NAME OF SPECIES: Elaeagnus umbellata Thunb.	
Synonyms: Elaeagnus argyi H.Lev., Elaeagnus crispa Thunb. var. coreana (H.Lev.) Nakai, Elaeagnus crispa Thunb. var. typica Nakai, Elaeagnus parvifolia Royle, Elaeagnus salicifolia D. Don ex Loudon, Elaeagnus umbellata Thunb. subsp. euumbellata Servettaz, Elaeagnus umbellata Thunb. subsp. parvifolia (Royle)Servett., Elaeagnus umbellata Thunb. var. coreana (H.Lev.) H.Lev., Elaeagnus umbellata Thunb. var. parvifolia (Royle) C.K.Schneid., Elaeagnus umbellata Thunb. var. typica C.K. Schneid (5).	
Common Name: Autumn olive, Oleaster, Japanese silverberry	
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES ☒ NO ☐
	2. Abundance: 24 documented vouchers in Wisconsin, mostly one or a few individuals. One planting of a dozen plants began to reproduce after 6-8 years with dozens of seedlings. (1) This is a vast under-reporting of the occurrence of autumn olive is WI.
	3. Geographic Range: Southern Wisconsin and Bayfield, Oconto, and Door counties (1). Especially problematic in SW counties.
	4. Habitat Invaded: Mostly old fields, prairies, tree plantations, and forest edges (1). Can spread in savannas, barrens and woodlands. While preferring disturbed habitat, an Illinois study suggested that the species has at least some ability to establish under a forest canopy (3). Disturbed Areas ☒ Undisturbed Areas ☒
	5. Historical Status and Rate of Spread in Wisconsin: Planted for wildlife cover up until 1980's. Naturalization first documented by herbarium vouchers in 1978. As of Feb 20, 2007 there were vouchered sightings in 13 counties (1).
	6. Proportion of potential range occupied: 1/3 of state.
II. Invasive in Similar Climate Zones	1. YES ☒ NO ☐ Where (include trends): New England and Ontario (2) (3). Other Midwestern states. Originally introduced to the US in 1830, now spread across the Eastern US and Canada (3) (4).
III. Invasive in Similar Habitat Types	1. Upland ☒ Wetland ☐ Dune ☐ Prairie ☒ Aquatic ☐ Forest ☒ Grassland ☒ Bog ☐ Fen ☐ Swamp ☐ Marsh ☐ Lake ☐ Stream ☐ Other: Roadside edges (1) (4). Fence rows, forest edges, savannas. "Most prolific on disturbed or ruderal sites" (3).
IV. Habitat Effected	1. Soil types favored (e.g. sand, silt, clay, or combinations thereof, pH): Coarse soils but not clay, dry to mesic but not wet soils. pHof 5-7 (3), or 4.8-6.5 (5).
	2. Conservation significance of threatened habitats: Some prairie and grassland communities vulnerable to autumn olive are listed as G2-G3, and S1-S3. Some vulnerable barrens communities are listed as G1-G2 and S1-S2. Oak savannas are extremely rare (9)
V. Native Habitat	1. List countries and native habitat types: Northern India, Afghanistan, northern China, Korea, and Japan (3) (4) (6). Dry open hillsides in sandy soils (6).
VI. Legal Classification	1. Listed by government entities? Banned Invasive in Connecticut, Prohibited in Massachusetts, Prohibited Invasive Species in New Hampshire, Noxious Weed in West Virginia (2). Listed as a

	Category 1 Weed by the Southern Region of the US Forest Service (3).
	2. Illegal to sell? YES ☒ NO ☐ Notes: Connecticut, Massachusetts
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: 3-5 years of 4-8 feet tall (3)
	3. Length of Seed Viability: NA
	4. Methods of Reproduction: Asexual ☐ Sexual ☒ Please note abundance of propagules and and other important information: A mature plant can produce 30 lbs of fruit which = about 60,000 seeds. Plants are polygamodioecious. Stumps are also able to resprout. (3) Autumn olive spineless cultivar has reverted back to the naturalized plants that bear 1-2 inch sharp thorns. (12)
	5. Hybridization potential: NA
II. Climate	1. Climate restrictions: The literature states that Autumn olive is viable to Zone 5, however it is found in WI in Zones, 4 and 3. (1) (3). Does not tolerate standing water (3) (4).
	2. Effects of potential climate change: Warming and drying trends will create more suitable habitat.
III. Dispersal Potential	1. Pathways - Please check all that apply: Intentional: Ornamental ☒ Forage/Erosion control ☒ Medicine/Food: Other: Reclaimation of mine spoils and other disturbed sites. (3). The Soil Conservation Serviced began studying autumn olive in the 1940s and released a strain called "Cardinal" in 1963. The species was planted for wildlife food and cover, along highways for screens and barriers, to stabilize and revegatate road banks and to reclaim mine spoils. (10) Unintentional: Bird ☒ Animal ☒ Vehicles/Human ☐ Wind ☐ Water ☐ Other:
	2. Distinguishing characteristics that aid in its survival and/or inhibit its control: Tolerates a wide range of soil types, infrequent fire and drought. Nitrogen fixing ability makes it competative on bare soils. Also tolerant of high salinity and poor soil conditions. (3) (4). Autumn Olive exhibits prolific fruiting and is widely dissemenated by birds.
IV. Ability to go Undetected	1. HIGH ☐ MEDIUM ☐ LOW ☒
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. Presence of Natural Enemies: No known natural enemies in North America (3) (4).
	2. Competition with native species: Very competative, creating dense thickets. It exhibits prolific fruiting, rapid growth, is widely disseminated by birds, and can easily adapt to many sites. It is vigorous and competitive against native species, and resprouts after cutting and burning. (3) (4)
	3. Rate of Spread:

