WPC Invasive Plant Assessment Procedure

1.1. Impact on Natural Ecosystem Processes and System-Wide Parameters (e.g.

A.	No perceivable impact on ecosystem processes based on research studies OR there are no reports of impacts and the species is widespread (>10 occurrences in minimally managed areas), has been well-studied (>10 reports/publications), and has been present in the northeast for >100 years.	0
B.	Influences ecosystem processes to a minor degree (e.g., has a perceivable but mild influence on soil nutrient availability)	3
C.	Significant alteration of ecosystem processes (e.g., increases sedimentation rates along streams or coastlines, reduces open water that are important to	7
D.	Major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., the species alters geomorphology and/or hydrology, affects fire frequency, alters soil pH, or fixes substantial levels of nitrogen in the soil making soil unlikely to support certain native plants or more likely to favor non-	10
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify ecosystem processes impacted (or if applicable, justify choosing answer A in the absence of impact information)

Sources of information:

1.2. Impact on Natural Community Structure

A.	No perceived impact; establishes in an existing layer without influencing its structure	0
B.	Influences structure in one layer (e.g., changes the density of one layer)	3
C.	Significant impact in at least one layer (e.g., creation of a new layer or elimination of an existing layer)	7
D.	Major alteration of structure (e.g., covers canopy, eradicating most or all layers below)	10
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify type of impact or alteration:

Sources of information:

1.3. Impact on Natural Community Composition

A.	No perceived impact; causes no apparent change in native populations	0
B.	Influences community composition (e.g., reduces the number of individuals in one or more native species in the community)	3
C.	Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the	7
D.	Causes major alteration in community composition (e.g., results in the extirpation of one or several native species, reducing biodiversity or change the community composition towards species exotic to the natural community)	10
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify type of impact or alteration:

Sources of information:

1.4. Impact on other species or species groups (cumulative impact of this species

A.	Negligible perceived impact	0
B.	Minor impact	3
C.	Moderate impact	7
D.	Severe impact on other species or species groups	10
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify type of impact or alteration:

Sources of information:

Total Possible 0
Section One Total 0

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2. BIOLOGICAL CHARACTERISTICS AND DISPERSAL ABILITY

2.1. Mode and rate of reproduction

A.	No reproduction by seeds or vegetative propagules (i.e. plant sterile with no sexual or asexual reproduction). Such a species should be ranked "Not Assessable" as it will occur only in cultivated settings and cannot escape into natural/minimally managed areas. End the assessment here.	0
B.	Limited reproduction (fewer than 10 viable seeds per plant; if seed viability is not known, then maximum seed production is less than 100 seeds per plant) AND no reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species.	1
C.	Moderate reproduction (fewer than 100 viable seeds per plant; if viability is not known, then maximum seed production is less than 1000 seeds per plant) – OR limited reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species. For aquatic species viable plant fragments may be treated as vegetative propagules.	2
D.	Significant reproduction by seeds (more than 100 viable seeds per plant; if viability is not known, then maximum seed production reported to be greater than 1000 seeds per plant) –OR abundant reproduction by vegetative propagules (e.g. bulbils, turions, pieces of rhizomes, etc.) is documented as a natural (not spread by people) mode of dispersal across gaps by the species. For aquatic species viable plant fragments may be treated as vegetative	4
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Describe key reproductive characteristics (including seeds per plant):

Sources of information:

2.2. Innate potential for long-distance dispersal (e.g. bird dispersal, sticks to animal

A.	Does not occur (no long-distance dispersal mechanisms)	0
B.	Infrequent or inefficient long-distance dispersal (occurs occasionally despite lack of adaptations)	1
C.	Moderate opportunities for long-distance dispersal (adaptations exist for long-distance dispersal, but studies report that 95% of seeds land within 100 meters of the parent plant)	2
D.	Numerous opportunities for long-distance dispersal (adaptations exist for long-distance dispersal and evidence that many seeds disperse greater than 100 meters from the parent plant)	4
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify dispersal mechanisms:

Sources of information:

2.3. Potential to be spread by human activities (both directly and indirectly –

A.	Does not occur	0
B.	Low (human dispersal to new areas occurs almost exclusively by direct means and is infrequent or inefficient)	1
C.	Moderate (human dispersal to new areas occurs by direct and indirect means to a moderate extent)	2
D.	High (opportunities for human dispersal to new areas by direct and indirect means are numerous, frequent, and successful)	3
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify dispersal mechanisms:

Sources of information:

2.4. Characteristics that increase competitive advantage, such as shade tolerance,

A.	Possesses no characteristics that increase competitive advantage	0
B.	Possesses one characteristic that increases competitive advantage	3
C.	Possesses two or more characteristics that increase competitive advantage	6
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Evidence of competitive ability:

Sources of information:

2.5. Growth vigor

A.	Does not form thickets or have a climbing or smothering growth habit	0
B.	Has climbing or smothering growth habit, forms a dense layer above shorter vegetation, forms dense thickets, or forms a dense floating mat in aquatic systems where it smothers other vegetation or organisms	2
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Describe growth form:

Sources of information:

2.6. Germination/Regeneration

A.	Requires open soil or water and disturbance for seed germination, or regeneration from vegetative propagules.	0
B.	Can germinate/regenerate in vegetated areas but in a narrow range or in special conditions	2
C.	Can germinate/regenerate in existing vegetation in a wide range of conditions	3
U.	Unknown (No studies have been completed)	

Score [ ] 0

Documentation:
Describe germination requirements:

Sources of information:

