Ohio Invasive Plant Assessment Protocol

				Score	Notes	References
Botanical Name:	*Ipomoea purpurea*					
Common Name:	Morning glory, tall morning-glory	Step I Outcome:	**Continue**			
Family Name:	Convolvulaceae	Step II Score:	**45**			
Posted Date:	7/20/16	Step II Outcome:	**Invasive**			
Initial assessment conducted by:	Ilana and Yulia Vinnik					

Step I

Directions: Place an "X" in the Score column next to the selected answer to each of the four questions.

		Score
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?[a]	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?[b,c]	Yes	
	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.

	Score	Notes	References
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**)	3		1,2,3,4
2. State Distribution[a] - 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		1,2,3,4
3. Regional/US Distribution - 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.**)		Prohibited noxious weed in Arizona and Noxious weed in Arkansas, Texas, Oklahoma, Louisiana, Kansas, Nebraska,	

Ohio Invasive Plant Assessment Protocol

Botanical Name: *Ipomoea purpurea*
Common Name: Morning glory, tall morning-glory
Family Name: Convolvulaceae
Posted Date: 7/20/16
Initial assessment conducted by: Ilana and Yulia Vinnik

Step I Outcome: **Continue**
Step II Score: **45**
Step II Outcome: **Invasive**

	Score	Notes	References
- plant has been reported to be a widespread problem in similar habitat outside the US (**1 pt.**) - Information unknown (**U**)	3	Michigan, West Virginia, North Carolina. 5: included in the top 10 troublesome weeds in agriculture in the southern United States. 14: considered a weed problem in agriculture in Angola, Argentina, Australia, Chile, Honduras, Peru, and Venezuela and a principal weed in Brazil, Mexico, South Africa.	1,2,3,4,5,14
Step II: Biological Characters			
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**)	0	Not indicated	
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**)	5	Capable of self-fertilization. 8: A single plant produces 0-80 flowers in one day with each flower lasting a single day. 10: self-compatible species with hermaphroditic flower, but outcrosses naturally about 65 to 74%.	5,8,10,12
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**)	5	Fruits are dehiscent capsules, which mature four weeks after pollination and contain one to six seeds. 8: each plant can produce around 10000 seeds each season. 14: One tall morning glory plant can produce 26,000 seeds. 22: Each fruit contains 1-6 seeds. 23: seeds are able to germinate under a variety of conditions but have physical dormancy.	5,8,14,22,23
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**)	3	5: "Plants bear multiple showy flowers daily (upwards of 80) that open for a single morning." 6: June to October. 9: flowers from July through September. 15: Plant flowers until frost. 22: In OH, plant flowers from June until plant senescence or death by frost.	5,6,9,15,22

Ohio Invasive Plant Assessment Protocol

Botanical Name: *Ipomoea purpurea*
Common Name: Morning glory, tall morning-glory
Family Name: Convolvulaceae
Posted Date: 7/20/16
Initial assessment conducted by: Ilana and Yulia Vinnik

Step I Outcome: **Continue**
Step II Score: **45**
Step II Outcome: **Invasive**

Step II

	Score	Notes	References
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**)	3	15: Colonizing seeds are believed to be transferred by harvesting machinery moving from field to field. 17: Seed dispersal is by wind, rain, and gravity. Seeds also can be spread by birds and by human activities via contaminated crop and flower seeds.	15,17
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	Annual species; 14: Seeds capable of surviving many years in the soil due to their hard seed coat. 22: Seed germination occurs in OH between mid-May and August, with flowering six weeks after emergence.	14,22
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	5: Found in disturbed sites and agricultural fields. 7: successfully adapted to tropical and warm temperate areas. 9: This plant prefers rich, moist soils. 11: often found in disturbed sites such as the borders of farm fields, along roadsides, and in abandoned fields. 20: gravelly areas along railroads, fence rows, and waste areas.	5,7,9,12,15,17,16,20
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.**) - causes long-term, substantial alterations in the ecosystem (e.g., changing fire regime of an area, changing hydrology of wetlands) (**6 pts.**)	0	14: Interferes with harvesting by tangling and wrapping around machinery. 24: Species has developed resistance to glyphosate herbicide.	14,24
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	Not indicated	
13. Impact on Native Animals - no known negative impact on animals (**0 pts.**)			

Ohio Invasive Plant Assessment Protocol

Botanical Name: *Ipomoea purpurea*
Common Name: Morning glory, tall morning-glory
Family Name: Convolvulaceae
Posted Date: 7/20/16
Initial assessment conducted by: Ilana and Yulia Vinnik

Step I Outcome: **Continue**
Step II Score: **45**
Step II Outcome: **Invasive**

	Score	Notes	References
- documented direct or indirect negative effects on animal taxa (**3 pts.**)	3	18: Seeds contain many alkaloid compounds, some of which act as neurotoxins, harming humans and animals when consumed. Fortunately, contaminated forage grains do not contain enough seed to cause harm to livestock. 20: both the seeds and foliage are mildly toxic, they are rarely used by vertebrate wildlife as a source of food.	18,20,16
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	8,14: Restricts crop productivity [but no info on natives]. 16: can be a serious environmental weed in warm moist areas, where it chokes out native plants. Once established in areas of indigenous vegetation, it is able to outcompete native species for nutrients, water and sunlight. 22: Species is tolerant of plant-plant competition.	8,14,16,22
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.**)	1	7: Seed production is reduced when *I. purpurea* hybridizes with *I. hederacea* in the southeastern US [Note that BONAP indicates that *I. hederacea* is present in OH]. 19: crossing *Ipomoea nil* with *Ipomoea purpurea* is not successful.	7,19
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.**)	3	12: range from 65 to 74%. 15: Patch size varies a great deal in NC, ranging from fewer than 10 plants to more than 1000 plants.	12,15
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.**)	1	21: Summer fires increase the frequency of occurrence and percent cover.	21
18. Number of Habitats Invaded			
Forestlands: Floodplain forest, hemlock-hardwood forest, mixed mesophytic forest, beech-maple forest, oak-maple forest, oak-hickory forest.			

Ohio Invasive Plant Assessment Protocol

Botanical Name:	*Ipomoea purpurea*		
Common Name:	Morning glory, tall morning-glory	Step I Outcome:	**Continue**
Family Name:	Convolvulaceae	Step II Score:	**45**
Posted Date:	7/20/16	Step II Outcome:	**Invasive**
Initial assessment conducted by:	Ilana and Yulia Vinnik		

	Score	Notes	References
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.**)	1	14: tropical, subtropical, and warm temperate environments. 8: agricultural fields. 13: cultivated fields, orchards, pastures, gardens and forest edges. 15: Disturbed areas such as gardens, roadsides, and abandoned or poorly weeded agricultural fields. 16: wetland and coastal habitats.	8,13,14,15,16

Total Score:	**45**
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