

MA Invasive Plant Advisory Group: Plant Species Evaluation Update

Includes two documents created or updated in 2022:

- **Selecting Plant Species for Evaluation of Invasiveness - New**
- **Massachusetts Criteria for Evaluating Non-native Plant Species for Invasiveness - Update**

Selecting plant species for evaluation of invasiveness

The MA Invasive Plant Advisory Group (MIPAG) evaluates the invasiveness of species using established criteria, and, when a species meets the criteria, recommends that species be added to the [Prohibited Plant List](#) maintained by the Mass. Dept. of Agricultural Resources.

To be considered for listing as invasive, a species must first be evaluated and found to meet certain base criteria, including that it:

- is non-indigenous to Massachusetts
- demonstrates the potential for rapid and widespread dispersion and establishment
- has the potential to disperse over spatial gaps
- exists in high numbers in natural habitats

Full criteria are presented in “[The Evaluation of Non-Native Plant Species for Invasiveness in Massachusetts](#)”. The criteria were updated in [September 2022](#).

MIPAG’s Evaluation Subcommittee keeps a research list of species to be considered for risk assessment. This research list is compiled based on:

- Whether the species has been listed or considered for listing as invasive in other states, particularly northeastern states.
- Field observations or related work by natural resource managers, botanists, MIPAG members, or researchers, indicating that the species is or may become invasive in Massachusetts.
- Recommendations from the [Regional Invasive Species and Climate Change](#) (RISCC) network that the species be listed (e.g. research on [range-shifting invasive plants](#)).

As new information becomes available, the Evaluation Subcommittee may add or remove species from the research list.

Considerations for Evaluation

Recognizing that the risk assessment process is rigorous and that resources are limited, MIPAG’s Evaluation Subcommittee uses a number of criteria to determine which species will be prioritized for evaluation. In addition to information provided by other states, RISCC, MIPAG members, and other experts (see bullet list above), the Subcommittee may also consider:

- Whether there is adequate information to evaluate the species; e.g. the species has been documented in databases (such as EDDMapS, iNaturalist, or the Consortium of NE Herbaria) as invading natural areas.
- Whether the species is either in or is anticipated to become part of the horticultural trade.
- The availability of resources for MIPAG to perform the risk assessment.*

As new information becomes available, the Evaluation Subcommittee may re-prioritize this list.

If you have a species that you think should be considered for evaluation, please fill out this [form](#) or email the Evaluation Subcommittee at: mipagmassachusetts@gmail.com.

*The Evaluation Subcommittee often has to rely on volunteers, students, or other interested conservation professionals to compile information for review and this can influence which species the committee is able to consider.

Massachusetts Criteria for Evaluating Non-native Plant Species for Invasiveness

SPECIES: (include full scientific name)

STATUS: (invasive, likely or potentially)

NON-NATIVE INVASIVE PLANT WORKSHEET

MASSACHUSETTS CRITERIA FOR EVALUATING NON-NATIVE PLANT SPECIES FOR INVASIVENESS

The Massachusetts Invasive Plant Advisory Group (MIPAG) defines invasive plants as “*non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems.*” As defined here, “species” includes all synonyms, subspecies, varieties, forms, and cultivars of that species, unless proven otherwise by a process of scientific evaluation.

The following criteria are being used to objectively evaluate and categorize plant species suspected of being, or with the potential to become, invasive in Massachusetts. They were originally developed in 2005 by the George Safford Torrey Herbarium at the University of Connecticut and a subcommittee of the Massachusetts Invasive Plant Group representing science, nursery, and conservation professionals. They were updated by MIPAG in 2022 to include climate change considerations and other minor clarifications.

The criteria enable the separation of plants into the following categories:

- *Invasive Plants* in Massachusetts
- *Likely Invasive Plants* in Massachusetts
- *Potentially Invasive Plants* in Massachusetts (species not currently known to be naturalized in Massachusetts, but that can be expected to become invasive within minimally managed habitats within the Commonwealth)

For a species to be included on the list of species determined to be **Invasive, Likely Invasive or Potentially Invasive** in Massachusetts, it must be substantiated by scientific investigation (including herbarium specimens, peer-reviewed papers, published records and other data available for public review) to meet specific criteria. The process of reviewing individual plant species for their invasiveness in Massachusetts is ongoing and may result in a change in status pending new data and further review.

Tabular summary of criteria to be met

	Criteria that must be met
Base criteria	1-4
Invasive	1-9

Likely Invasive	1-5, at least one of 6-9, at least one of 10-12
Potentially Invasive	1-4 (not 5), 13-15

For a species to be designated as “INVASIVE,” “LIKELY INVASIVE” or “POTENTIALLY INVASIVE” it must meet certain base criteria (#1-4 below). The species must:

1. Be nonindigenous to Massachusetts.

Yes No *(note: include reference(s) and comments)*

2. Have the biologic potential for rapid dispersion and establishment in minimally managed habitats

Yes No *(note: include reference(s) and comments)*

3. Have the biologic potential for dispersing over spatial gaps away from the site of introduction.

Yes No *(note: include reference(s) and comments)*

4. Have the biologic potential for existing in high numbers away from intensively managed artificial habitats

Yes No *(note: include reference(s) and comments)*

If a species does not meet all four of the previous criteria, stop here. The species cannot be listed at this time. If a species meets all four, go on to #5.

