NAME OF SPECIES: *Galium mollugo*	
Synonyms: *Galium erectum* Huds, *Galium mollugo* L. subsp. Erectum, *Galium mollugo* L. var. erectum (Huds.) Domin	
Common Name: false baby's-breath, white bedstraw, wild madder, wild madder, smooth bedstraw	**Cultivars?** YES ☐ NO ☒
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES ☒ NO ☐
	2. Abundance: *Galium mollugo* is widespread throughout Wisconsin in scattered populations.
	3. Geographic Range: Sixteen counties in Wisconsin have reported populations of this plant (2).
	4. Habitat Invaded: This plant seems to invade both disturbed (roadsides, fields) and less disturbed grasslands. Note: Production rate is higher on undisturbed areas.(1) Disturbed Areas ☒ Undisturbed Areas ☒
	5. Historical Status and Rate of Spread in Wisconsin: This plant was first reported in 1966 at Sheboygan and it seemed to have spread rapidly in some areas.(3)
	6. Proportion of potential range occupied: This plant seems to grow in very different types of soil. Most populations have been reported in northern silty or sandy uplands. However, incidents have been reported in the red clay tills and western dolomite uplands. Therefore, other areas in Wisconsin are expected to be invaded sooner or later by this invasive plant.(4)
II. Invasive in Similar Climate Zones	1. YES ☒ NO ☐ Where (include trends): *Galium mollugo* has been reported in the northern states of the United States, including MI, NY, and IL. It has also been reported in some southern states and northern California. Thus, we can assume this plant can survive in different types of weather(5) but it prefers cool moist climates (8)
III. Invasive in Which Habitat Types	1. Upland ☒ Wetland ☐ Dune ☐ Prairie ☒ Aquatic ☐ Forest ☐ Grassland ☒ Bog ☐ Fen ☐ Swamp ☐ Marsh ☐ Lake ☐ Stream ☐ Other: Hedgebanks, open woodland, scrub, river banks, (7,8)
IV. Habitat Affected	1. Soil types favored or tolerated: *Galium mollugo* has the ability to grow in a variety of soil types.(7) It can grow in rocky, gravelly, and even clay soils. However, it seems to prefer nitrogen rich soil and calcareous soils and *Galium mollugo* is frequently found in small layers of soil over limestone. (8)
	2. Conservation significance of threatened habitats: *Galium mollugo* is a strong competitor in long lived and short lived forage crops. It is also a problem weed in plantations and re-vegetation areas since 10-80% of the land is prone to *G. mollugo* invasion. (8)
V. Native Range and Habitat	1. List countries and native habitat types: This plant has been found in parts of Canada, the United States, Europe, Eastern Asia, and Northern Africa and it does not have a specific habitat preference. However, it seems to be commonly found on roadsides, hills, natural meadows, and pastures. (8)
VI. Legal Classification	1. Listed by government entities? *Galium mollugo* is not listed in the 1986 version of the Canada Seeds Act (Anonymous 2000), nor

