

Ohio Invasive Plant Assessment Protocol - 2015

Botanical Name: *Dipsacus laciniatus* L.
 Common Name: cutleaf teasel
 Family Name: Dipsacaceae
 Assessment conducted by: Allison Mastalerz, Theresa Culley

Step I Outcome: **Invasive**
 Step II Score: **49**
 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>		Species occurs in all 5 regions of Ohio, but published individual population information is lacking.	7
	No. <i>Continue on to question 2.</i>	X		
	Yes. <i>Place on invasive plant list, no further investigation needed. STOP</i>	x		
	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			
	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	x	IN, WV (moderate invasive threat); not on PA list	3,5
	No			
	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		3	11	
- 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.)				
2. State Distribution^a		5		Not as abundant as common teasel, but does occur in all 5 regions.
- 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		3		IN, WV (moderate invasive threat)
- 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)				

Step II: Biological Characters

4. Vegetative Reproduction		0		8
- 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)				

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.)

3

Produces prolific viable seeds after bolting after age 2, but based on site conditions bolting may occur in 3 or 4 years, therefore 1 point answer (infrequent sexual reproduction) is given. 12: is a "biennial or short-lived perennial that occurs as a basal rosette for one to several years, subsequently flowers, and then dies"; 13: reproduction per plant occurs only once although plant may delay for several years of conditions are not good; 13: flowers are insect-pollinated. 15: flowers once basal rosette reaches 30 cm in diameter.

8,9,11,12,13

- 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.)

5

9,10: A single plant can produce between 13,000 to 33,000 seeds, depending on site conditions; 12: seeds are 41% viable 1 month after removal from green stems and increase to 97% viability when tested 7 months after green infructescences were collected. 13: A teasel plant can produce up to 40 seedheads, the largest of which can produce up to 2000 seeds." 15: seeds can remain viable in soil for "multiple years"; 15: in IL, there were approx. 10.3 heads per plant in control plots (non-fertilized). 16: "Total seed production per plant ranged from 1,309 to 33,527."

9,10,13,16

- 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 October

8

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" Also, species is used in dried flower arrangements, and it is postulated that populations observed near cemeteries originate from dried flower arrangements left at graves. 12: seeds are viable even when still green (so it is not a good ideal to leave cut infructescences at the site); 13: dispersed as dried flowers, a contaminant of birdseed and for medicinal use. 15: Spread with mowing, along interstates by vehicular traffic, and wind tunnels created by pavement, horticultural use, and in bird feces. 17: roadways acts as dispersal corridors.

3, 8, 9,10,15,17

- 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

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)

3

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

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.)

3

10, 16: species can reduce water infiltration; 16: "Cut-leaved teasel's negative impacts include displacing native species, increasing soil erosion by reducing water penetration into the soil, and reducing traffic visibility (Rand Swanigan, personal communication)."

10,16

- 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.)

0 Can displace endangered spreading globe-flower (Trollius laxus Salisb. Ssp. Laxus) 8

13. Impact on Native Animals

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

0 Mosquitoes breed in the cups of teasel (but this is not seen as a negative impact on animals, so 0 pts) 18

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.)

3 Monotypic stands can displace native vegetation. Dense rosette crowds out adjacent species, and deep taproots allow species to outcompete native plants 8,9,10

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.)

0 8: can hybridize with common teasel (but this is not a commercial species). 8

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.)

5 8: May develop into large monocultures; 9: surveyed 20 plots with an area of 200m^2 and consisted of greater than 50% cutleaf teasel by area; 14: Teasel can colonize prairie and savanna habitats, sometimes resulting in monocultures and the exclusion of native species. 8,9,14

- 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.)

4 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 states: "Both its emergence and its growth characteristics allow teasel to continuously dominate areas where the species has become established." 8,9

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

2 3:" threatens prairies and sedge meadows" and also occurs along disturbed habitats such as roadsides. 3,9

Total Score: 49
Number of Unknowns: 0

Outcome: Invasive

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