MN NWAC Risk Assessment Worksheet (04-2011)	Common Name	*Latin Name*
	Viper's Bugloss	***Echium vulgare***
Reviewer	**Affiliation/Organization**	**Date (mm/dd/yyyy)**
Tina Markeson	**MNDOT**	**09/08/2011**

Box	Question	Answer	Outcome
1	Is the plant species or genotype non-native?	Yes – Native to Asia and Europe http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?14879	(i.e., Go to box:?)3
2	Does the plant species pose significant human or livestock concerns or has the potential to significantly harm agricultural production?		
	A. Does the plant have toxic qualities that pose a significant risk to livestock, wildlife, or people?		
	B. Does the plant cause significant financial losses associated with decreased yields, reduced quality, or increased production costs?		
3	Is the plant species, or a related species, documented as being a problem elsewhere?	Yes – TN & WA (terrestrial plant), WY & MT (in seed) http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?14879 http://plants.usda.gov/java/profile?symbol=ECVU US Forest Service – Eastern Region listed as Category 3, widespread non-native plant British Columbia, Canada http://www.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/invasive_vipers_bugloss	Go to #6
4	Is the plant species' life history & Growth requirements understood?		
5	Gather and evaluate further information:	(Comments/Notes)	
6	Does the plant species have the capacity to establish and survive in Minnesota?		

Box	Question	Answer	Outcome
	A. Is the plant, or a close relative, currently established in Minnesota?	Yes – found on North Shore of Lake Superior along MN highway 61 Washington, Dakota, St. Louis, Lake, and Cook Counties (USDA Plants Database) Cook, Clearwater, Washington, Dakota, and St. Louis Counties (UMN Herbarium)	Go to #7
	B. Has the plant become established in areas having a climate and growing conditions similar to those found in Minnesota?	Yes – WA, WI, IA, WV, ID, MT, MO, UT, Canada – British Columbia, Alberta, Ontario	Go to #7
7	Does the plant species have the potential to reproduce and spread in Minnesota?		
	A. Does the plant reproduce by asexual/vegetative means?		
	B. Are the asexual propagules effectively dispersed to new areas?		
	C. Does the plant produce large amounts of viable, cold-hardy seeds?	Produces 500-2,000 seeds per plant, seeds viable in soil for 5 years	Go to F
	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?		
	E. Is this species self-fertile?	Yes Limiting factors for seed production and phenotypic gender in the gynodioecious species Echium vulgare; P. Klinkhamer, T. de Jong, H. Nell; 1994	
	F. Are sexual propagules – viable seeds – effectively dispersed to new areas?	Yes- seeds can be carried by water, fur, & clothing	Go to I
	G. Can the species hybridize with native species (or other introduced species) and produce viable seed and fertile offspring in the absence of human intervention?		

Box	Question	Answer	Outcome
	H. If the species is a woody (trees, shrubs, and woody vines) is the juvenile period less than or equal to 5 years for tree species or 3 years for shrubs and vines?		
	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 #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 B
	B. Does, or could, the plant cause significant financial losses associated with decreased yields, reduced crop quality, or increased production costs?	No Can form monocultures, not preferred by livestock Is not competitive with crops – The biology of Canadian Weeds. 116. Echium vulgarea L.; K. Klemow, D. Clements, P. Threadgill, P. Cavers; 2002	Go to C
	C. Can the plant aggressively displace native species through competition (including allelopathic effects)?	Yes, when there is a disturbance No, in undisturbed natural habitats No evidence of allelopathy found	Go to 9 or Go to D
	D. Can the plant hybridize with native species resulting in a modified gene pool and potentially negative impacts on native populations?	No evidence found	Go to E
	E. Does the plant have the potential to change native ecosystems (adds a vegetative layer, affects ground or surface water levels, etc.)?	No evidence found	Go to F

Box	Question	Answer	Outcome
	F. Does the plant have the potential to introduce or harbor another pest or serve as an alternate host?	No	THE SPECIES IS NOT CURRENTLY BELIEVED TO BE A RISK
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, but is available online	Go to 10
	B. Is the plant an introduced species and can its spread be effectively and easily prevented or controlled, or its negative impacts minimized through carefully designed and executed management practices?	Dependent upon range, appears easily controlled with 2,4D, Escort, or Milestone	Go to 11
	C. Is the plant native to Minnesota?	No	
	D. Is a non-invasive, alternative plant material commercially available that could serve the same purpose as the plant of concern?		
	E. Does the plant benefit Minnesota to a greater extent than the negative impacts identified at Box #8?	No	
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	Go to B
	B. Does the plant pose a serious human health threat?	No	Go to 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?	???	
11	Should the plant species be allowed in Minnesota via a species-specific management plan; designate as specially regulated?		
Final Results of Risk Assessment			
	Review Entity	**Comments**	**Outcome**
	NWAC Listing Subcommittee	Only documented site along North Shore.	Eradicate List?
	NWAC Full-group		List as a Species of Concern
	MDA Commissioner	No Listing	No Listing
		File Number: MDARA00009VIPB_11_30_2011	

References:
(List any literature, websites, and other publications)

US Forest Service http://www.fs.fed.us/r9/wildlife/range/weed/Sec3B.htm Category 3 - Widespread, non-native plants: These plants are often restricted to disturbed ground, and are not especially invasive in undisturbed natural habitats. Most of these species are found throughout much of our range.