

| | |
|---|---|
| NAME OF SPECIES: <i>Achyranthes japonica</i> (Miq.) Nakai (1) | |
| Synonyms: <i>Achyranthes bidentata</i> var. <i>japonica</i> Miq. (2) | |
| Common Name: Japanese chaff flower | Cultivars? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| A. CURRENT STATUS AND DISTRIBUTION | |
| I. In Wisconsin? | 1. YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> |
| | 2. <u>Abundance:</u> |
| | 3. <u>Geographic Range:</u> |
| | 4. <u>Habitat Invaded:</u> Disturbed Areas <input type="checkbox"/> Undisturbed Areas <input type="checkbox"/> |
| | 5. <u>Historical Status and Rate of Spread in Wisconsin:</u> |
| | 6. <u>Proportion of potential range occupied:</u> none |
| II. Invasive in Similar Climate Zones | 1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends):</u> Found in Indiana, Kentucky, Illinois, and W. Virginia (1) Spreading rapidly along Ohio River – from NE Ohio, to Indiana, Illinois, Kentucky and Tennessee (3) Also in Alabama, Missouri, Georgia, West Virginia(4) |
| III. Invasive in Which Habitat Types | 1. Upland <input type="checkbox"/> Wetland <input type="checkbox"/> Dune <input type="checkbox"/> Prairie <input type="checkbox"/> Aquatic <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Grassland <input checked="" type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp <input type="checkbox"/> Marsh <input type="checkbox"/> Lake <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Other: Bottomland forests, riverbanks, field edges, and ditches (3) Does not tolerate annual flooding or long periods of inundation; on big river systems, often found just above the driftwood line (4). Spread along trails (3) |
| IV. Habitat Affected | 1. <u>Soil types favored or tolerated:</u> prefers partial sun and moist soils but can also grow in heavily shaded and drier environments (3) |
| | 2. <u>Conservation significance of threatened habitats:</u> Floodplain forests are S3 – rare or uncommon in Wisconsin – with many SGCN significantly associated with this landscape; Northern wet forests are S4 – secure but support many SGCN; Northern wet-mesic forests are S3S4 – rare to secure in Wisconsin – supports many SGCN that as significantly associated with this landscape. |
| V. Native Range and Habitat | 1. <u>List countries and native habitat types:</u> Asia-Temperate: Japan (2) Woody areas in lowlands and hills (5) |
| VI. Legal Classification | 1. <u>Listed by government entities?</u> |
| | 2. <u>Illegal to sell?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes: |
| B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS | |
| I. Life History | 1. <u>Type of plant:</u> Annual <input type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input checked="" type="checkbox"/> Vine <input type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/> |
| | 2. <u>Time to Maturity:</u> Flowering late summer; seed maturation early fall (4) |
| | 3. <u>Length of Seed Viability:</u> Unknown |
| | 4. <u>Methods of Reproduction:</u> Asexual <input type="checkbox"/> Sexual <input checked="" type="checkbox"/> Notes: |
| | 5. <u>Hybridization potential:</u> |

| | |
|---|---|
| II. Climate | <p>1. <u>Climate restrictions:</u></p> <p>2. <u>Effects of potential climate change:</u></p> |
| III. Dispersal Potential | <p>1. <u>Pathways - Please check all that apply:</u></p> <p><u>Unintentional:</u> Bird <input type="checkbox"/> Animal <input checked="" type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/> Wind <input type="checkbox"/> Water <input checked="" type="checkbox"/> Other: Seeds easily attach to clothing, shoes, and fur.</p> <p><u>Intentional:</u> Ornamental <input type="checkbox"/> Forage/Erosion control <input type="checkbox"/> Medicine/Food: _____ Other: _____</p> <p>2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control:</u> Estimated seed production up to 16,000 seeds/square meter. Preliminary results of seed viability tests indicate that nearly 100% of seeds are viable and greater than 60% germinated right away (Gibson and Shupert, unpublished data) (4) Multiple stems emerge from extensive root systems (3)</p> |
| IV. Ability to go Undetected | <p>1. HIGH <input type="checkbox"/> MEDIUM <input checked="" type="checkbox"/> LOW <input type="checkbox"/></p> |
| C. DAMAGE POTENTIAL | |
| I. Competitive Ability | <p>1. <u>Presence of Natural Enemies:</u> Evidence of deer browse and insect feeding, but plants exhibit vigorous regrowth and later branching with no apparent impact on seed production (4).</p> <p>2. <u>Competition with native species:</u> Can grow at densities of up to 70+ plants per square meter (4)</p> <p>2. <u>Rate of Spread:</u> -changes in relative dominance over time: -change in acreage over time: HIGH(1-3 yrs) <input checked="" type="checkbox"/> MEDIUM (4-6 yrs) <input type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/> Notes:</p> |
| II. Environmental Effects | <p>1. <u>Alteration of ecosystem/community composition?</u> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Notes: Forms very dense thickets, seems to exclude many other species, including Japanese stilt grass (4)</p> <p>2. <u>Alteration of ecosystem/community structure?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: Uncertain at this time as invasions are fairly new.</p> <p>3. <u>Alteration of ecosystem/community functions and processes?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes:</p> <p>4. <u>Allelopathic properties?</u> YES <input type="checkbox"/> NO <input type="checkbox"/> Notes: Unknown</p> |
| D. SOCIO-ECONOMIC EFFECTS | |
| I. Positive aspects of the species to the economy/society: | <p>Notes: No known intentional uses (except for medicinal)</p> |
| II. Potential Socio-Economic Effects of Requiring Controls: | <p>Positive: As this plant is not yet known in WI, early detection and rapid removal of new populations is going to be the most effective means of containment.</p> |

