

NAME OF SPECIES: <i>Bunias orientalis</i> L.	
Synonyms: NA	
Common Name: Hill Mustard, Turkish rocket, Turkish warty-cabbage, warty cabbage, warted bunias	
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	2. <u>Abundance</u> : NA
	3. <u>Geographic Range</u> : Green county and recently LaFayette county (1)
	4. <u>Habitat Invaded</u> : Disturbed Areas <input checked="" type="checkbox"/> Undisturbed Areas <input checked="" type="checkbox"/>
	5. <u>Historical Status and Rate of Spread in Wisconsin</u> : First documented in state in 1958; 2005 inspection showed that most infestation was within 5 miles of its first documented site (1).
	6. <u>Proportion of potential range occupied</u> :
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends)</u> : MA, MI, NJ, NY, OH, PA, VA
III. Invasive in Similar Habitat Types	1. Upland <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Dune <input type="checkbox"/> Prairie <input 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 type="checkbox"/> Lake <input type="checkbox"/> Stream <input type="checkbox"/> Other: CRP fields road sides, grass fields, railways, fallow lands, floodplain meadows (2)
IV. Habitat Effected	1. <u>Soil types favored (e.g. sand, silt, clay, or combinations thereof, pH)</u> : can tolerate many soil conditions; prefers open, moist, nutrient rich clay or sandy soils, neutral pH (2)
	2. <u>Conservation significance of threatened habitats</u> :
V. Native Habitat	1. <u>List countries and native habitat types</u> : Temperate Asia: Iran, Iraq, Turkey, Armenia, Azerbaijan, Georgia, Russia; Europe: Hungary, Belarus, Bulgaria, Ukraine, Romania, Yugoslavia. Generally found in woodlands, sunny edges, patches of shade, and riverbanks
VI. Legal Classification	1. <u>Listed by government entities?</u> NA
	2. <u>Illegal to sell?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. <u>Type of plant</u> : Annual <input type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input checked="" type="checkbox"/> Vine <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/>
	2. <u>Time to Maturity</u> : NA
	3. <u>Length of Seed Viability</u> : long lived seed bank
	4. <u>Methods of Reproduction</u> : Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Please note abundance of propagules and other important information</u> : plants are pollinated by bees and flies, 1000 seeds/square m of soil (2)
	5. <u>Hybridization potential</u> : NA

II. Climate	1. <u>Climate restrictions</u> : intolerant of shade (2) 2. <u>Effects of potential climate change</u> : NA
III. Dispersal Potential	1. <u>Pathways - Please check all that apply</u> : <u>Intentional</u> : Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: Other: <u>Unintentional</u> : Bird <input type="checkbox"/> Animal <input type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/> Wind <input type="checkbox"/> Water <input type="checkbox"/> Other: 2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control</u> : plant's flower is hermaphroditic and is self-fertile; juvenile and adult plants have a low mortality rate, easily dominates by forming dense stands, in dense stands the abundance of inflorescences easily dominate and therefore receive most of the pollination in the plant community(2)
IV. Ability to go Undetected	1. HIGH <input type="checkbox"/> MEDIUM <input 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> : can become monoculture 3. <u>Rate of Spread</u> : HIGH(1-3 yrs) <input 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: can dominate and form vast stands, crowding out native vegetation and reducing biodiversity 2. <u>Alteration of ecosystem/community structure?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: 3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: 4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
D. SOCIO-ECONOMIC Effects	
I. Positive aspects of the species to the economy/society:	Notes: bee plants, human food (vegetable)
II. Potential socio-economic effects of restricting use:	Notes: NA
III. Direct and indirect effects :	Notes: Some chemical methods may damage surrounding vegetation. W/o removal hill mustard may cause loss of historically desired ecosystems. If allowed to spread, plant could colonize

	parks and wildlife areas.
IV. Increased cost to a sector:	Notes: Removal (costs of labor, machines, chemicals, time), prevention (costs of labor, machines, chemicals, time) after removal and in new areas, monitoring/surveying, habitat rehabilitation, continued management **These costs will be necessary now and yrs into the future.
V. Effects on human health:	Notes: N/A
E. CONTROL AND PREVENTION	
I. Costs of Prevention (including education; please be as specific as possible):	Notes: NA
II. Responsiveness to prevention efforts:	Notes: NA
III. Effective Control tactics:	Mechanical <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/> Times and uses: Mechanical: Two important features, first mowing at specified increments to prevent further seed production. Mowing should take place immediately after yellow flowers are seen on plant. The plant should be mowed down as much as possible. Mowing should continue whenever new flowers appear. This method does not necessarily kill the plant, but will significantly decrease the number of seeds produced. The second method is tilling the soil. After the soils in tilled and the roots of the plant are removed, native species should be planted to keep invasive from returning (1).
IV. Minimum Effort:	Notes: NA
V. Costs of Control:	Notes: NA
VI. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes: NA
VII. Non-Target Effects of Control:	Notes: NA
VIII. Efficacy of monitoring:	Notes: NA
IX. Legal and landowner issues:	Notes: NA

F. REFERENCES USED:

- UW Herbarium
- WI DNR
- TNC
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

Number	Reference
1	WDNR-P drive-SAG-Hill Mustard Fact Sheet Draft Document
2	North European and Baltic Network on Invasive Alien Species http://www.nobanis.org/files/factsheets/Bunias_orientalis.pdf

Author(s), Draft number, and date completed: Ashlie Kollmansberger, Draft #1, 03-30-07

Reviewer(s) and date reviewed: Jerry Doll, September 27, 2007.

Approved and Completed Date: