### Ohio Invasive Plant Assessment Protocol - 2015

**Botanical Name:** Phalaris arundinacea  
**Common Name:** Reed canary grass  
**Family Name:** Poaceae  
**Assessment conducted by:** Allison Mastalerz, Theresa Culley

<table>
<thead>
<tr>
<th>Step I Outcome</th>
<th>Step I Score</th>
<th>Team Score</th>
<th>Notes</th>
<th>References</th>
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<tbody>
<tr>
<td>Invasive</td>
<td>74</td>
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**Directions:** Place an "X" in the Score column next to the selected answer to each of the four questions.

1. **Is this plant known to occur in the state and listed as "noxious" on any federal or Ohio Department of Agriculture plant list?**
   - Yes. Place on invasive plant list, no further investigation needed. **STOP**
   - No. Continue on to question 2.

2. **Has this plant demonstrated widespread dispersion and establishment (i.e. high numbers of individuals forming dense stands) in natural areas across two or more regions in Ohio?**
   - Yes. Place on invasive plant list, no further investigation needed. **STOP**
   - No. Continue on to question 3.

3. **Does this plant form self-replicating populations outside of cultivation in Ohio and is it documented to alter the composition, structure, or normal processes or functions of a natural ecosystem?**
   - Yes
   - No
   - Unknown

4. **Is the plant listed as invasive in an adjoining state or a nearby state east of the Mississippi within the USDA Plant Hardiness Zones 5-6?**
   - Yes
   - No
   - Unknown

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**Step II: Invasion Status**

**Directions:** Place the appropriate numerical score (or "U") in the Score column next to the selected answer to each of these 18 questions.

1. **Current Invasion in Ohio**
   - Plant is not found in natural areas (0 pts.)
   - Plant is found in natural areas but only because it persist from previous planting in that location (e.g. old home sites) (0 pts.)
   - Plant is only expanding from sites of previous planting (1 pt.)
   - Plant occurs in natural areas away from site of planting (3 pts.)
   - Information unknown (U)

2. **State Distribution**
   - Plant is not naturalized in any region of Ohio (0 pts.)
   - Plant is naturalized in only one region in Ohio (1 pt.)
   - Plant is naturalized in two regions in Ohio (2 pts.)
   - Plant is naturalized in three regions in Ohio (3 pts.)
   - Plant is naturalized in four regions in Ohio (4 pts.)
   - Plant is naturalized in five regions in Ohio (5 pts.)
   - Information unknown (U)

3. **Regional/US Distribution**
   - Plant has not been reported to be a problem in any other state (0 pts.)
   - Plant has been reported as a widespread problem in another non-neighboring state within the USDA Plant Hardiness Zones 5-6 (1 pt.)
   - Plant has been reported to be a widespread problem in 1-2 adjoining states (3 pts.)
   - Plant has been reported to be a widespread problem in 3 or more adjoining states (5 pts.)
   - Plant has been reported to be a widespread problem in similar habitat outside the US (1 pt.)
   - Information unknown (U)

4. **Vegetative Reproduction**
   - No vegetative reproduction (0 pts.)
   - Reproduces readily within the original site (1 pt.)
   - Has runners or spreading rhizomes that root easily (3 pts.)
   - Fragments easily and fragments can be easily dispersed (4 pts.)
   - Has runners or spreading rhizomes that root easily AND fragments easily and fragments can be easily dispersed (5 pts.)
   - Information unknown (U)

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**Step II: Biological Characters**

- Information unknown (U)
- 11: Is a rhizomatous species with rapid new growth from seed.
- 14: Invasive status of the species is due to its "high capacity for vegetative propagation": Can reproduce via rhizomes or tillers (or flattened stems that fall down and sprout).
### Step II: Ecological Importance

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<tbody>
<tr>
<td>5</td>
<td>10: species produces viable seed, but seed production is highly variable.</td>
<td>9,10,11,14,16,19,22,17</td>
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<tr>
<td>5</td>
<td>References indicate that species reproduces by seed, but numbers are lacking.</td>
<td>8,9,10</td>
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<tr>
<td>2</td>
<td>Late May to August</td>
<td>8</td>
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<tr>
<td>5</td>
<td>Waterways, animals and people. Seeds become sticky when wet and adhere to wildlife and humans (and their vehicles).</td>
<td>8,9,10</td>
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<tr>
<td>3</td>
<td>10: &quot;Establishment most common on moist open sites such as mud flats, seasonal floodplains and reservoir shores.&quot; and once established, species undergoes rapid development.</td>
<td>8,10,11</td>
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### 5. Sexual Reproduction
- no sexual reproduction (0 pts.)
- infrequent sexual reproduction (1 pt.)
- frequent sexual reproduction, but high variation among years in seed production (3 pts.)
- frequent sexual reproduction (one or more events per year) (5 pts.)
- Information unknown (U)

### 6. Number of Viable Seeds or Propagules per Plant
- few (0-10) (1 pt.)
- moderate (11-1,000) (3 pts.)
- prolific (>1,000) (5 pts.)
- Information unknown (U)

