay and repel flies (Haughton, 1978). Tansy was widely planted for its beneficial properties, but it escaped cultivation and became a problem.

By 1840, tansy was naturalized in many areas of Massachusetts (Commissioners on the Zoological and Botanical Survey of the State, date unknown) and was widely distributed in other areas of New England by 1869 (Maine Board of Agriculture, 1870). Pammel (1910) suggested that early Mormon settlers may have introduced tansy to Utah. Tansy is now recorded in every state except Alabama, Florida, Georgia, South Carolina, and Texas (USDA, NRCS 2013).

Tansy is a perennial plant with yellow, button-shaped flowerheads and leaves that are finely divided and resemble fern leaves. It grows to a height of 3-6 feet and often forms dense clumps. A study in Montana found that tansy plants can live up to ten years (Jacobs, 2008).

Box	Question	Answer	Outcome
1	Is the plant species or genotype non-native?	Tansy is native to Europe and Asia	Go to Box 3
3	Is the plant species, or a related species, documented as being a problem elsewhere?	Yes. It is regulated in CO, MT, WA and WY (USDA, NRCS. 2013).	Go to Box 6
6	Does the plant species have the capacity to establish and survive in Minnesota?	Yes	Go to Box 7
	A. Is the plant, or a close relative, currently established in Minnesota?	Common tansy was first recorded in Minnesota in 1875 (University of Minnesota Herbarium). Tansy continues to spread in Minnesota. MDA survey results indicate the most severe infestations in the northcentral and northeastern areas of the state. However, severe infestations occur in many other regions. The southern portion of the state remains largely uninfested to date but tansy is starting to invade the southeast.	Go to Box 7

Box	Question	Answer	Outcome
7	Does the plant species have the potential to reproduce and spread in Minnesota?	Yes	
	A. Does the plant reproduce by asexual/vegetative means?	Yes, tansy reproduces by rhizomes (Royer and Dickinson, 1999). Alec McClay (personal communication) noted that tansy clumps can increase in size via rhizomes at a rate up to 0.4 m over 2 years with a 14-fold increase in the number of stems.	Go to Question B
	B. Are the asexual propagules – vegetative parts having the capacity to develop into new plants – effectively dispersed to new areas?	This is not well documented. Presumably seed the primary dispersal mechanism to new areas.	Go to Question C
	C. Does the plant produce large amounts of viable, cold-hardy seeds?	Yes. A single plant can produce up to 50,000 seeds (Royer and Dickinson, 1999). In late summer, numerous flowers produce volumes of small, light seed with a very high germination rate (mean = 90%) in the spring and after a cold treatment (White, 1997).	Go to Question F
	F. Are sexual propagules – viable seeds – effectively dispersed to new areas?	Yes, the seed can be moved by wind, water, wildlife, equipment, and vehicles. The movement of hay and gravel infested with tansy seed allows tansy to proliferate in new areas.	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. Jogesh et al. (2008) suggested that tansy contains feeding deterrents making it less palatable to native herbivores.	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?	Yes	Go to Box 9
	A. Does the plant have toxic qualities, or other detrimental qualities, that pose a significant risk to livestock, wildlife, or people?	Tansy clumps can form a monoculture that crowds out other species, including native plants that are necessary to sustain wildlife. Mature tansy is toxic to cattle and horses so they generally avoid eating it. Occasionally, cattle and horses eat tansy, particularly when it is immature or in hay. Tansy consumption by cattle is associated with off-taste milk production (Hilty, 2010) and abortions (Knight and Walter, 2004).	Go to Box 9

Box	Question	Answer	Outcome
	B. Does, or could, the plant cause significant financial losses associated with decreased yields, reduced crop quality, or increased production costs?	Yes. Cattle and horses avoid eating tansy and this leads to the economic loss of reduced pasture productivity (McClay unpublished; White 1997). Restoring tansy infested land for timber production and/or natural habitat is a challenge. Tansy outcompetes and shades other species planted in the restoration area. One consortium member, UPM Blandin Paper Mill, attempted to reforest an area infested with tansy (C. Adams, personal communication, 2006). Despite expensive aerial herbicide treatment applications, tansy continued to dominate the site and the reforestation attempt was discontinued. Tansy is an alternate host to the commercially important chrysanthemum stunt viroid (Royer and Dickinson 1999).	Go to Box 9
	C. Can the plant aggressively displace native species through competition (including allelopathic effects)?	Yes. Native and other desirable plant species are overtaken by tansy resulting in reduced species diversity and wildlife habitat (Jacobs, 2008).	Go to Box 9
	D. Can the plant hybridize with native species resulting in a modified gene pool and potentially negative impacts on native populations?	Brown et al. (1999) demonstrated that distinct Tanacetum species *T. parthenium* and *T. vulgare* could produce novel sexual hybrids. Therefore, it is possible that *T. vulgare* could hybridize with native Tanacetum. The native Lake Huron tansy, *T. bipinnatum* ssp. *huronense* is listed as endangered in WI, threatened in MI and of special concern in ME and is present in most Canadian provinces. *Tanacetum bipinnatum* ssp. *bipinnatum* is native to AK and Yukon Territories. *Tanacetum camphoratum* (synonym *T. douglasii*) is native to CA, OR, and WA. (USDA, NRCS. 2013). A genetic study by Wolf et al. (2012) determined that was very diverse - even more diverse in the introduced range than the native range.	Go to Question E

