

Invasive Plant Control Practice Plan – [REDACTED] property, [REDACTED]

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Property Overview

The [REDACTED] property in [REDACTED] consists of ~130 acres stretching roughly west-northwest from [REDACTED] Road to the shore of [REDACTED] Pond, north of [REDACTED] Road (see Map 1). The property is mostly forested (mix of hardwood and softwood stands) with approximately 16 acres of fields in the northeastern corner (acreages from Forest Management Plan 2010). The fields are maintained for hay production and the field interior acres are not part of the Eligible Acres/Surveyed Area of this Plan (~114 Eligible Acres, see Map 2). The property has its high point in the fields and slopes gradually down toward the pond. Several small streams drain through the western half of the property into [REDACTED] Pond. There is a communications tower immediately adjacent to the property at the southeast edge. The forest is managed under the Tree Growth program and the last harvest occurred in ~2012.

Skid trails from this entry cross the woods on the western half and some are occasionally maintained for access. A network of old woods roads on the front ~20 acres of forested area are regularly maintained for access to the fields and stand of white pine closest to Cross Hill Road.

[REDACTED] is interested in maintaining timber productivity and wildlife habitat in the forest, therefore he was eager to have the forested portions of the property searched for invasive plant infestations beyond those identified in his Forest Management Plan. He plans to do some invasive plant management himself, and is prepared/eager to do mechanical/manual treatments on his own to reduce the overall amount of herbicide use needed.

Survey Description and Summary of Survey Effort

MNAP staff visited the property on July 6, 2017 and spent one full day (8 hours) surveying the forests and field edges (see Map 2). This was not an exhaustive search, rather a targeted evaluation of areas of concern. [REDACTED] joined us in the morning to helpfully point out several areas of old cellar holes, woods roads, etc. We spent more of the survey time in the “front” or eastern half of the property since it has a more intense history of human use, which is correlated with invasive plant presence.

Description of Invasive Plants Found

In our survey of the western half of the property, we found very few invasive plants, however the eastern half of the property had low to high infestations of ten invasive plants (see Map 3 and Table 1).

Six common woody invasive shrubs were found: autumn olive, burning bush, common buckthorn, Japanese barberry, multiflora rose, and shrubby honeysuckle. These invasive shrubs

have the potential to suppress tree recruitment and growth in forests, crowd out beneficial native plants, reduce wildlife habitat quality, and generally be a nuisance during property maintenance. One additional shrub species, false spiraea, was documented out of an abundance of caution; it is a “watch list” species about which less is known: its invasiveness is currently unclear. Autumn olive, burning bush, false spiraea and February daphne were found in low abundance (Maps 5, 7, and 11). Japanese barberry and multiflora rose were at medium abundance (Maps 8 and 9). Common buckthorn and shrubby honeysuckles were present at high levels in the eastern half of the property (Maps 6 and 10).

One invasive woody vine was found – Asiatic bittersweet. This tenacious vine can strangle, weigh down, and kill large, mature canopy trees, and cause branch snapping under conditions of early snow/ice loading. Thankfully, only two small areas of infestation were found (Map 3).

One invasive tree, black locust, was found in a disturbed area near an old cellar hole (Map 11). This thorny tree grows predominantly by root suckering, creating dense clonal stands which can compete with native tree species and which change soil chemistry in ways that can disfavor native plants. Thorny saplings and suckers are also a nuisance during general property maintenance.

Below we present Table 1 summarizing our findings, as well as prioritized management recommendations in Table 2.

Table 1. Invasive plants found at the [REDACTED] property, 2017 (see also Maps, attached)

Common name	Scientific name	Growth form	Level of infestation	Areas where found
Asiatic bittersweet	<i>Celastrus orbiculatus</i>	Woody vine	Low: two areas	One in woods, one at field edge
Autumn olive	<i>Elaeagnus umbellata</i>	Shrub	Very low: single plant found	Northern field edge
Black locust	<i>Robinia pseudoacacia</i>	Tree	Very low: single plant found	Northern field south fringe: old foundation area
Burning bush (aka winged euonymus)	<i>Euonymus alatus</i>	Shrub	Low	Several areas, see map
Common buckthorn	<i>Rhamnus cathartica</i>	Shrub or small tree	High	Eastern half of property
False spiraea	<i>Sorbaria sorbifolia</i>	Tall herbaceous perennial	Very low: one patch	Northern field edge
February daphne (aka paradise plant)	<i>Daphne mezereum</i>	Shrub	Low: isolated plants	Skidder trails in woods west of more highly disturbed areas
Japanese Barberry	<i>Berberis thunbergii</i>	Shrub	Medium	Eastern half of property not including fields
Multiflora rose	<i>Rosa multiflora</i>	Shrub	Medium	Scattered in eastern half of property
Shrubby honeysuckle (aka Morrow's honeysuckle)	<i>Lonicera morrowii</i>	Shrub	High/medium	Eastern half of property

Explanation of Prioritization Strategy

Prioritization is helpful because it is not usually realistic to remove every invasive plant from every acre of land. In general, the highest priority in invasive plant management is prevention – keeping new species out. After invasive plants become established, invasive plant management follows a three-tiered prioritization, see below. On the [REDACTED] property, the invasive plant species fall into either in #1 below (low presence on the property) or #3 below (high presence).

