

Miyawaki Forests Maintenance Program

Completed by Reimagined Roots - 2025



Task A.1.c: End-of-Season Review & Maintenance Scope Update

Contractor: Reimagined Roots, LLC

Date: May - November 2025; Reporting December 2025

Sites:

- Plumley Village Miyawaki Forest (1 Prospect St)
- McGrath Parking Lot Miyawaki Forest (3 Salem St)

1. Purpose of Report

Summarize end-of-season observations, maintenance outcomes, and site conditions for each Miyawaki Forest.

Document updates to maintenance records and site maps, and provide refined recommendations for the 2026 growing season.

2. Summary of Activities Completed (2025 Season)

2.1 Overview

Site Visits & Labor Quantities

**Note - The 2025 contract began in May, however our recommendation is that the contract begins in February in the future. See Section 5.1 for Recommendation Table*

Month	Feb	Mar.	April	May	June	July	Aug	Sept	Oct	Nov	Dec.	Total
Maintenance Hrs.	0	0	0	20	26.5	21	21	44	49	3	0	184.5
Site Visits	0	0	0	2	3	3	5	5	7	3	0	28
Admin Hrs.	0	0	0	2	3	2.5	3.5	5	4	5	1	26

Summary of Activities by Month

- **May** - The primary focus of our visits in May revolved around trash removal, as significant litter and debris had built up throughout the winter and early spring. We also focused heavily on invasive removal and plant health assessment as we observed what was thriving and what had not made it through the winter. 1/3rd of evergreens at McGrath were dead upon arrival. This is likely due to the effective canopy layer shading them out and winter dessication. The chop and drop method was employed and

effectiveness on future weed suppression varied by site. The primary concern at Plumley was managing the lamb's quarters before it went to seed.

- **June** - We continued to chop and drop the carpets of lamb's quarters at Plumley using a weed whacker, and observed knotweed and bittersweet creeping in from the DOT property along the forest/highway edge. We observed positive changes from chop and drop at McGrath. Irrigation, fence and lock issues were reported. Irrigation at McGrath began to be an issue as a leak at the hydrant connection may have been impacting water pressure. Poison ivy was also noted at McGrath.
- **July** - As we entered the heat of the summer, irrigation cuts and malfunctions began to be evident and impacting the tree health at Plumley. We stopped using weed whackers at Plumley, as the lamb's quarter was effectively managed. Infrastructure at Plumley (fence, irrigation, lock) were reported. Growth of elderberry and willow took off at both sites! McGrath's hydrant issues continued to be reported, and drought stress was observed.
- **August** - Plumley's bare spaces became evident, as grass and mugwort began carpeting the spaces without canopy establishment. Irrigation repairs were a primary focus, as we repaired the fence at Plumley to weed whack the mugwort growing below it. Weeds such as wood sorrel and horseweed were chopped and dropped at McGrath. Irrigation issues continued to be problem solved as we navigated solutions to watering the trees. Crew members met a USFS agent and Harvard GSD student studying the McGrath Miyawaki Forest.
- **September** - Mugwort and grass removal continued at Plumley, and Tree of Heaven was observed and removed. Observation of drought and subsequent irrigation repairs were observed at Plumley. McGrath's irrigation issues have been amended on our side, though the hydrant continues to leak. Overall invasives have been managed, weed pressure is negligible and trees are thriving at McGrath!
- **October** - Infill planting at both sites was completed! Across multiple visits we were able to spread wood chip mulch at Plumley Village to mitigate excess weed growth in 2026. The focus of the mulch was around the base of the trees, in an effort to reduce competition with herbaceous plants. The surviving evergreens at McGrath are doing well. There are many pollinators active at McGrath, and the only ongoing issue is to do with the hydrant.
- **November** - A trash pick up visit was completed at each site. Some damage to new trees that were under 6" in height at planting has been observed.
- On Fridays a Master Gardener group helped with general maintenance with instruction from both Casey-Lee at BSC and Rachael at Reimagined Roots. They volunteered from 8am-10am on the following dates: 6/26/25, 7/25/25, 8/22/25, 9/5/25, 9/26/25, 10/10/25. Volunteer efforts were primarily aimed at Plumley Village, as McGrath's previous volunteer contributions had set it up for success this season!

2.2 Photos

- Professional photos can be found here - [Miyawaki Forests | Reimagined Roots by Deirdre Rakus Photography](#)
 - To view enter email and password: roots2025
 - Photos are downloadable at original pixel quality here for marketing materials
 - Photos used should be credited to: Deirdre Rakus, Reimagined Roots
- See RR Photos in Sharepoint for photos taken during maintenance visits throughout the 2025 season.