Box	Question	Answer	Outcome
	E. Does the plant have the potential to change native ecosystems?	Tansy is an enormous weed issue for the Superior National Forest; a roadside survey in this forest found that the quantity of common tansy occurrences doubled within four years (J. Greenlee, personal communication, 2009). An invasive plant survey of Wisconsin State Forest revealed that tansy was the tenth most observed species, more abundant than garlic mustard and other species well-recognized for their invasive potential (S. Herrick, 2006). Much habitat in North America is suitable for tansy to invade.	Go to Question F
9	Does the plant species have clearly defined benefits that outweigh associated negative impacts?	No, the benefits do not outweigh the negative impacts.	Go to Box 10
	A. Is the plant currently being used or produced and/or sold in Minnesota or native to Minnesota?	Tansy is not a significant crop in North America. There are some varieties such as 'Isla Gold' and *T. vulgare* var. *crispum* that are used for ornamental purposes. Tansy is sometimes cultivated in organic systems as a deterrent against insect pests (Panasiuk 1983). Pålosson et al. (2008) suggest that essential oils from tansy could be used for a tick repellent. In addition, tansy is used in home herbal remedies with uncontrolled dosages from dried tansy leaves that can be harvested or purchased.	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?		
	A. Is the plant currently established in Minnesota?	Yes, see Box 6 Question A	Go to Question B
	B. Does the plant pose a serious human health threat?	If ingested in large quantities, tansy can be fatal. Tansy contains the chemical thujone which is very toxic. All tansy plants make secondary metabolites such as thujone and camphor, however the quantities produced in a given plant depend on a combination of genetic and environmental factors.	Go to Question C

Box	Question	Answer	Outcome
	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?	Tools for tansy management include hand pulling, mowing, tilling, herbicide application and targeted grazing with goats and sheep (Jacobs, 2008). Hand pulling can be effective on very small populations. Mowing can be used to reduce seed production and increase foliage contact with herbicides if regrowth is treated in the fall. Repeated tillage will reduce common tansy although it is possible to spread tansy by rhizomes on equipment so equipment should be cleaned before use in non-infested areas. Local infestations of common tansy can be effectively managed using restricted use pesticides. The active ingredients metsulfuron, chlorsulfuron, or metsulfuron plus chlorsulfuron are effective against tansy. Picloram plus dicamba is an alternative but would be unlikely to be used because the mix is more expensive and less effective. Imazapyr can be used near water and glyphosate in areas where non-target damage is not a concern. Sheep grazing is used in Montana to manage tansy. Goats can also tansy. Biological control is in development. Host-specificity testing is focused on a stem-mining weevil (*Microplontus millefolii*) and a stem-mining moth (*Platyptilia ochrodactyla*). This research is conducted by CABI and is a joint US and Canadian project.	List as a prohibited/eradicate or control noxious weed depending on whether eradication is possible and reasonable

Final Results of Risk Assessment

	Review Entity	Comments	Outcome
	NWAC Listing Subcommittee	First review – 06/20/2013, Final Review 08/12/2013	Remain as a Prohibited-Control Species

Box	Question	Answer	Outcome
	NWAC Full-group	Reviewed 12/18/2013	Voted 13 – 0 for Tansy to remain as a Prohibited-Control Species
	MDA Commissioner	Reviewed 02_24/2014	Accepted NWAC's Recommendation to remain as a Prohibited-Control species
	File # MDARA00031COTAN_2_24_2014	**Prohibited-Control Noxious Weed**	

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Images

This common tansy infestation in Carton County, Minnesota shows that tansy can overtake other vegetation to form a monoculture.

Common tansy growing at Thomas Jefferson’s Monticello shows the historical significance of this species to early immigrants and colonists.