	HIGH(1-3 yrs) ☐ MEDIUM (4-6 yrs) ☒ LOW (7-10 yrs) ☐ Notes: Once a plant reaches maturity it can produce between 40,000 - 432,000 seeds per year (3) (4).
II. Environmental Effects	1. Alteration of ecosystem/community composition? YES ☒ NO ☐ Notes: Out-competes native vegetation (3) (4). E. umbellata is an acedium host of Puccinia coronata, which is a servere pathogen attacking about 700 species of grass including crop species (8).
	2. Alteration of ecosystem/community structure? YES ☒ NO ☐ Notes: Forms dense thickets (3).
	3. Alteration of ecosystem/community functions and processes? YES ☒ NO ☐ Notes: Due to nitrogen fixing autumn olive can change successional pathways, especially in communities dependant on nutrient poor soils. Some of these communities are already under stress from other threats . (3) (4).
	4. Allelopathic properties? YES ☐ NO ☒ Notes:
D. SOCIO-ECONOMIC Effects	
I. Positive aspects of the species to the economy/society:	Notes: Atractive plant, with medicial properties and prolific fruit producer (3) (5) (6). Used as a nurse plant for black walnut (5). Used for wildlife food and shelter, windbreaks and reclaimation of disturbed sites including areas where heavy metals are polluting the soils. Also used to limit coastal errosion due to salt tolerance. (3) (4)
II. Potential socio-economic effects of restricting use:	Notes: Autumn olive is an attractive landscape plant so there may be some affect on the horticultural industry. Native substitutes include silverberry (Elaeagnus commuta), buffaloberry (Shepardia argentia) winterberry (Ilex verticillata), gray dogwood (Cornus racemosa)and serviceberry species (Amelanchier). (1) (7). This proven invasive was distributed by the Wisconsin DNR. It has never been a popular landscape plant in the state and only 1 nursery is listed as growing it in the 2006 Wisconsin Nursery Association's Wholesale Source Book. (11)
III. Direct and indirect effects :	Notes: NA
IV. Increased cost to a sector:	Notes: Land owners and managers (and ultimately the taxpayers) will have pay the costs of control, education, etc.
V. Effects on human health:	Notes: Pollen can be very irritating to those with allergies.
E. CONTROL AND PREVENTION	
I. Costs of Prevention (including education; please be as specific as possible):	Notes: The plant is readily available for sale on the Internet, including Ebay. Those with nursery stock will be affected if a sales ban is immediately imposed.
II. Responsiveness to prevention efforts:	Notes: Should be successful given the small number of occurrences. Most sightings are of only a few individuals (1).
III. Effective Control tactics:	Mechanical ☒ Biological ☐ Chemical ☒ Times and uses: Herbicides injected into the stems in March and June are highly effective. Foliar application of dicamba or picloram in late June is also effective. Cut stump painting and foliar

	application of glyphosate in late Aug. and Sept. when plants are translocating material is another effective treatment. (4).
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: Mowing and tilling will have negative effects on native shrubs and trees, and broad leaf vegetation will be negatively effected by herbicides.
VIII. Efficacy of monitoring:	Notes: Monitoring will be most effective in finding infestations for treatment while they are still small and economical to control.
IX. Legal and landowner issues:	Notes: Most abundant on private lands

F. REFERENCES USED:

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

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6	Parmar, C. and M.K. Kaushal. 1982. Elaeagnus umbellata. p. 23–25. In: Wild Fruits. Kalyani Publishers, New Delhi, India. From: http://www.hort.purdue.edu/newcrop/parmar/06.html
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9	WDNR Natural Heritage Inventory Working List. http://www.dnr.state.wi.us/org/land/er/wlist/
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11	Ed Hasselkus, UW Emeritus Horticulture Professor. Comments on Invasive Plant Classification 2007.
12	SAG meeting, 9-17-07

Author(s), Draft number, and date completed: 2nd Draft, Mariquita Sheehan, 19 March 2007

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