

Ohio Invasive Plant Assessment Protocol - 2015

Botanical Name: *Dipsacus fullonum* L.
 Common Name: Common teasel (also *D. sylvestris*)
 Family Name: Dipsacaceae
 Assessment conducted by: Allison Mastalerz, Theresa Culley

Step I Outcome: **Invasive**
 Step II Score: **47**
 Step II Outcome: **Invasive**

Team Score

Notes

References

Step I

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. <i>Place on invasive plant list, no further investigation needed. STOP</i>						
	No. <i>Continue on to question 2.</i>	X					
	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? ^a	Yes. <i>Place on invasive plant list, no further investigation needed. STOP</i>			x	Species occurs in all 5 regions of Ohio, but information regarding population densities of individual stands is lacking.	7
	No. <i>Continue on to question 3.</i>						
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		Species forms self-replicating populations in Ohio, but more information is needed to determine ecosystem impacts.				
	No						
	Unknown	X					
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? ^{b,c}	Yes		IN (while not specifically on the list, is called invasive in the <i>D. laciniatus</i> page), WV (moderate threat)	3,5			
	No	X					
	Unknown						

If the answer was yes for both questions 3 and 4, the plant is placed on the invasive plant list and no further research is needed. Stop here. If the answer is no for both questions 3 and 4, the plant is not considered invasive and no further investigation is warranted. Otherwise, proceed to Step II.

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				
<ul style="list-style-type: none"> - plant is not found in natural areas (0 pts.) - plant is found in natural areas but only because it persists 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) 				
3	10: "Common teasel occurs throughout Ohio where it is found in pastures, abandoned fields, roadsides, railroads, and waste areas."			10
2. State Distribution^a				
<ul style="list-style-type: none"> - 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) 				
5	In all regions of OH			7,10
3. Regional/US Distribution				
<ul style="list-style-type: none"> - plant is not considered 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) 				
3	IN (while not specifically on the list, is called invasive in the <i>D. laciniatus</i> page)			3
Step II: Biological Characters				
4. Vegetative Reproduction				
<ul style="list-style-type: none"> - 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 can be easily dispersed (5 pts.) - Information unknown (U) 				
0				8,9,10

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)

3

11: reproduction per plant occurs only once although plant may delay for several years of conditions are not good.; 11: flowers are insect-pollinated

8, 9, 10,11

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.)

5

9: Single plants average approx. 3,333 seeds in a season; 11: A teasel plant can produce up to 40 seedheads, the largest of which can produce up to 2000 seeds. 17: "Teasel is spread by seed, and a single plant can produce more than 2,000 seeds, of which 30 percent to 80 percent may germinate the next spring. The seeds can remain viable for at least two years.

9,11,17

- 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)

2

July through September or October

8,9,10

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.)

5

8:"Dispersal along roads and waterways has been important to teasel spread in North America" but species is also used in dried flower arrangements and populations have been observed around cemeteries and it is postulated that they arose from flower arrangements left at graves. 11: "In studies on D. fullonum, Werner (1975c) reported that virtually all of the seeds from a given plant (99.9%) fall within 1.5m of the plant. Long range seed dispersal occurs mainly due to floating seeds in floodwaters or in other flowing waters (e.g., ditches or streams). Common teasel seeds can float up to 22 days without significant reduction in viability (Werner, 1975a)."

8,9,11

- 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)

3

8:"Teasel plants typically flower after 2 or more years of growth and die after flowering"

8,9,10

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.)

3

Species is able to establish along interstate and riparian corridors, but has difficulties establishing where dense vegetation already occurs. 8:"Soil disturbances may cause flushes of teasel germination, whereas litter and established vegetation may inhibit teasel germination but foster seedling growth and survival."

8,9,10

- Information unknown (U)

Step II: Ecological Importance**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.)

0

There are some reports that indicate that common teasel can persist over decades, and others that indicate that teasel populations are not persistent. There is a lack of data on the impacts of teasel on ecosystem processes, therefore, the answer is unknown. 14: Some roadside populations were shown to be tolerant of salt exposure.

8,9,10,14

- 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.)

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

Forestlands: Floodplain forest, hemlock-hardwood forest, mixed mesophytic forest, beech-maple forest, oak-maple forest, oak-hickory forest.

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

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*

* Considered a rare plant community in Ohio by ODW's Biodiversity Database Program.

+ = xeric limestone prairies or cedar glades and post oak openings are unique to the Interior Low Plateau Region of Adams, Highland and Pike counties, and are not included in Schneider and Cochrane (1997).

- not found in any natural habitats in Ohio (0 pts.)

- 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.)

3

8: In New Jersey, teasel can create monocultures that displace endangered spreading globe-flower (*Trollius laxus* Salisb. Ssp. *Laxus* [NOTE: this same subspecies is also found in Ohio in wet locations]) ; 13: teasel harms the New Mexican rare thistle, *Cirsium vinaceum*.

8,13

0

18: "catch insects and other invertebrates in their leaf basins which fill with rainwater" and is considered carnivorous (study shows supplemental insect feeding affected seed production).

18

3

8: monotypic stands exclude native vegetation

8

0

8: Can hybridize with cut-leaf teasel

8

4

9:"A typical teasel population might occupy 2,000m² of a field, or extend for several kilometers along a roadway." 12: Teasel can colonize prairie and savanna habitats, sometimes resulting in monocultures and the exclusion of native species.

8,9,12

1

8:"Teasel is common on disturbed sites and in early-seral habitats. While large, dense teasel populations are possible, without periodic disturbances they are likely to be replaced by slow-growing, late-seral species" However, reference 9 indicates that some populations have occurred for more than 25 years, indicating that in some conditions, the species does persist. 19: "Teasel is found mainly in the later stages of succession of abandoned crop or hay fields, in pastures, along irrigation ditches and creeks, on roadsides, and in other areas of disturbance in North America..."

8,9,19

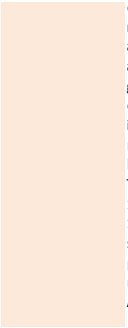
4

8:"Teasel occupies similar habitats in its native and nonnative ranges, which include riparian areas, meadows, grasslands, savannas, forest openings, and "



- found in 4 or more rare habitat types (5 pts.)

Total Points	Assessment Decision
4 or more U	Insufficient Data
0-34	Not Known to be Invasive
35-44	Pending Further Review
45-80	Invasive



disturbed sites"; 11: Common teasel occurs in dry-mesic and mesic savannas, wetlands, lake borders, agricultural fields, pastureland, successional wetlands, and developed land (Iverson et al., 1999). The plant grows best in full sun and in poorly drained soils, especially in areas prone to flooding. It is often found in moderately disturbed habitats, such as along roadsides or in waste areas, where seed germination has been shown to be enhanced (Roberts, 1986). Teasel can colonize prairie and savanna habitats..."; 14,15: "found primarily in old fields and roadsides." 19: "Teasel is found mainly in the later stages of succession of abandoned crop or hay fields, in pastures, along irrigation ditches and creeks, on roadsides, and in other areas of disturbance in North America..."

8, 11,14,15,16,19

Total Score: 47
Number of Unknowns: 0
Outcome: Invasive