5. The species is naturalized in Massachusetts (persists without cultivation in Massachusetts)

Yes No *(note: include reference(s) and comments)*

If a species meets Criteria 1-4 and Criterion 5, it may be considered “INVASIVE” or “LIKELY INVASIVE” in Massachusetts. Go to Criteria 6-9.

If it does not meet Criteria 5, it may be considered “POTENTIALLY INVASIVE” if it meets Criteria 13-15.

6. The species is widespread in Massachusetts, or common in a region or habitat type(s) in the state.

Yes No *(note: include reference(s) and comments)*

7. The species has many occurrences in MA that have high numbers of individuals in minimally managed habitats.

Yes No *(note: include reference(s) and comments)*

8. The species is able to out-compete other species in the same natural plant community.

Yes No *(note: include reference(s) and comments)*

9. The species has the potential for rapid growth, high seed or propagule production and dissemination, and establishment in natural plant communities.

Yes No *(note: include reference(s) and comments)*

If a species meets the initial five Criteria and Criteria 6-9 it may be considered an “INVASIVE” species in Massachusetts.

If a species meets the initial five Criteria, but does not meet all of Criteria 6-9 at this time, it may be considered a “LIKELY INVASIVE” species in Massachusetts if in addition it meets at least one of the following three Criteria (#10-12).

10. The species has at least one occurrence in Massachusetts that has high numbers of individuals forming dense stands in minimally managed habitats.

Yes No *(note: include reference(s) and comments)*

11. The species has the potential, based on its biology, colonization history outside its native range, and likelihood of range expansion or change in biologic potential from climate change predictions, to become invasive in Massachusetts.

Yes No *(note: include reference(s) and comments)*

12. The species is acknowledged to be invasive in nearby states, but its status in Massachusetts is unknown or unclear. This may result from lack of field experience with the species or from difficulty in species determination or taxonomy.

Yes No *(note: include reference(s) and comments)*

If the species meets the basic criteria for invasiveness (Criteria 1-4) but is not naturalized in Massachusetts (Criterion 5), the species may be considered “POTENTIALLY INVASIVE” in Massachusetts if it meets the following three criteria (#13-15):

13. The species, if it becomes naturalized in Massachusetts, based on its biology and biologic potential, would pose an imminent threat to the biodiversity of Massachusetts **and**

Yes No *(note: include reference(s) and comments)*

14. Its naturalization in Massachusetts is anticipated, **and**

Yes No *(note: include reference(s) and comments)*

15. The species has a documented history of invasiveness in other areas outside its native range including expansion of range and/or change in biological potential from climate change predictions.

Yes No *(note: include reference(s) and comments)*

Completed by: *(name, affiliation, date)*

Decision by MIPAG and date:

DEFINITIONS* TO ACCOMPANY

“CRITERIA FOR EVALUATING NON-NATIVE PLANT SPECIES FOR INVASIVENESS IN MASSACHUSETTS”

Biologic potential - The ability of a species to increase its number, either sexually and/or asexually.

Invasive plants - Non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems. *As defined here, “species” includes all synonyms, subspecies, varieties, forms, and cultivars of that species unless proven otherwise by a process of scientific evaluation.*

Indigenous species - A species that occurs natively in Massachusetts. Indigenous species often have a pre-colonial presence (pre-1500) or have arrived in the region more recently without the aid of human intervention. Synonymous with native species.

Intensively managed habitats - Intensively managed habitats are habitats or land systems where management efforts and investments of time, money and labor occur frequently. Examples include manicured lawns, landscaped grounds, gardens, roadsides or agricultural lands for crops or livestock.

Likely Invasive plants - Non-native species that are naturalized in Massachusetts and meets some but not all criteria that would trigger an "Invasive plant" designation.

Minimally managed habitats - Minimally managed habitats are habitats where management efforts and investments of time, money and labor are infrequent or non-existent. These habitats may have been intensively managed for anthropogenic reasons at one time in their history. In some instances, management may be more intense, but management is done for conservation purposes and is primarily aimed at preserving elements of biological diversity such as imperiled species or critical natural communities. Minimally managed habitats are similar to "natural areas" but the distinction is made in order to remove bias, misconceptions or ambiguities that surround the term "natural area".

Non-indigenous species - A species that is not native or naturally occurring (based on its biology, phylogeny, distribution and current knowledge about the species) within Massachusetts. A species may be indigenous to North American but non-indigenous in Massachusetts. Synonymous with non-native species.

Naturalized species - A non-indigenous taxon that occurs without the aid and benefits of cultivation in Massachusetts. Further, it implies two biological points: it freely and regularly reproduces in the wild, sexually or asexually, and occurrences persist over time.

Natural plant community - A natural plant community is an association or assemblage of plant species that repeatedly occur together in re-occurring patterns in a specific type of habitat. This assemblage can be characterized by dominant species and biological properties. A natural plant community implies a minimally managed situation where all or most of the species that make up the assemblage are indigenous to the defined area.

Occurrence - Existing example of a species on the landscape.

Potentially invasive plants - Non-native species not currently known to be naturalized in Massachusetts, but that can be expected to become invasive within minimally managed habitats within the Commonwealth.

Spatial gaps - This term is used in reference to the ability of a species to disperse away from existing occurrences. The concept of crossing spatial gaps is used to distinguish those species that can disperse over discontinuities and become established elsewhere, from species that spread across a habitat only by continual, uninterrupted growth.

**There are no definitions for certain terms (e.g. widespread or high numbers) with the intent that discussion within MIPAG will be used to determine the outcome, given that we do not have perfect information.*