| | |
|--|--|
| | Negative: |
| III. Direct and indirect Socio-Economic Effects of Plant : | Notes: |
| IV. Increased Costs to Sectors Caused by the Plant:: | Notes: Unknown, but could have long term effects on forest regeneration. |
| V. Effects on human health: | Notes: Roots used for oedema, rheumatism, contraceptive, emmenagogue, abortifacient. Bio-Activities: analgesic, antispasmodic, uterine stimulating, diuretic, hypotensive, antiallergic [1], antioxidant (protocatechuic acid)[2], anti-inflammatory[3], platelet aggregation inhibition [4] (5) |
| VI. Potential socio-economic effects of restricting use: | Positive: Negative: |
| E. CONTROL AND PREVENTION | |
| I. Costs of Prevention (please be as specific as possible): | Notes: Seed is transported by humans and wildlife. Conduct surveys along roadsides, trails, campsites, parking lots, and river tributaries. (5) – cost would be associated with paying for staff to do surveys or training volunteers to do surveys. |
| II. Responsiveness to prevention efforts: | Notes: Early detection could be very effective for this species. |
| III. Effective Control tactics: (provide only basic info) | Mechanical <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input checked="" type="checkbox"/> Times and uses: Manual control is only effective for small infestations or newly germinated plants. Because of the extremely vigorous root systems, hand pulling is not recommended for mature plants. Repeated mowing does not kill chaff flower. Herbicide treatments may need to be conducted about every two weeks to control plants as they germinate. Effective control can be had with foliar applications of glyphosate or triclopyr at a 2% rate. Control activities should be conducted before or at the onset of flowering. Herbicide applications conducted after seed production began were found to have decreased effectiveness. River-to-River CWMA in S. Illinois is currently conducting tests of Garlon3A, Rodeo, and 2, 4-D with the 2% rate. (5) |
| IV. Costs of Control: | Notes: Cost of herbicide + labor to do management and monitoring. |
| V. Cost of prevention or control vs. Cost of allowing invasion to occur: | Notes: Since not reported in WI, cost of prevention is low. If plant invades and establishes, cost will be higher. |
| VI. Non-Target Effects of Control: | Notes: herbicide may impact nearby vegetation. |
| VII. Efficacy of monitoring: | Notes: Would be easier when plant is in bloom. |
| VIII. Legal and landowner issues: | Notes: |
| F. HYBRIDS AND CULTIVARS AND VARIETIES | |
| I. Known hybrids? | Name of hybrid: |
| YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> | Names of hybrid cultivars: |

| | |
|-------------------------------------|--|
| II. Species cultivars and varieties | Names of cultivars, varieties and any information about the invasive behaviors of each: |
| | Notes: Subordinate taxa that is the species being reported is <i>Acyranthes japonica</i> (Miq.) Nakai var. <i>hachijoensis</i> Honda (1) |
| | |

G. REFERENCES USED:

- UW Herbarium (Madison or Stevens Point)
- WI DNR
- Bugwood (Element Stewardship Abstracts)
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

| Number | Reference |
|--------|---|
| 1 | http://plants.usda.gov/java/profile?symbol=ACJA |
| 2 | USDA, ARS, National Genetic Resources Program. <i>Germplasm Resources Information Network - (GRIN)</i> [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?414337 (25 October 2011) |
| 3 | Christopher Evans, River to River Cooperative Weed Management Area, September 2010 http://www.rtrcwma.org/Japanesechafloweralert.pdf |
| 4 | 2011 Japanese Chaff Flower Summit –Falls of the Ohio State Park, IN; HISTORY AND IDENTIFICATION OF JAPANESE CHAFF FLOWER (<i>ACHYRANTHESJAPONICA</i>) Chris Evans, River to River CWMA www.rtrcwma.org ; http://www.sicwma.org/Chaff-Flower-Summit.html |
| 5 | Medicinal Plants in the Republic of Korea. http://www.wpro.who.int/internet/files/pub/97/3.pdf |
| 6 | Chaff Flower Summit – Notes from the Discussion on Control. http://www.sicwma.org/Chaff-Flower-Summit.html |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Author(s), Draft number, and date completed: Courtney LeClair, Draft 1, 10/25/2011

Reviewer(s) and date reviewed: Kelly Kearns, 12/13/2011

Approved and Completed Date: 12/20/2011