3. Site Assessments

3.1 Plumley Village Forest

a. Overall Health & Growth Progress

- At Plumley Village approximately $\frac{1}{2}$ - $\frac{2}{3}$ of the forest plantings successfully created a canopy layer during the 2025 growing season. There was vigorous growth noted among cottonwood trees, elderberry, willow and aspen. Cottonwoods are the dominant species after year one.
- There are a number of evergreen trees that have survived throughout the first season, and these trees should be monitored particularly closely throughout the next season for drought stress and shade cover as they are an important part of the ecosystem for year long interest and diversity.
- A number of trees, such as maples, were eaten down to the base by rabbits in the first winter, and have since sprouted vigorous suckers. This has resulted in multistemmed versions of trees that would otherwise be single stemmed. There is generally no issue with this as it enhances the density and decreases maintenance overall.
- The ground cover at this site is particularly vigorous due to large sections of the forest lacking adequate canopy to stifle herbaceous growth. Throughout the season we brought the duff layer from 1" depth up to 4-6" depth in most places. This was achieved through chop-and-drop as well as mulching with wood chip mulch. A mulch application in March of 2026 would be advisable for this site, as well as ongoing chop-and-drop throughout the 2026 growing season.
- Due to the late start of the maintenance contract, the aggressive weed growth concealed both the irrigation lines as well as some of the smaller saplings. Due to this, and despite careful training and oversight of the crew, many small trees were damaged from the string trimmers while removing the weeds. This, as well as winter damage from rabbits, and the steepness of the slope that the forest is planted on, contribute to the reasons why Plumley has been less successful in establishment than McGrath. Earlier efforts to suppress weed growth through mulching and hand weeding will help prevent these issues in the future.

b. Soil & Irrigation Conditions

- Summary of irrigation system function:
 - Early in the season, weeds flourished prior to establishing a consistent maintenance schedule. Upon beginning maintenance, the only way to effectively and efficiently clear the weed growth was to string trim. The thin drip tape irrigation lines hidden beneath the weeds took some collateral damage, and were leaking throughout the system. While some spot-repairs were made, and the string trimmer method discontinued, the system remained in poor condition through the majority of the growing season. It is recommended that thicker polyethylene irrigation tubing be used in the future/other projects instead of agricultural drip tape.
 - In October, the irrigation system was repaired in totality and tested, confirming that there is sufficient coverage throughout the zones prior to winterization (blowing out the lines and bringing the timers/splitters/filters/pressure reducers inside to RR headquarters).

- It is recommended that during each visit the irrigation is turned on, one zone at a time, and maintenance personnel should be prepared and equipped to repair any potential leaks. It is recommended that parts and materials for irrigation repair are included in future Miyawaki maintenance contracts with the city, as they need to be ordered and stocked ahead of time.
- The irrigation timing system experienced a lapse in control through the handoff from BSC to Reimagined Roots, and it is not known what the timing schedule was throughout the growing season until Reimagined Roots downloaded the “Hubspace” app in October and set the schedule to water once/week for 60 minutes per zone.
- Soil moisture observations during visits.
 - It is recommended that as part of every maintenance visit, the soil moisture is tested by digging a small hole in various areas and feeling with your fingers. If it’s moist at 2–3 inches: skip a cycle. Dry or warm/crumbly at 2–3 inches: run the system. Wet/saturated: do not water
 - Through peak summer, the soil was surprisingly moist considering the irrigation was sparsely effective due to leaks. The heavy weed growth in early spring created competition for nutrients and sunlight for the smaller trees, but after chopping in place, effectively helped mulch the soil, add organic matter to the already rich compost layer, increasing its water holding capacity.

c. Invasives & Weed Pressure

- The dominant groundcover included lady’s thumb, especially at the beginning of the season, as maintenance did not begin until after the groundcover had germinated.
- Throughout the fall season the primary invasive of note was mugwort. There is also bindweed observed throughout the summer months.
- Mulch was applied in the fall of 2025, and will serve as a ground cover in the early spring to ensure early season weed germination is stifled. Mulch was concentrated around the base of trees, and there will likely be swaths of ground cover that will continue to need mitigation as the canopy layer grows in to ultimately shade out the pervasive groundcover.

d. Structural Features

- Fence, signage, access, tree protection, etc.
 - Fence damage was observed and reported throughout the season. It has been fixed and was in good condition during our final visit, though it is very short and easy to step over, creating easy access for anyone not entering through designated gates.
 - The sign, as well as the sign pedestal, were stolen. The replacement sign is being held by Reimagined Roots currently, and we propose it be installed in the spring rather than during the winter as no one will be monitoring the site between Dec. 2025 and spring 2026.
 - Locks on both gates have remained intact and locked throughout the duration of the contract.
 - The half circle seating area within the forest with the 2 shade trees was damaged when the hydrogel was let out of the tree watering bags. The hydrogel is biodegradable, but may be slick as it biodegrades.