2.7. Other species in the genus invasive in Pennsylvania or elsewhere

A.	No	0
B.	Yes	3
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Species:

Total Possible 0
Section Two Total 0

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3. ECOLOGICAL AMPLITUDE AND DISTRIBUTION

3.1. Density of stands in natural areas in the northeastern USA and eastern Canada

A.	No large stands (no areas greater than 1/4 acre or 1000 square meters)	0
B.	Large dense stands present in areas with numerous invasive species already present or disturbed landscapes	2
C.	Large dense stands present in areas with few other invasive species present (i.e. ability to invade relatively pristine natural areas)	4
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify reason for selection, or evidence of weedy history:

Sources of information:

3.2. Number of habitats the species may invade

A.	Not known to invade any natural habitats from list (see bottom of document, you may add other habitats at this level of specificity)	0
B.	Known to occur in one natural habitat from list (see bottom of document, you may add other habitats at this level of specificity)	1
C.	Known to occur in two natural habitats from list (see bottom of document, you may add other habitats at this level of specificity)	2
D.	Known to occur in three natural habitat from list at right (see bottom of document, you may add other habitats at this level of specificity)	4
E.	Known to occur in four or more natural habitats from list (see bottom of document, you may add other habitats at this level of specificity)	6
U.	Unknown (leave score blank)	

Score 0

Documentation:
Identify type of habitats where it occurs:

Sources of information:

3.3. Role of disturbance in establishment

A.	Requires anthropogenic disturbances to establish.	0
B.	May occasionally establish in undisturbed areas but can readily establish in areas with natural or anthropogenic disturbances.	2
C.	Can establish independent of any known natural or anthropogenic disturbances.	4
U.	Unknown (leave score blank)	

Score 0

Documentation:
Identify type of disturbance:

Sources of information:

3.4. Climate in native range

A.	Native range does not include climates similar to Pennsylvania	0
B.	Native range possibly includes climates similar to at least part of Pennsylvania.	1
C.	Native range includes climates similar to those in Pennsylvania	3
U.	Unknown (leave score blank)	

Score 0

Documentation:
Describe what part of the native range is similar in climate to Pennsylvania:

Sources of information:

3.5. Current introduced distribution in the northeastern USA and eastern Canada

A.	Not known from the northeastern US and adjacent Canada	0
B.	Present as a non-native in one northeastern USA state and/or eastern Canadian province.	1
C.	Present as a non-native in 2 or 3 northeastern USA states and/or eastern Canadian provinces.	2
D.	Present as a non-native in 4–8 northeastern USA states and/or eastern Canadian provinces, and/or categorized as a problem weed (e.g., "Noxious" or "Invasive") in 1 northeastern state or eastern Canadian province.	3
E.	Present as a non-native in >8 northeastern USA states and/or eastern Canadian provinces. and/or categorized as a problem weed (e.g., "Noxious" or "Invasive") in 2 northeastern states or eastern Canadian provinces.	4
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify states and provinces invaded:

Sources of information: See known introduced range in plants.usda.gov, and update with information from states and Canadian provinces.

Total Possible 0
Section Three Total 0

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4. DIFFICULTY OF CONTROL

4.1. Seed banks

A.	Seeds (or vegetative propagules) remain viable in soil for less than 1 year, or does not make viable seeds or persistent propagules.	0
B.	Seeds (or vegetative propagules) remain viable in soil for at least 1 to 10 years	2
C.	Seeds (or vegetative propagules) remain viable in soil for more than 10 years	3
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Identify longevity of seed bank:

Sources of information:

4.2. Vegetative regeneration

A.	No regrowth following removal of aboveground growth	0
B.	Regrowth from ground-level meristems	1
C.	Regrowth from extensive underground system	2
D.	Any plant part is a viable propagule	3
U.	Unknown (leave score blank)	

Score [ ] 0

Documentation:
Describe vegetative response:

Sources of information:

4.3. Level of effort required

A.	Management is not required: e.g., species does not persist without repeated anthropogenic disturbance.	0
B.	Management is relatively easy and inexpensive: e.g. 10 or fewer person-hours of manual effort (pulling, cutting and/or digging) can eradicate a 1 acre infestation in 1 year (infestation averages 50% cover or 1 plant/100 ft^2).	2
C.	Management requires a major short-term investment: e.g. 100 or fewer person-hours/year of manual effort, or up to 10 person-hours/year using mechanical equipment (chain saws, mowers, etc.) for 2-5 years to suppress a 1 acre infestation. Eradication is difficult, but possible (infestation as above).	3
D.	Management requires a major investment: e.g. more than 100 person-hours/year of manual effort, or more than 10 person hours/year using mechanical equipment, or the use of herbicide, grazing animals, fire, etc. for more than 5 years to suppress a 1 acre infestation. Eradication may be impossible (infestation as above).	4
U.	Unknown (leave score blank)	

Score 0

Documentation:

Identify types of control methods and time-term required:

Sources of information:

Total Possible	0
Section Four Total	0
Total for 4 sections Possible	0
Total for 4 sections	0

Pennsylvania Invasiveness Rank #DIV/0!

Aquatic Habitats	Wetland Habitats	Upland Habitats
Salt/brackish waters	Salt/brackish marshes	Cultivated *
Freshwater tidal	Freshwater marshes	Grasslands/old
Rivers/streams	Peatlands	Shrublands
Natural lakes and ponds	Shrub swamps	Forests/woodlands

Vernal pools	Forested wetlands/riparian	Alpine
Reservoirs/impoundments*	Ditches*	Roadsides*
	Beaches and/or coastal dunes	

Other potential or known suitable habitats within Pennsylvania at this level of specificity (specify)