### 7. Flowering Period
- one month or less per year (0 pts.)
- two months (1 pt.)
- three to five months (2 pts.)
- longer than five months (3 pts.)
- Information unknown (U)

### 8. Dispersal Ability
- low potential for long-distance seed/propagule dispersal (>1km) (0 pts.)
- medium potential for long-distance seed/propagule dispersal (3 pts.)
- high potential for long-distance seed/propagule dispersal (5 pts.)
- Information unknown (U)

### 9. Generation Time
- long juvenile period (>5 or more years for trees, 3 or more years for other growth forms) (0 pts.)
- short juvenile period (<5 years for trees, <3 years for other forms) (3 pts.)
- Information unknown (U)

### 10. Establishment
- unable to invade natural areas (0 pts.)
- can only colonize certain habitat stages (e.g., early successional habitats) (1 pt.)
- aggressively colonizes and establishes in edge habitats (3 pts.)
- aggressively colonizes and establishes in intact and healthy natural areas (6 pts.)
- Information unknown (U)

### 11. Impact on Ecosystem Processes
- no known effect on ecosystem-level processes (0 pts.)
- moderate effects on ecosystem-level processes (e.g., changes in nutrient cycling) (3 pts.)
- causes long-term, substantial alterations in the ecosystem (e.g., changing fire regime of an area, changing hydrology of wetlands) (6 pts.)

### 12. Impact on Rare Organisms
- no known negative impact on Ohio State-listed or federal-listed plants or animals (0 pts.)
- negatively impacts listed species, such as through displacement or interbreeding (3 pts.)

### 13. Impact on Native Animals
- no known negative impact on animals (0 pts.)
- documented direct or indirect negative effects on animal taxa (3 pts.)

### Notes:
- "Reed canary grass contains several potentially toxic alkaloids. Poisonings have been reported in New Zealand and Norway for sheep that have fed on reed canary grass, resulting in a condition referred to as "phalaris staggers". However, no poisonings have been reported in North America." 12: Species is toxic to beef cattle in the US. 16: Some animal species show decreased abundance with reed canarygrass while other species show increased abundance. 20: Plant species is associated with lower abundance of rare garter snake (Thamnophis butleri). 29: Species negatively impacts wetland moth species. 30: Diversity and abundance of Homopteran insects decreased with canarygrass dominance (as also did richness and abundance for all other arthropods)
14. Impact on Native Plants
- no known negative effects on native plants (0 pts.)
- negatively impacts some native plants (increasing their mortality and/or recruitment of certain taxa) (3 pts.)
- impacts native plants to such an extent that community structure is greatly altered (6 pts.)

15. Hybridization
- no known instances of hybridization with other plant species (0 pts.)
- can hybridize with native Ohio plants or commercially-available species, but seeds are inviable (1 pt.)
- can hybridize with native Ohio plants or commercially-available species, producing viable seed (3 pts.)

16. Population Density
- occurs only as small, sporadic populations or individuals (1 pt.)
- typically forms small, monospecific patches (3 pts.)
- is a dominant plant in area where population occurs (absolute cover 15-50%) (4 pts.)
- forms an extensive, monospecific stand (absolute cover >50%) (5 pts.)

17. Role in Succession in Natural Areas
- successional information is unknown (0 pts.)
- is an early successional species that temporarily invades a disturbed site but does not persist as the site matures (0 pts.)
- readily invades disturbed sites and persists, but does not interfere with succession (1 pt.)
- readily invades disturbed sites, persists and interferes with succession of native plants (4 pts.)

18. Number of Habitats Invaded
- only found in 1 broad category (1 pt.)
- found in 2 broad categories or 2 rare habitat types (3 pts.)
- found in 3 broad categories or 3 rare habitat types (4 pts.)
- found in 4 or more rare habitat types (5 pts.)

Grasslands: Alvar*, beach-dune community*, bur oak savanna*, slough-grass-bluejoint prairie*, sand barrens*, big bluestem prairie, little bluestem prairie (xeric limestone prairie*), post oak opening*

Floodplain: Great Plains, reed canary grass invaded 80% of restored prairie potholes (n=41) within 10 years after restoration efforts were completed and was the dominant shoreline vegetation in nearly 50%.

Wetlands: Bog*, fen*, twigrush-wiregrass wet prairie*, marsh, buttonbush swamp, mixed shrub swamp, hemlock-hardwood swamp*, maple-ash-oak swamp, white pine-red maple swamp*
<table>
<thead>
<tr>
<th>Total Points</th>
<th>Assessment Decision</th>
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<tbody>
<tr>
<td>4 or more U</td>
<td>Insufficient Data</td>
</tr>
<tr>
<td>0-34</td>
<td>Not Known to be Invasive</td>
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<tr>
<td>35-44</td>
<td>Pending Further Review</td>
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<tr>
<td>45-80</td>
<td>Invasive</td>
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Total Score: 74  
Number of Unknowns: 0  
Outcome: Invasive