- Trees that are known to be damaged by critters through the winter were protected with trunk guards. These guards may be damaged through the winter, and should be in place until the trees have established multistem structure, or are 2" in diameter at the base of the trunk.

e. Habitat Value

- The deadwood logs that serve as erosion control as well as habitat have many mushrooms growing out of them, showing that there is a healthy mycelial network in the forest. The stakes that are holding them in place are likely to rot out within a year or two, and it is recommended that additional stakes be placed to ensure the logs don't go rolling down the hill.
 - We observed many visiting birds and rabbits throughout the forest. The birds in particular brought a lot of diversity into the space, finding food and nesting habitat in the forest.
 - We did not observe any predator species (fox, coyote) or rats in the forest.
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3.2 McGrath Lot Forest

a. Overall Health & Growth Progress

- The density of the forest is impressive, with an estimated average spacing of 2-3' between trees. Many trees are growing in dense stands of up to 10-12' in height. The willow trees at this site are particularly dense and tall.
- There are a number of healthy evergreens at this site, including white pine, and spruce. These should be closely monitored as they will provide year-round interest should they continue to thrive in this landscape. The trees that did not survive the first season were primarily evergreens, as well as a few deciduous trees that were noted dead upon our first visit.
- Groundsel trees were very prominent at this site and made a great food source for many pollinators. Its dense growth habit effectively shaded out many weeds. Ninebark was also noted as thriving, providing tons of food and habitat for bees and birds throughout the season.
- Weed suppression through chop and drop that was begun in 2024, and we carried out throughout 2025, was very successful. There was a thick layer of duff and mulch through the chop and drop efforts. This forest has minimal weed pressure and will be ready for herbaceous plantings if desired in 2026. There were many desirable herbaceous plants that were chopped and dropped in accordance with this year's protocol, but may be allowed to grow to maturity in 2026 as the strength and density of the forest continues to increase.

b. Soil & Irrigation Conditions

- The irrigation system proved effective, with soil conditions consistently appropriately moist throughout the year with healthy growth from the trees. While control of the timers wasn't altered or monitored by Reimagined Roots, the previous settings by BSC are believed to have sufficiently watered the forest, despite a consistent leak at the fire hydrant head stack.

- The system was winterized in October prior to any hard frosts, by blowing out the lines with compressed air, disconnecting the head stack and timers, and storing them inside.
- It is recommended that the entire irrigation system be inspected in the Spring, and to ensure that whoever is in charge of making the connection to the hydrant takes extra measures to ensure there are no leaks.

c. Structural & Aesthetic Conditions

- The fence at McGrath is effective, and the locks have successfully prevented entry into the forest by the public.
- The pathway is in good working order. If this should be accessible to folks in wheelchairs, the path should be re-finished with compacted stone dust or aggregate.
- The sign was stolen from McGrath and needs to be replaced. We'd recommend signs be attached with security screws, and any pedestal mounted signs be set in a concrete footing.

d. Habitat Indicators

- Bee presence at this site was extremely high! There were 3 bee habitat features installed, and the groundsel tree that was planted in high quantities at this site attracted a lot of pollinator activity. The ground bee box, filled with sand, should be uncovered and weeded during cooler months when ground bees have gone dormant - this feature became home to a layer of crab grass that was not weedable due to the bee activity and hardware cloth covering the box.
- There was a high quantity of berries observed on the plantings throughout this space, making it attractive to many birds! We saw some birds at this site, and believe it will continue to provide valuable food for birds through the winter.
- No predatory species or rats were observed at this site.
- The duff layer and effective chop and drop, as well as deadwood brush area below the established sycamore fed the mycelial network, connecting the tree roots with beneficial fungal activity.

4. Site Map & Record Updates

4.1 Plumley Village Map Update

- See attached PDF 'Miyawaki - Plumley Planting Reference' & 'Miyawaki Infill Plantings' for updated maps and reference materials.
- Areas marked red and orange are the areas with the highest density of ground cover, as these spaces were the least shaded by the canopy layer. These areas should be monitored most closely for weeding, invasive presence, and irrigation function as new trees are planted most densely in these spaces.