1. Early Detection and Rapid Response to eliminate species which are new to the area or only present in small patches. Goal is eradication from the site. Hopefully can be achieved over a short timeframe (several years). Best return on treatment investment.
2. Early Management to control modest patches of more common invasive plants. Goal is to expand the “clean” habitat and prevent it from being re-infested through monitoring

over time. This work may need to be repeated every several years (2-5 year interval) if there are nearby sources of propagule pressure. Areas of special concern (important timber resources, rare/exemplary natural features, special wildlife habitats) may be targeted first or more often.

3. **Suppress and Contain areas of dense infestation.** Goal is to reduce the spread of seeds or other plant propagules and prevent the infestation from expanding. This is ongoing, maintenance work which is repeated every several years or as resources permit, e.g., simply cutting down large shrubs every 5-10 years. Infestations near areas of special concern may receive more frequent or more intense attention. If a species is expanding from an area considered “the motherlode,” (densest aggregation of mature plants) the general practice is to recommend working from the outside in to control outliers/the advancing front, while at the same time (if possible) suppressing the motherlode to prevent additional seed production.

Prioritized Management Recommendations (1 = highest priority)

The treatment suggestions outlined here are considered highly effective approaches to the specific infestations found. Other options may also be effective or preferable in certain scenarios.

1. Review ways that new plants might arrive and be vigilant. [GOAL: Prevent new invasions.] Require that equipment (e.g., logging, earth-moving) be cleaned before it comes to your property. This will remove seeds or plant fragments which could otherwise spread from the last job to your property. Also, be careful with fill, hay, or mulch – all these can carry weed or invasive plant seeds. Monitor any areas where fill, hay, or mulch are applied for 1-2 years afterwards, to make sure nothing undesirable sprouts. Last but not least, be careful with your boots and personal gear. If you are returning to your property from another site that may be infested with invasive plants, be sure to clean your boots carefully and brush off your pant legs, etc. *at the site* before getting in your vehicle and driving home to your property! This will reduce the chance that seeds can hitchhike home to your forest.
2. Eradicate species in low abundance. [GOAL: Eliminate several species while it is still relatively simple to do so.] Asiatic bittersweet, black locust, burning bush, February daphne, autumn olive, and false spiraea are present at low or very low levels, and therefore should be relatively simple to eradicate from the property with modest investment of time and resources. Left untreated, these will spread and become larger infestations that will be much more difficult to control.

Repeated manual cutting/pulling can work on isolated plants, if this is regularly followed-up to cut back re-sprouts. Try to cut the plants 3X within 2 growing seasons. We

recommend flagging each plant so that it is easier to re-locate for follow-up. Herbicide treatments can also be effective, but due to the modest extent of the populations, may not be necessary if the landowner is diligent and thorough. Even herbicide treatments must be followed-up to address survivors.

3. Suppress infestations of more abundant and widespread species. [GOAL: Release native forest trees and understory plants from competition and improve wildlife habitat by suppressing growth, while recognizing that a significant seed bank exists and eradication is unlikely.] Dense and widespread infestations of common buckthorn and shrubby honeysuckle threaten forest tree regeneration and reduce the wildlife habitat value of the forest understory. Infestations of Japanese barberry and multiflora rose are not yet severe, but are beyond the “low” stage. These four woody shrubs are moderately shade tolerant (multiflora rose) to very shade tolerant (other three), and can compete and come to dominate the forest understory, interfering with forest succession.

It is unrealistic to expect to be able to find and kill all plants once this level of infestation is reached. However, an intense bout of treatment can kill large plants, buying time for the forest to grow and develop relatively free from invasive plant pressure. Repeating the treatment once every ~10-15 years, or when invasive shrubs again come to be noticeable, can help achieve forestry objectives while also improving conditions for wildlife.

Successful suppression of these widespread infestations will probably require herbicide treatment as some plants are large and the area infested is significant. We recommend hiring a licensed professional herbicide applicator. We suggest spraying below-chest-height plants with a foliar application of glyphosate or triclopyr and using basal bark application for taller common buckthorn and multiflora rose. Large shrubby honeysuckles do not respond well to basal bark and may require cut-stump treatment with follow-up to treat re-sprouts.