	in any provincial noxious weed statutes but it has been informally categorized as a "minor invasive alien" weed of natural areas in Canada (White et al. 1993). This species is not listed as a federal or state noxious weed in the United States" (8)
	2. Illegal to sell? YES ☐ NO ☒ Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. Type of plant: Annual ☐ Biennial ☐ Monocarpic Perennial ☐ Herbaceous Perennial ☒ Vine ☐ Shrub ☐ Tree ☐
	2. Time to Maturity: Flowering occurs from May to September and most seeds mature during spring. (1)
	3. Length of Seed Viability: The *Galium mollugo* seeds have little or no innate dormancy and therefore, it does not last more than a year in the soil (8)
	4. Methods of Reproduction: Asexual ☒ Sexual ☒ Notes: This plant spreads mostly via rhizomes(6). However, each flower also produces 2 seeds that can be spread by different methods.
	5. Hybridization potential: *Galium mollugo* is a highly specific polymorphic taxon with numerous specific and sub-specific segregates. This plant also has a very high degree of variability.
II. Climate	1. Climate restrictions: It is reported as hardy to zone 3 and is not frost tender (plant will not be damaged/killed by winter frost) (7)
	2. Effects of potential climate change: This plant can tolerate droughts; however, it grows best in moist/cold climate and therefore climate change might inhibit this plant's spread(8)
III. Dispersal Potential	1. Pathways - Please check all that apply: Unintentional: Bird ☒ Animal ☐ Vehicles/Human ☐ Wind ☐ Water ☒ Other: Contaminated crop seeds Intentional: Ornamental ☒ Forage/Erosion control ☐ Medicine/Food: Other:
	2. Distinguishing characteristics that aid in its survival and/or inhibit its control: Rhizomes spread throughout the soil around the main plant. Thus, Mowing alone will not control *G. mollugo*(9)
IV. Ability to go Undetected	1. HIGH ☐ MEDIUM ☒ LOW ☐ Note: White flowers cover the plant, can be easily segregated from others by this characteristic.
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. Presence of Natural Enemies: Cows and sheep avoid eating this plant. Low populations of other natural enemies are present in N. America. However, "gall-forming Eurasian Cecidomylidae" are considered to be this plant's most powerful natural enemy in Europe. (8)
	2. Competition with native species: *Galium mollugo* can quickly crowd out native plants (9), and this plant can sometimes become the dominant vegetation along river flats. *Galium mollugo* commonly inhabits Canadian and U.S. fields of other non-native

	plants like L. corniculatus, timothy (P. pratense), D. glomerata, red clover (T.pratense) and yellow sweet-clover. (8)
	2. Rate of Spread: *Area Measurements: Infestation of 5-10% are very common; however in minimally monitored fields, infestation can increase to 80% rapidly (8)* *-change in acreage over time:* *HIGH(1-3 yrs)* ☐ *MEDIUM (4-6 yrs)* ☒ *LOW (7-10 yrs)* ☐ *Notes: This plant was likely recently introduced to the United States; however it has been observed that growth and expansion can occur quickly in some areas..* *"In a 4-ha bird's-foot trefoil pasture in Lodi, NY, G. mollugo density increased from a few scattered clumps of plants to more than 17 clumps m−2 in less than 10 yr" (8)*
II. Environmental Effects	1. Alteration of ecosystem/community composition? YES ☒ NO ☐ Notes: *Galium mollugo* can quickly crowd out native crop plants and other non-native plants(9) thanks to its adaptive qualities (it can grow in multiple types of soils and climates)
	2. Alteration of ecosystem/community structure? YES ☐ NO ☐ Notes: (?)
	3. Alteration of ecosystem/community functions and processes? YES ☒ NO ☐ Notes: *G. Mollugo* is a strong competitor for available light since this plant has the ability to grow over neighboring plants.
	4. Allelopathic properties? YES ☒ NO ☐ Notes: *G. mollugo*, and other bedstraw species, have mollugin, flavonoids, coumarins, phenolic acids, and iridoid glucosides. Some of these compounds are known to be allelopathic. (8)
D. SOCIO-ECONOMIC EFFECTS	
I. Positive aspects of the species to the economy/society:	Notes: Has served as an ornamental plant, food source for a variety of beneficial insects and wild rabbits. This plant also has some compounds that are used to flavor food or wine (8)
II. Potential Socio-Economic Effects of Requiring Controls:	This plant can be a weed of vegetable crops and pastures. It can disturb ecosystems since it grows fast and it is invasive. Control would prevent this plant from invading useful lands. (9) Negative: Landowners would need to spend time and money controlling this plant.
III. Direct and indirect Socio-Economic Effects of Plant :	Notes: This plant is problematic in some plantations and re-vegetation areas. However, the cost of removing G. Mollugo from infested is not precise since this plant normally lives in diverse pastures. Also, this weed displaces some edible crops, decreasing their production. In Europe, this plant is used as a host by some plant pests that infect grazing livestock with the trematode Dicrocoelium lanceatum Rud. (8)
IV. Increased Costs to Sectors Caused by the Plant::	Notes: G. mollugo tends to invade undisturbed areas faster than any other areas, damaging the native plants there.
V. Effects on human health:	Notes: This plant does not have any known levels of toxicity to humans. (7)

