

Management Considerations for Invasive and Non-Native Species in Nontidal Wetland, Stream, and Buffer Mitigation Sites in Maryland

February 15, 2023

Mitigation projects should be designed to become self-sustaining natural systems with no non-native or invasive species¹. However, even with proper site selection and construction protocol to reduce the risk of encroachment by these undesirable species, this goal is often unrealistic for projects located within certain regions of Maryland. For mitigation sites that do not meet the required performance standards for non-native or invasive species, the U.S. Army Corps of Engineers and Maryland Department of the Environment, in coordination with the Interagency Review Team (for mitigation banks), may consider a focused management approach for handling non-native and invasive species. This focused management approach is designed to consider a holistic strategy, reducing harmful herbicide usage while still accounting for long-term site success.

In general, Priority Species listed below should be controlled aggressively. These species are more of a threat to the long-term success of the site. They may be more persistent, highly prolific, likely to form monocultures, more easily managed, shade tolerant, or likely to inhibit develop of a forested community.

Priority Species:

Trees and shrubs:

- Tree-of-heaven (*Ailanthus altissima*)
- Japanese barberry (*Berberis thunbergii*)
- Autumn or Russian Olive (*Elaeagnus* spp.)
- Privet (*Ligustrum* spp.)
- Bush honeysuckle species (*Lonicera* spp.)
- Callery ('Bradford') pear (*Pyrus calleryana*)
- Multiflora rose (*Rosa multiflora*)

Vines:

- Porcelainberry (*Ampelopsis brevipedunculata*)
- Oriental bittersweet (*Celastrus orbiculatus*)
- Winter creeper (*Euonymus fortunei*)
- English ivy (*Hedera helix*)
- Japanese hops (*Humulus japonicus*)
- Japanese honeysuckle (*Lonicera japonica*)
- Mile-a-minute (*Persicaria perfoliata*)
- Kudzu (*Pueraria* spp.)
- Chinese or Japanese Wisteria (*Wisteria* spp.)

¹ Invasive species are identified on the 2010 National Park Service/U.S. Fish and Wildlife Service document *Plant Invaders of Mid Atlantic Natural Areas* <https://www.invasive.org/alien/pubs/midatlantic/midatlantic.pdf> and the Maryland Invasive Species Council Invasive Species of Concern in Maryland <http://mdinvasives.org/species-of-concern/>. Native status will be based on the Natural Resources Conservation Service Plants Database <https://plants.sc.egov.usda.gov/>.

Herbaceous:

- Bamboo (*Bambusa* spp. and *Phyllostachys* spp.)
- Canada thistle (*Cirsium arvense*)
- Giant hogweed (*Heracleum mantegazzianum*)
- Purple loosestrife (*Lythrum salicaria*)
- Reed canarygrass (*Phalaris arundinacea*)
- Common reed (*Phragmites australis*)
- Japanese knotweed (*Reynoutria japonica*)

The regulatory agencies may determine that additional species not on this Priority Species list also need to be actively managed for a particular project. Species risk should be based on site-specific criteria including but not limited to species percent cover, concern that this species will negatively impact the site in the long-term, and presence of other desirable species. For example, species that are likely to be shaded out in the long run (for sites designed to be forested) may be less of a concern. If the site is designed to be an emergent site, it may be important to also treat less shade tolerant species (e.g., *Lespedeza cuneata*). Some species are invasive but are very difficult to control because they tend to be interspersed with desirable species. For example, it may not be realistic to control *Arthraxon hispidus* when it is interspersed with native species. Some species are also less of a concern when the area has a high tree/shrub density, high tree/shrub canopy cover, and species richness is still high. Species may need to be controlled if they become dominants, or are trending towards dominance, and are precluding native species from establishment (e.g., Cattail monocultures). **Each project must be discussed with the regulatory agencies on a case-by-case basis to determine the non-native/invasive species strategy appropriate for that site.**