

SPECIES *Pinus thunbergii*

STATUS **INVASIVE**

NON-NATIVE INVASIVE PLANT WORK SHEET

1. Is the taxon nonindigenous to Massachusetts (1)?

Yes No Haines 2011, Cullina et al. 2011

If yes, go to #2. If no, do not go further.

2. (3 questions) Is the taxon:

Yes No Have the biological potential for rapid and widespread dispersion and establishment in Minimally managed habitats (2)?

Comment: **This species has the potential to produce many seeds and persist over time in nutrient-poor, sandy habitats.**

Yes No Have the biological potential for dispersing over spatial gaps (3)?

Comment: **This species produces fruits and seeds that can disperse by wind and water away from parent plants and become established elsewhere.**

Yes No Have the biological potential for existing in high numbers away from artificial habitats (4)?

Comment: **It is documented in minimally managed habitats including conservation lands throughout the islands of MA.**

If Yes to all of these, go to #3. If No to any of these, do not go further.

3. Is the taxon naturalized in Massachusetts (5)?

Yes No

Comment: **The species has been in Massachusetts for over a century.**

If Yes to #3, go on to number #4. If No to #3, go to # 5.

4. (4 questions) Is the taxon:

Yes No Currently widespread in Massachusetts or at least common in part of the state or habitat type(s) in the state (6)?

Comment: **The species is apparently common in southeastern Massachusetts including Cape Cod and Nantucket with some evidence from Martha's Vineyard.**

Yes No Known to have numerous individuals in many occurrences in Massachusetts (7)?

Comment: **Where it occurs, this species has large stands of many individuals.**

Yes No Out-competing other species in the same natural plant community

(8)?

Comment: ***P. thunbergii* forms dense stands and high numbers in minimally managed habitats (Bois 2021). It has invaded the globally rare sandplain grasslands and other sites with known rare plant populations primarily on Nantucket.**

Yes No Known to have the potential for rapid growth, high seed or propagule production, dissemination, and establishment in natural plant communities in Massachusetts (9)?

Comment: **This species is known to have these attributes where it has been documented on Nantucket.**

If Yes to all of these 4 questions, the taxon should be considered to be an Invasive Species in Massachusetts. If No to any of these, the taxon can be considered to be a Likely Invasive Species in Massachusetts at this time if it meets at least one of the following 3 criteria.

5. (3 questions)

Yes No Is there at least one naturalized occurrences that has high numbers of individuals forming dense stands in minimally managed habitats (10)?

Comment:

Yes No Does the taxon have the potential, based on its biology and history In the Northeast or elsewhere, to become invasive in Massachusetts (11)?

Comment:

Yes No Is the taxon acknowledged to be invasive in nearby states but its current status in Massachusetts unclear (12)?

Comment:

If yes to question # 1 and all three questions in #2 but no to question #3, the species should be considered a Potentially Invasive Species in Massachusetts at this time if it meets all three of the following questions.

6. (3 questions) The species...

Yes No Naturalization in Massachusetts is anticipated (13)?

Yes No Has a documented history of invasiveness in the Northeast (14)?

Yes No If naturalized in Massachusetts, poses an imminent threat to the biodiversity of the Commonwealth (15)?

COMMENTS: If this species is "Invasive" in Massachusetts it is only likely to be so in sandy soils in the southeastern part of the state. It does not appear to merit "Invasive" status over much of the rest of the Commonwealth. Much work on documentation has been done on

Nantucket Island. More data may need to be collected from other locations within suitable habitat. *P. thunbergii* may be present, but not being documented throughout its current range. If the information on Nantucket alone is not enough to warrant "Invasive", then *P. thunbergii* should be listed as "Likely Invasive".

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