VI. Potential socio-economic effects of restricting use:	Note: Although sometimes used as an ornamental, this plant is not commonly used. Thus, its restriction would not affect many people.
E. CONTROL AND PREVENTION	
I. Costs of Prevention (please be as specific as possible):	Notes: (?)
II. Responsiveness to prevention efforts:	Notes: Cutting normally prevents bedstraw seed production, some animals may also eat *G. mollugo* if the plant is young and tender (Mowing alone will not control this invasive plant because this plant has the ability to spread via its rhizomes(9)
III. Effective Control tactics:	Mechanical ☒ Biological ☐ Chemical ☒ Times and uses: **Mechanical:** Tilling and Reseeding should be used after the plant is established in an area. Plowing infested fields and clipping the plant might help (8)(9) **Chemical:** Herbicides might be used: however, they are not very effective since this plant has a high tolerance for some herbicides and the other herbicides might kill the top part of the plant but they do not prevent re-growth. (8) • Dicamba proved to be an effective herbicide but it did not work during autumn. • Picloram was most effective when applied in Autumn. In an experiment, herbicide worked better when the chemical was applied 2 wk after re-growth instead of immediately after cutting
IV. Costs of Control:	Notes: The cost of removing *G. mollugo* from infested is not precise since this plant normally lives in diverse pastures. (8)
V. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes:
VI. Non-Target Effects of Control:	Notes: This plant normally inhabits pastures with adiverse of plants and trying to control it might actually damage other non-invasive native plants.
VII. Efficacy of monitoring:	Notes: Monitoring can be effective.
VIII. Legal and landowner issues:	Notes:
F. HYBRIDS AND CULTIVARS	
I. Known hybrids? YES ☒ NO ☐	Name of hybrid: Hybridization between G. mollugo and G. verum- Hybrids A, B and C.
	Names of hybrid cultivars: N/A

II. Species cultivars or varieties	Names of cultivars or varieties and any information about the invasive behaviors of each: Hybridization between G. mollugo and G. verum can result in very aggressive plants with different physical characteristics. • Hybrid A most nearly resembles G. verum (some characteristics shared by the two: obscure angles) • Hybrid C resembledsG. mollugo (some characteristics shared by the two: four marked wings) • Hybrid B possessed intermediate traits between the two parent plants (8)(10)
	Notes: The pre-screen assessment found that *G. molugo* is not being sold anymore and is very invasive, spreading by mowing and known to move into natural areas. (11)

G. REFERENCES USED:

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

Number	Reference
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3	Wisconsin State Herbarium. 2007. WISFLORA: Vascular Plants <http://www.botany.wisc.edu/wisflora/> Accessed: 11/04/11 Dept. Botany, University of Wisconsin, Madison, WI, 53706 USA. Accessed:11/23/11
4	Robert W. Freckmann Herbarium. University of Wisconsin – Stevens Point. Galium mollugo. Detailed Distribution (Wisconsin Soils- Wisconsin Geographical and Natural History Survey Map) Accessed: 11/06/11 <http://wisplants.uwsp.edu/scripts/maps.asp?SpCode=GALMOL&bkg=s>
5	USDA, NRCS. 2007. The PLANTS Database. <http// plants.usda.gov/java/profile?symbol=GAMO> National Plant Database Center, Baton Rouge, LA 70874 USA. Accessed: 11/16/11
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8	D. Mersereau and A. DiTommaso. 2002. Department of Crop and Soil Science, Cornell University, Ithaca, NY, USA. "The biology of Canadian weeds. 121. Galium mollugo"
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10	Armitage, Eleonora.1909. "Hybrids Between Galium verum & G. mollugo" *New Phytologist*, Vol. 8, No. 9/10, pp. 351-353. Published by: Blackwell Publishing on behalf of the New Phytologist Trust. Accessed: 11/11/11 <http://www.jstor.org/stable/2427414>
11	Herbaceous Ornamental Species Assessment Group pre-screen meeting July 1, 2011.

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