



Phragmites Treatment/Management Prioritization Tool Frequently Asked Questions and User Guide:

What is the Phragmites Treatment/Management Prioritization Tool?

The Michigan Department of Environmental Quality's (DEQ) Water Resources Division developed the "Phragmites Treatment/Management Prioritization Tool" to help management groups prioritize the treatment and management of invasive *Phragmites australis* in Michigan. While the invasive, non-native variety of *Phragmites* has become widespread in much of the Great Lakes region, limited funding and resources dictate that groups trying to manage *Phragmites* regionally should carefully prioritize management sites to improve the likelihood of accomplishing management goals. Experience has shown that local and regional groups have been the most successful agents – individuals are often too limited by time, funding, and experience. Therefore, *Phragmites* control coordinated with local and regional group efforts is encouraged. While there are some aspects of the tool that may be useful for individual land owners, the tool is really focused on management at a larger scale which requires careful consideration of both the resources of an organization as well as site-specific requirements.

Who should use the tool?

Primarily, land/resource management groups who are working on *Phragmites* management on a local or regional scale. The tool will help to compare many potential treatment sites so that groups can strategically allocate limited resources. The prioritization tool will allow those groups to rank many sites and focus efforts on the highest priority locations first. The intended audience of the tool is broad, but includes local, regional and state land managers who may have limited funding and resources and may need guidance for determining which *Phragmites* populations to target within their management areas (e.g. watershed groups, land conservancies, cooperative weed management groups, municipalities, etc.).

This tool should not be used for evaluating an individual property, as it is intended to compare and rank multiple sites. However, individual property owners may gain a better understanding of the ecological and human values impacts by reviewing the tool.

What will the tool do for me/my organization?

This tool will help provide a method to *prioritize* treatment areas within local or regional target areas. Ideally, if this tool is used by groups all over the state, the effect will be more *consistent* and more *successful* management statewide.

How does the tool work?

The *Phragmites* Treatment/Management Prioritization tool uses three categories of criteria - ecological, human values, and feasibility/coordination of treatment - as factors to score and ultimately prioritize invasive *Phragmites* infestations for management. The ecological criteria include considerations such as the region of Michigan where the infestation is located and the quality of habitat in the surrounding area. The human values criteria

consider such things as property ownership, severity of aesthetic impacts, and whether the infestation is causing a human safety hazard. Finally, the feasibility and coordination criteria include the difficulty of the treatment at a specific location and whether nearby *Phragmites* treatment is planned.

Smaller infestations (less than 1000 square feet) are assigned the most points. The fewest points are assigned to infestations with difficult treatment and/or access or infestations with additional *Phragmites* very abundant in nearby locations (i.e. 50 percent of similar habitat within about 2 miles is also infested). Each individual criterion is scored according to the answers given and the total score for the site can then be used to rank and prioritize multiple treatment sites.

This tool aids with structured decision making in the face of a complex ecological issue. While the tool is specific to Michigan, it has potential to inform decision making across the region by encouraging managers to carefully consider multiple criteria and weighing the relative importance of each criterion prior to making management decisions.

User Guide

Ecological Criteria

1. Region – This criterion provides scores based on the location of the site within Michigan. In general, invasive *Phragmites* is more widespread and established in the southern region of Michigan, while the infestations are smaller and less established further north.
2. Local abundance – This criterion is used to identify the local abundance of invasive *Phragmites* infestations in similar habitats, within approximately 2 miles from the site. Sites with fewer local infestations in similar habitats will score higher for this criterion, as the likelihood of treatment success and the prevention of spread are greater where infestations are not locally abundant.
3. Infestation size – More points are given to sites with smaller infestations, as the likelihood of successful management is greater in smaller infestations.
4. Linear feature – This criterion recognizes that linear features, such as ditches, drains, and utility corridors act as a conduit for the rhizomal spread of *Phragmites*, and prioritizes the management of these features.
5. Seed Source – This criterion tries to rank sites based on the probability that the site could act as a source of spread through seed dispersal, even after treatment. The probability that the entire infestation will be successfully managed is greater on sites where both the total patch size is smaller, *and* the entire area will be treated, thereby reducing the likelihood of spread.
6. Habitat quality – This criterion requires the user to compare characteristics of the site habitat relative to similar natural communities. The user should have some ecological knowledge of the type of natural communities found throughout Michigan. Some examples of the characteristics the user should consider include:
 - dominance and diversity of native plant species.
 - variation in plant growth forms (trees, shrubs, herbaceous).

