

Smith Conservation Land

Invasive Species Control Report

9/4/2024

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This report for Smith Conservation Land covers activities from October 2023 until early September 2024. It provides background and updates on the various invasive species control efforts at Smith, located at 199 Whitcomb Avenue in Littleton, MA. More information about Smith [can be found on the project web page](#).

Mechanical/Manual Control

Total Hours of Manual site work:

Volunteer time: 40 hours

Staff time: 89.5 hours

Total time: 129.5 hours

1. Spring Forb Pulling (Unit 4)

Completed work:

Staff and volunteers completed manual removal of invasive forbs that emerged in Unit 4 in the spring. These herbaceous invasives included garlic mustard, wall lettuce, greater celandine, Dame's rocket, and narrow-leaved bittercress. This also includes some pulling along the ravine/fault line further back on the property, off of the yellow trail.

Volunteer time: 6 hours

Staff time: 17 hours

Total time: 23 hours

Results/Recommendations:

There has not been a total eradication of invasive forbs; many invasives remain near the parking area and up the hill towards the stone wall and forest edge. Total removal will require consistent effort from staff and volunteers for a total period of at least 10 years. It remains difficult to recruit enough volunteers that are willing to work consistently at Smith, which has resulted in abundant invasive plants remaining in this unit during the springtime. Wall lettuce is still widespread in this unit, but there has been a noticeable decrease in garlic mustard near the stone wall.

Focus will remain on maintaining the forest edge. Volunteers and staff will pull invasive forbs along the edge of the forest to keep them from encroaching into forest interior. This has been a successful strategy. Staff and volunteers will also continue to pull forbs throughout Unit 4, especially near the parking lot and along the stone wall.

2. Solarization (Unit 5)

Cardboard & plastic solarization

Completed work:

This year, staff added more cardboard to the cardboard solarization plot to fill gaps and cut back vegetation that was growing through gaps in the cardboard. Staff also cut back vegetation that grew through the plastic solarization plot.

Results/Recommendations:

There is some bittersweet that grows through both the cardboard and the plastic on the solarization plots, but it is fairly easy to remove. Staff will continue removing any invasive growth. The plastic and cardboard will stay in place at least through the remainder of the fall of 2024 to allow for maximum effectiveness. It is expected that the solarization will kill off 95% of the area underneath the plastic/cardboard. SVT plans to sow a native seed mix after removing the solarization materials.

Volunteer time: 0 hours

Staff time: 4 hours

Total time: 4 hours

3. Bittersweet Root Excavation (Units 1 & 2)

Completed work:

Staff continued touch-up work in Unit 1 (Red pine) (0.4 acre bittersweet excavation plot) this season. Staff checked on the plot to check on the regeneration of bittersweet.

In Unit 2 (the tamarack peninsula) staff and volunteers have worked to excavate bittersweet in the 50 ft. wetland buffer area where herbicide cannot be used. There was very limited volunteer involvement, due to difficulty recruiting regular volunteers. Staff and volunteers have removed about 80% of the bittersweet in a small area (about 0.2 acres), but a substantial amount of bittersweet remains in the buffer zone around the entire peninsula. The majority of the bittersweet is within the 25 ft. buffer and will require more manual removal.

Volunteer time: 4 hours

Staff time: 57.5 hours

Total time: 61.5 hours

Results/recommendations:

Staff and volunteers will continue to excavate bittersweet in designated areas on the tamarack peninsula. This method has been very effective, but extremely time consuming. There continues to be a lack of volunteer involvement. This has hindered the progress greatly, as staff time cannot be solely dedicated to work at Smith Conservation Land. The goal is to have several volunteers who work independently at Smith to complete the root excavation in Unit 2. Staff continues to work on volunteer recruitment. Spot-excavation in Unit 1 will continue, but the original excavation still appears to have been very effective. Even after the logging of the red pine area, there is not much regrowth of bittersweet.

4. Bittersweet Cutting (Units 1, 2, 4, and 5)

Completed Work:

In Unit 1 (red pine area test plot), staff conducted one cutting session of bittersweet to remove regrowth. In Unit 5 (open field), the field was mowed. Several areas with native plants were left unmowed to support wildlife and pollinators. There was a small amount of cutting/hand pulling/excavation around the vernal pool area in Unit 4 where herbicide treatment is not allowed.

Volunteer hours: 28 hours

Staff hours: 10 hours

Total hours: 38 hours

Results/recommendations:

The original cutting in Unit 1 remains successful. About 90% of the bittersweet was removed and has not grown back significantly. There was not regeneration of bittersweet, even after the area was cleared by loggers. Staff will continue monitoring this area and will cut back bittersweet when needed.

Mowing in Unit 5 will likely increase bittersweet root vigor, but the plan is to continue to mow the field once a season to hinder seed production of bittersweet in the field. The cutting/clearing in Unit 4 near the vernal pool has not been effective; there was significant bittersweet regrowth in this area. Staff and volunteers will continue to work in this area.

5. Herbicide Treatment

Completed work:

In 2021, a cut and dab treatment of bittersweet and some other invasive shrubs was conducted in Units 1,2 and 5. This was followed by foliar treatments in 2022, 2023 and now again in September 2024.

The first foliar treatment in Units 3 and 4 was conducted in 2023 and now the second treatment is this month in September 2024.

While bittersweet has been the primary target of the treatments, invasive shrubs including multiflora rose, glossy buckthorn and burning bush were also treated.

SVT staff did not conduct any herbicide treatment at Smith in 2024. (In the previous two years, only swallowwort was treated.)

Results/recommendations:

Overall, foliar treatments have been very effective (estimated 90% mortality of target plants). We are especially pleased with these results given the severe disturbance and opening up to sunlight from the logging operation in late winter. The contractors did an excellent job of avoiding native species when conducting foliar spray application.

There has been no observed regeneration of the black swallowwort, although much of the area was covered in wood chips after the logging. Staff will continue to monitor the area and the swallowwort population.

6. Biological Control

Staff released three colonies of beetles, *S. tsugae*, in the hemlock stand to control the hemlock wooly adelgid (HWA) in 2022. There has not been a significant reduction in amount or spread of HWA observed by staff as of September 2024. (**I will check on this this week)