NAME OF SPECIES: *Melanoides tuberculata*	
Synonyms: *Thiara tuberculata*	
Common Name: red-rim melania, Malaysian trumpet snail	
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): Established populations in Colorado, Montana, Nevada, Oregon, Utah and New Zealand. These were mainly located in warm water springs[1].
III. Invasive in Which Habitat Types	1. Wetland ☐ Bog ☐ Fen ☐ Swamp ☐ Marsh ☐ Lake ☒ Pond ☒ River ☒ Stream ☒ Other: Restricted to standing or slow-moving waters[2].
IV. Habitat Affected	1. Soil types favored or tolerated: Found on either muddy or sandy subtrates[3].
	2. Conservation significance of threatened habitats:
V. Native Range and Habitat	1. List countries and native habitat types: Originally from west Asia
VI. Legal Classification	1. Listed by government entities? Japan[15]
	2. Illegal to sell? YES ☐ NO ☒ Notes:
B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS	
I. Life History	1. Average Temperature: Present in water ranging from 18°C to 32°C[4]. Species was unable to establish in springs with temperatures of 17°C and below[2].
	2. Spawning Temperature: No information found.
	3. Methods of Reproduction: Asexual ☒ Sexual ☒ Notes: populations generally consist of only females[2]. Sexual reproduction occurs sporadically[5]. Species is ovoviviparous.
	4. Number of Eggs: Up to 365/snail/year[6].
	5. Hybridization potential: No information found.
	6. Salinity tolerance: Can tolerate salinities of up to 30,000 ppm[7].
	7. Oxygen Regime: No information found.

	8. Water Hardness Tolerance: No information found.
III. Dispersal Potential	1. Pathways - Please check all that apply: Unintentional: Bird ☐ Animal ☐ Vehicles/Human ☒ Wind ☐ Water ☐ Other: fisheries equipment (dip nets or small fine-mesh seines). Intentional: Aquarium release ☒ Forage/Erosion control ☐ Medicine/Food: Other:
	2. Distinguishing characteristics that aid in its survival and/or inhibit its control: Snail can tolerate desiccation for up to 8 days[8]. Unsuccessful control: chlorine, sodium chloride, copper sulfate, chelated copper, hydrated lime, Masoten, and rotenone[4].
IV. Ability to go Undetected	1. HIGH ☐ MEDIUM ☒ LOW ☐
C. DAMAGE POTENTIAL	
I. Competitive Ability	1. Presence of Natural Enemies: snails, crayfish, moluscivorous fish
	2. Competition with native species: Out-competed *Biomphalaria* spp. in the Caribbean and South America[7]. Can likely out-compete native snail species too.
	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: "In the Pampulha reservoir, Belo Horizonte, Minas Gerais, Feitas et al. (1987) reported that this species initiated an exponential growth and became the dominant snail species in this system soon after its invasion"[9].
II. Environmental Effects	1. Alteration of ecosystem/community composition? YES ☒ NO ☐ Notes: Can have a great impact on native snail assemblage[9].
	2. Alteration of ecosystem/community structure? YES ☐ NO ☐ Notes: No information found
	3. Alteration of ecosystem/community functions and processes? YES ☒ NO ☐ Notes: Can alter the functioning and species composition of invaded systems[9].
D. SOCIO-ECONOMIC EFFECTS	
I. Positive aspects of the species to the economy/society:	Notes: Has been introduced into the Caribbean as a biocontrol for *Biomphalaria glabrata* (intermediate host for the human blood fluke *Schistosoma mansonij*[10].
II. Direct and indirect effects of the invasive species:	Notes: Transmits a few trematodes that directly impact fish and indirectly impact humans and birds[7]. Can reach very high densities (2700 snails per square meter in Dundee and Paine, 1977 and 37500 snails per square meter in Roessler et al., 1977[7].
III. Type of damage caused by	Notes: No information found

organism:	
IV. Industries affected by invasive:	Notes: No information found
V. Effects on human health:	Notes: Trematodes it carries include the human liver fluke (*Clonorchis sinensis*) and the oriental lung fluke of humans (*Paragonimus westermani*)[7].
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 on control efforts for this species. Prevention steps to stop movement of aquatic plants on recreational boats already taking place.
E. CONTROL AND PREVENTION	
I. Costs of Prevention (please be as specific as possible):	Notes: No information found on prevention efforts for this species
II. Responsiveness to prevention efforts:	Notes: No information found on prevention or control efforts for this species
III. Effective Control tactics: (provide only basic info)	Mechanical ☐ Biological ☒ Chemical ☒ Times and uses: There is limited information published in scientific literature concerning prior application and effectiveness of control methods on *Melanoides tuberculata*. Chemical control with copper sulfate compounds[11], hydrated lime[12], niclosamide compounds[13] and some plant based molluscides have been shown to be successful for planorbid, physid and thiarid snails in ponds. Stocking of molluscivorous fish has been shown to control snails in fish production ponds[14].
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: The niclosamide compound listed appears selective for snails, but not necessarily snail species[14]. There would likely be no way to control damage to other snail species with the chemical controls above.
VII. Efficacy of monitoring:	Notes:
VIII. Legal and landowner issues:	Notes: To use a registered molluscicide a DNR permit and possibly EPA Special Local Needs Exemption would need to be obtained.

Notes:

Databases 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
Zoological Record
Google Scholar

G. REFERENCES USED:

Number	Reference
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3	De Kock, K.N. and C.T. Wolmarans. 2009. Distribution and habitats of *Melanoides tuberculata* (Müller, 1774) and *M. victoriae* (Dohrn, 1865) (Mollusca: Prosobranchia: Thiaridae) in South Africa. *Water SA* 35(5): 713-720.
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5	Samadi, S., E. Artiguebielle, A. Estoup, J.P. Pointier, J.F. Silvain, J. Heller, M.L. Cariou, P. Jarne. 1998. Density and Variability of Dinucleotide Microsatellites in the Parthenogenetic Polyploid Snail Melanoides Tuberculata. *Molecular Ecology* (1998) 7: 1233-1236.
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9	De Marco Júnior, P. 1999. Invasion by the Introduced Aquatic Snail *Melanoides tuberculata* (Müller, 1774) (Gastropoda: Prosobranchia: Thiaridae) of the Rio Doce State Park, Minas Gerais, Brazil. *Stud Neotrop Fauna & Environm* 34: 186-189.
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11	Wise,D.J., Mischke C.C., Greenway T., Byars T.S. and Mitchell A.J. 2006. Uniform Application of Copper Sulfate as a Potential Treatment for Controlling Snail Populations in Channel Catfish Production Ponds. North American Journal of Aquaculture, 68:4, 364-368.
12	Mitchell, A.J., Snyder S., Wise D.J. and Mischke C.C. 2007. Evaluating Pond Shoreline Treatments of Slurried Hydrated Lime for Reducing Marsh Rams-Horn Snail Populations. North American Journal of Aquaculture, 69:4, 313-316.
13	Francis-Floyd, R., Gildea J., Reed P. and Klinger R.1997. Use of Bayluscide (Bayer 73) for Snail Control in Fish Ponds. Journal of Aquatic Animal Health, 9:1, 41-48.
14	Ledford, J.J. and A.M. Kelly. 2006. A Comparison of Black Carp, Redear Sunfish, and Blue Catfish as Biological Controls of Snail Populations. North American Journal of Aquaculture, 68:4, 339-347.
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