

<b>NAME OF SPECIES:</b> <i>Amyntas agrestis</i> (Goto and Hatai)	
Common Name: none	
<b>A. CURRENT STATUS AND DISTRIBUTION</b>	
<b>I. In Wisconsin?</b>	1. YES                      NO    X
	2. Abundance:
	3. Geographic Range:
	4. Habitat Invaded:
	5. Historical Status and Rate of Spread in Wisconsin:
	6. Proportion of potential range occupied:
<b>II. Invasive in Similar Climate Zones</b>	YES    X                      NO
<b>III. Invasive in Similar Habitat Types</b>	YES    X                      NO
<b>IV. Habitat Affected</b>	1. Host: Soil inhabitant; feeds on organic matter.
	2. Conservation significance of threatened habitats: Loss of native understory plant species and tree seedlings, changes in soil structures and decline in nutrient availability. May facilitate invasion of other exotic species such as European slugs, buckthorn and garlic mustard. Threatens biodiversity, and long term stability of hardwood forest ecosystems.
<b>V. Native Habitat</b>	1. Countries: Japan
	2. Hosts: N/A
<b>VI. Legal Classification</b>	1. Quarantined species? YES                      NO    X
	2. By what states, countries?
<b>B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS</b>	
<b>I. Life History</b>	1. Type of organism: Annelida: Oligochaeta: Megascolecidae
	2. Time to Maturity: Few Months
	3. Methods of Spread: Leaf litter, topsoil, compost, disposal of fishing bait, landscape plants and trees with soil around their roots, road building, any vehicles with treaded tires.
<b>II. Climate</b>	1. Climate restrictions: Colder temperatures limit northward expansion.
	2. Effects of potential climate change: Warming temperatures will allow movement into more northern climates and speed up the ecosystem processes earthworms affect.
<b>III. Dispersal Potential</b>	1. Invasion pathways: Humans are the main means of invasion. Shipping and horticultural industries, fishing bait, road building, any vehicles with treaded tires.
	2. Distinguishing characteristics that aid in its survival and/or inhibit its control: Easily spread and reproduces: It is parthenogenic, has small cocoon size, short life cycle. Endogeic life habit.

<b>IV. Ability to go Undetected</b>	HIGH                      MEDIUM                      LOW      X
	Signs and symptoms: Soil mounds, cocoons and castings.
<b>C. DAMAGE POTENTIAL</b>	
<b>I. Competitive Ability</b>	1. Presence of Natural Enemies: Birds, small mammals, salamanders, macro-invertebrates. New Zealand flatworms feed on earthworms and invaded England and Scotland.
	2. Presence of Competitors: Other exotic earthworm species.
	3. Rate of Spread: 12+ meters/year
<b>II. Environmental Effects</b>	1. Alteration of ecosystem/community composition? YES    X                      NO Notes: Alters microbial and fungal communities. Removes forest duff layer which in turn affects the organisms it supports, e.g. small mammals, ground nesting birds, reptiles, amphibians, insects, spiders. May facilitate invasion of other exotic species such as European slugs, buckthorn and garlic mustard.
	2. Alteration of ecosystem/community structure? YES    X                      NO Notes: Earthworm activity in combination with other activities, such as deer browsing, climate change, pollution, affects regeneration of native understory plants.
	3. Alteration of ecosystem/community functions and processes? YES    X                      NO Notes: Earthworm activity stimulates the activity of soil microorganisms and interactions among earthworms, organic matter, and soil microbial activity alter the carbon and nutrient balance of northern hardwood forest surface soils, relative to non-invaded soils. Duff layer protects from temperature and moisture extremes.
<b>III. Socio-economic</b>	1. Effects of Restricting Entry: Considered beneficial for home gardens, lawns, composting and agriculture, promote soil aeration and drainage, speed up nutrient cycling. Used for fishing bait.
	2. Effects on Human Health: No direct negative effects.
<b>D. PREVENTION AND CONTROL</b>	
<b>I. Detection Capability:</b>	Notes: Survey and collection methods well developed. Difficult to identify juveniles to species.
<b>II. Costs of Prevention :</b>	Notes: Be able to recognize invasive species and avoid movement of soil. Proper disposal of soil or left-over bait.
<b>III. Responsiveness to prevention efforts:</b>	Notes: Awareness of consequences of introducing exotic species into certain areas
<b>IV. Control tactics:</b>	No control methods are currently recommended.
<b>V. Minimum Effort:</b>	Notes: Recognize exotic species and avoid transporting contaminated material.
<b>VI. Most Effective Control:</b>	Notes: Considered beneficial, no controls recommended. Prevention of introduction into new areas best management option.
<b>VII. Cost of prevention or control vs. Cost of allowing invasion to occur:</b>	Notes: This is dependent on your goal. In urban and agricultural settings, especially organic farming, and vermiculture/composting, earthworms are considered beneficial. However, in agricultural there is also an increase rate of nitrate and atrazine leaching and loss of

	residue cover. In forestry settings destroys organic layers and extirpating fauna and flora dependent on these layers. Also may facilitate establishment of other exotic species.
<b>VIII. Non-Target Effects of Control:</b>	Notes: N/A
<b>IX. Efficacy of monitoring:</b>	Notes: There is ample information on identification and reliable sampling and reporting procedures available.
<b>X. Legal and landowner issues:</b>	Notes: Prevention and management at the discretion of the individual.

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