NAME OF SPECIES: *Dikerogammarus villosus*	
Synonyms:	
Common Name: Killer shrimp	
A. CURRENT STATUS AND DISTRIBUTION	
I. In Wisconsin?	1. YES ☐ NO ☒
	2. Abundance: NA
	3. Geographic Range: NA
	4. Habitat Invaded: NA Disturbed Areas ☐ Undisturbed Areas ☐
	5. Historical Status and Rate of Spread in Wisconsin: NA
	6. Proportion of potential range occupied: NA
II. Invasive in Similar Climate Zones	1. YES ☒ NO ☐ Where (include trends): An aggressive invasive throughout western Europe. Populations have established in the Rhine, the Rhone, large rivers in northern Germany, the Moselle, many waterways of France, Traunsee, River Traun, Lake Constance, and Lake Garda[1].
III. Invasive in Which Habitat Types	1. Wetland ☐ Bog ☐ Fen ☐ Swamp ☐ Marsh ☐ Lake ☒ River ☒ Stream ☒ Other: Prefers low stream velocity and a reinforced or artificial bank structure[2].
IV. Habitat Affected	1. Soil types favored or tolerated: Prefers gravel substrate[2]. Can inhabit a wide range of substrate types except for sand[3].
	2. Conservation significance of threatened habitats:
V. Native Range and Habitat	1. List countries and native habitat types: Species is native to the Ponto-Caspian region of eastern Europe/Ukraine[4].
VI. Legal Classification	1. Listed by government entities? No information found.
	2. Illegal to sell? YES ☐ NO ☒ Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. Average Temperature: Can tolerate a wide range of temperatures (5-27°C), but best adapted to lower temperatures (5-10°C)[5].
	2. Spawning Temperature: No information found.
	3. Methods of Reproduction: Asexual ☐ Sexual ☒ Notes:
	4. Number of Eggs: The number of eggs per brood range between 5 to 194[6].
	5. Hybridization potential:
	6. Salinity tolerance: Species prefers freshwater, but can survive in waters with a salinity up to 20,000 ppm[7].
	7. Oxygen Regime: Prefers waters with high oxygen saturation, but can tolerate systems with low dissolved oxygen[2].

	8. Water Hardness Tolerance: Prefers waters with low conductivity[2].
III. Dispersal Potential	1. Pathways - Please check all that apply: Unintentional: Bird ☐ Animal ☐ Vehicles/Human ☒ Wind ☐ Water ☒ Other: Dispersed by anthropogenic means, particularly boat and ship[4]. Anglers have noted *D. villosus* clinging onto boots and waders[8]. Disperse through downstream drift[9]. Intentional: Aquarium release ☒ Forage/Erosion control ☐ Medicine/Food: Other: Biological supply companies sell amphipods as live food and test organisms.
	2. Distinguishing characteristics that aid in its survival and/or inhibit its control: *D. villosus* is an omnivorous species that can adapt its diet[2]. Can survive for at least six days out of water[8].
IV. Ability to go Undetected	1. HIGH ☐ MEDIUM ☒ LOW ☐
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. Presence of Natural Enemies:
	2. Competition with native species: Causes displacement or local extinction of native Gammarid species[10].
	3. Rate of Spread: -changes in relative dominance over time: -change in acreage over time: HIGH(1-3 yrs) ☒ MEDIUM (4-6 yrs) ☐ LOW (7-10 yrs) ☐ Notes:
II. Environmental Effects	1. Alteration of ecosystem/community composition? YES ☒ NO ☐ Notes: Can become very abundant and dominate the benthic assemblage[11].
	2. Alteration of ecosystem/community structure? YES ☐ NO ☐ Notes: No information found
	3. Alteration of ecosystem/community functions and processes? YES ☒ NO ☐ Notes: Species is known to exert a high impact on native food webs[11].
D. SOCIO-ECONOMIC EFFECTS	
I. Positive aspects of the species to the economy/society:	Notes: No information found
II. Direct and indirect effects of the invasive species:	Notes: Species has been shown to cause a general decline in macroinvertebrate diversity and abundance[2]. Greatly reduces the populations of mayflies, damselflies, chironomids, water fleas, and isopods through predation[8].
III. Type of damage caused by organism:	Notes: No information found
IV. Industries affected by invasive:	Notes: No information found

V. Effects on human health:	Notes: No information found
VI. Loss of aesthetic value affection recreation and tourism:	Notes: No information found
VII. Cost of prevention or control relative to cost of allowing invasion to occur (cost of prevention is borne by different groups than cost of control):	Notes: No information found
E. CONTROL AND PREVENTION	
I. Costs of Prevention (please be as specific as possible):	Notes: No information found
II. Responsiveness to prevention efforts:	Notes: No information found
III. Effective Control tactics: (provide only basic info)	Mechanical ☐ Biological ☐ Chemical ☐ Times and uses: No information found
IV. Costs of Control:	Notes: No information found
V. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes: No information found
VI. Non-Target Effects of Control:	Notes: No information found
VII. Efficacy of monitoring:	Notes: No information found
VIII. Legal and landowner issues:	Notes: No information found

Notes:

- Sexual maturity is reached in one month at 21°C; two months at temperatures between 10°C and 15°C[12].
- Female favored sex ratio[12].
- Bruijs et al (2001) speculates that *D. villosus* might be able to survive (incomplete) ballast water exchange due to its tolerance of salinity[13].
- *D. polymorpha* may facilitate the invasion of *D. villosus* by providing suitable substrate for shelter[8].
- *D.villosus* is quite sensitive to fluoride toxicity. The risk of invasion into waters with fluoride levels of at least 1.5 mg F^-/L would be low[14].

Data Bases Searched:
Biological Abstracts
CAB Abstracts (Agriculture and Veterinary)
Environmental Sciences and Pollution Management
JSTOR: The Scholarly Journal Archive
Web of Knowledge (Web of Science)
Wildlife and Ecology Studies Worldwide
Aquatic Sciences and Fisheries Abstracts
Ecology Abstracts
Fish, Fisheries & Aquatic Biodiversity Worldwide
Water Resources Abstracts
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Google Scholar

G. REFERENCES USED:

Number	Reference
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2	Boets, P., K. Lock, M. Messiaen, and P.L.M. Goethals. 2010. Combining data-driven methods and lab studies to analyse the ecology of *Dikerogammarus villosus*. *Ecological Informatics* 5:133-139.
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