- habitat features like hummocks, woody debris, open space and cover.
- fish, wildlife, and waterfowl breeding, rearing, and nursery areas.

Human Values Criteria

1. Ownership – Ownership status (public/private) can influence the public benefits derived from a site.
2. Aesthetics – The aesthetics of a site can be severely impacted by tall, dense invasive *Phragmites* stands which can block shoreline views of water bodies, inhibit scenic roads and waterways views, etc.
3. Recreational impacts – Infestations of invasive *Phragmites* can severely inhibit boating, walking, swimming and hunting access to water bodies, reduce waterfowl and fish use in an area, and reduce visibility for bird watching, hunting, and fishing, etc.
4. Human safety hazard – There are very rare instances where infestations of invasive *Phragmites* can cause a potential human safety hazard. Most sites are ranked as “no apparent safety hazard”. However, some examples of unique human safety hazard situations include:
 - *Phragmites* infestation so tall and dense that it is physically blocking views at busy road intersections, potentially causing traffic accidents.
 - Large accumulations of fire-prone dry *Phragmites* thatch accumulated directly adjacent to homes or buildings (not just near buildings, but where the thatch is potentially a fire hazard to the building itself), etc.

Feasibility/Coordination of Treatment

1. Nearby treatment sites – In order to strategically maximize the time and resources a group uses for regional *Phragmites* management, it is important to try to prioritize treatment sites which are near each other. This will encourage the management of sites with similar treatment methods and equipment requirements, which are within approximately 1 mile of each other, to be treated at the same time. A crew could likely go directly from one site to the next, with the same equipment, to best utilize time and resources. It should be noted that this criterion offers relatively low point values, because the nearby sites ranking should not outweigh more significant ecological or human values criteria. Rather, this criterion should be used to differentiate between sites that otherwise score similarly, and be used to highlight coordination of sites for treatment crews.
2. Difficulty of treatment – There are some sites where treatment of the infestation would be so challenging that the amount of resources spent on it would be extreme, potentially overdrawing the limited funding or staff time and preventing a group from treating other high priority sites. In some of these situations, a group should prioritize other high/moderate priority sites which are easier to treat. Some of the specific considerations for this criteria include:
 - Can you access the infestation on foot? Do you need an amphibious vehicle or a helicopter, etc.? Can you easily acquire this vehicle, or would you need to acquire additional funds?

- Do you have/have access to the proper equipment for treating this infestation? Do you need an aerial applicator rather than a backpack or wicking unit? Do you have a mower capable of mowing the tall/dense infestation, or the inundated infestation? Can you access one?
- Are there threatened/endangered species that could potentially be impacted by the treatment? Or rare and imperiled natural communities? Are there migratory or nesting birds within the infestation? Do you have the means to identify and avoid these impacts? Information on Michigan's rare species and communities can be found at the Michigan Natural Features Inventory website here: <http://mnfi.anr.msu.edu/>.

Additional Web Resources for *Phragmites* Management

- Great Lakes *Phragmites* Collaborative: <http://greatlakesphragmites.net/>
- Michigan Invasive Species program: <https://www.michigan.gov/invasives>
 - Publication: *A Guide to the Control and Management of Invasive Phragmites* <https://www.michigan.gov/egle/-/media/Project/Websites/invasives/Documents/Response/Status/egle-ais-guide-phragmites.pdf>
 - Publication: *Phragmites Treatment/Management Prioritization Tool* <https://www.michigan.gov/egle/-/media/Project/Websites/invasives/Documents/Response/egle-ais-phragtool.pdf>
- Midwest Invasive Species Information Network: <http://www.misin.msu.edu/>

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