Notes on Using Herbicide

Successful suppression of widespread infestations will probably require herbicide treatment as some plants are large and the area infested is significant. We recommend hiring a licensed professional herbicide applicator. The method that uses the least amount of herbicide molecules is foliar treatment using low concentration herbicide solutions. For larger shrubs too tall to spray (the leader must be sprayed or the treatment will not succeed; it is also dangerous to spray over your head), a basal bark or cut stump treatment may be used, but this requires much more concentrated solution and can actually use more molecules of active ingredient than a dilute foliar spray. In general, foliar spray is the most effective method of treating shrubs and trees with small diameter stems.

Glyphosate or triclopyr are the most commonly used herbicides for invasive plant control; triclopyr works best in the spring and mid-summer when plants are actively growing, while glyphosate works best in mid-late summer and early fall when plants are sending materials down to the roots. Glyphosate and to a lesser extent triclopyr are available in forms you can purchase “over the counter” at a local garden center. Both herbicides are short-lived and not mobile in soil. As with any herbicide, proper technique is required to minimize collateral damage and ensure applicator safety.

Pay close attention to the herbicide concentrations listed in the product label, the required personal protective equipment, and the timing of application. Do not spray plants when they are flowering as beneficial insects may be visiting. Do not use herbicide during a drought as plants will not take up the product well and it will not be effective. Also, remember that with herbicide use, more is not always better – use the minimum recommended concentration first and see if it does the job. Note also that some herbicides may require the addition of a surfactant (often true for foliar applications). Read and follow all label instructions if using herbicide yourself; The Label is The Law. Note there are special restrictions on the use of herbicide in or near any wetland or waterbody. If you have any questions about herbicide use, contact the Maine Board of Pesticides Control: 207-287-2731; pesticides@maine.gov and online at <http://www.maine.gov/dacf/php/pesticides/index.shtml>

Invasive plants to watch out for (not found but appropriate habitats are present)

- Black swallowwort (field edges and sunlit forest understory)
- Garlic mustard (damp areas, forest understory)
- Glossy buckthorn (can grow almost anywhere)
- Japanese knotweed (roadsides, areas of recent disturbance)
- Norway maple (in or near woods esp. near roads and dwellings)
- Ornamental jewelweed (in wet areas)
- Common reed (in wet areas)
- Purple loosestrife (in wet areas)

Table 2. Five Year Suggested Management Timeline

Year	Task	Time of year	Responsible party
2018	Treat low abundance species: Asiatic bittersweet, black locust, burning bush, February daphne, autumn olive, and false spiraea	Variable based on treatment type – mechanical treatment can occur anytime for woody species, while herbicide treatment is best done during the growing season	Landowner or hired contractor
2019	Hire licensed applicator to do initial foliar, basal bark, and cut-stump treatments on widespread species: common buckthorn, shrubby honeysuckle, Japanese barberry, and multiflora rose	During the growing season, exact timing TBD based on active ingredient(s) and methods used; basal bark treatments can be done earlier before other plants have leafed out	Licensed applicator
2019	Re-treat any re-sprouts from low abundance plants treated in 2018	Once plants have had a chance to re-sprout	Landowner or hired contractor
2020	Assess the success of the herbicide treatments done in 2019	Growing season 1 full year after treatment	Landowner
2020	Re-treat any plants still alive using either manual/mechanical or herbicide methods, depending on extent of remaining infestation	Variable based on treatment type – mechanical treatment can occur anytime for woody species, while herbicide treatment is best done during the growing season	Landowner or hired contractor
2021	Monitor all invasive plants treated and re-treat as needed - hopefully can be all done mechanically at this point	Monitor in growing season; mechanical treatment can occur anytime for woody species	Landowner
2022	Monitor all invasive plants treated and re-treat as needed - hopefully can be all done mechanically at this point	Monitor in growing season; mechanical treatment can occur anytime for woody species	Landowner

Where to find more information about these invasive plant species

1. Maine Natural Areas Program invasive plant web gallery with identification and control information:
https://www.maine.gov/dacf/mnap/features/invasive_plants/invasives_gallery.htm
2. GoBotany, an excellent place to see additional pictures of the plants:
<https://gobotany.nativeplanttrust.org/>

List of maps (attached)

- Map 1. Property boundary
- Map 2. Surveyed Acres and Search Route
- Map 3. All infestations
- Map 4. Asiatic bittersweet
- Map 5. Burning bush
- Map 6. Common buckthorn
- Map 7. February daphne
- Map 8. Japanese barberry
- Map 9. Multiflora rose
- Map 10. Shrubby honeysuckle
- Map 11. Other species

About the data shown on the map(s)

The map(s) included with this report show locations of invasive plants that we observed during our site visit. All these invasive plant data are stored in iMapinvasives (“iMap”), an online mapping program and database. More detailed information about each point or shape is available on the public iMap map at: <https://imapinvasives.natureserve.org>

In iMap points and shapes are called “presences.” Shapes cover more area and hold more detailed information. For more information about iMap, or to request an account, visit www.imapinvasives.org.