4.2 McGrath Lot Map Update

- See attached 'Miyawaki - McGrath Planting Reference' & 'Miyawaki Infill Plantings' for updated maps and reference materials.
 - Note that the edges of the forest should be maintained to keep branching contained to the fenced-in area. This should be managed through pruning in the month of February.
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5. Recommendations for 2026 Maintenance Scope

5.1 General Recommendations

- Recommended qualifications for maintenance team
 - AOLCP - Accredited Organic Land Care Professional
 - PDC - Permaculture Design Certified
 - Minimum 1 year of experience maintaining and monitoring Miyawaki forest growth and natural succession in urban ecosystems
 - Crew capacity for weekly on-site maintenance visits
- 4-6 hours per month of the working season (March 15th - Dec. 1st) should be dedicated to administrative check-ins, coordination and reporting.
- At least 2 hours per week should be dedicated to trash pick up at both sites. This will always be required for the maintenance of these spaces, as trash build up may attract unwanted interactions from both people and wildlife, as well as degrade the aesthetic appeal of these landscapes.
- Materials budget should include infill plantings for one more season, if needed for overstory and/or herbaceous layer, at both sites.
- Materials budget should include irrigation repair items sourced - splices, electrical tape.
- Signage installation/replacement should be included in the 2026 scope of work.
- See attached PDF 'Miyawaki Forest Irrigation Frequency and System Care' for more information about

Month	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Maintenance Hrs.	5	20	20	15	15	20	20	15	15	30	0	175
Site Visits	2	4	4	4	4	4	4	4	4	5	1	40
Admin Hrs.	1	1	1	3	2	2	3	4	4	4	1	26

5.2 Site-Specific Recommendations

Plumley Village:

- Assess the need for infill plantings in 2026 (may be assessed by Permaculture Design certified maintenance team) and complete infill plantings.
- City of Worcester or DOT should invest in invasive management along the forest edge between the forest and highway so tree of heaven, japanese knotweed, and bittersweet do not pose a persistent issue as maintenance decreases in the forest.
- Continue grass suppression via duff/mulch application.
- Consider establishing a permanent hose guide or keyed faucet for irrigation security.
- Reach out to the residential summer camps/youth groups to create a relationship between the residents of Plumley Village and the budding forest developing in their back yard!

McGrath Lot:

- Enhance habitat infrastructure.
 - Prune overgrowth away from walkways during the winter.
 - Evaluate potential transition toward self-sustaining litter-maintenance-only phase by end of 2026.
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6. Conclusion

Both forests are moving through healthy early-successional stages and building the structure expected at this point in their development. While McGrath is becoming largely self-sustaining with only light oversight needed, Plumley still requires active management due to invasive pressure, irrigation issues, and the need for continued ground cover management as the canopy develops.

The most effective techniques this season were simple and regenerative. Chop-and-drop mulching and selective weeding helped reduce weed pressure, strengthen soil biology, and accelerate duff formation. Mulching gaps at Plumley was especially important for suppressing grasses and stabilizing moisture levels through building mulch as soil insulation.

It is essential that maintenance begins in *at least* April to prevent weeds from germinating and concealing young saplings. By applying mulch and hand-weeding, the weed growth won't get so tall that it needs to be string-trimmed. This is crucial to avoid collateral damage to the young trees and irrigation lines.

It is also recommended that the maintenance schedule runs through the winter as well, so that the forests can be monitored for winter browse, pruning needs (overhanging fences), trash, and vandalism.

Challenges were handled quickly and effectively throughout the year, and the forests are left in good working order. These interventions protected young trees during heat waves, browser activity, and heavy weed flushes.

Community volunteers played a crucial role in keeping both forests on track, contributing to weeding, chop-and-drop, habitat building, and public education that deepened local stewardship.

Priority Actions for 2026

- Continue invasive suppression and irrigation monitoring at Plumley; install 100–200 infill trees and apply winter wraps to vulnerable species.
- Maintain light oversight at McGrath, including occasional weeding, chop-and-drop, and monitoring of the central locust seedling.
- For both sites: replace dead plants, add fall groundcover plugs, and continue leveraging volunteers for weeding, mulching, and habitat work.

With these focused actions, both forests will continue maturing into resilient, self-maintaining urban ecosystems that deliver long-term ecological value.

Attachments

- Miyawaki Infill Plantings
 - Spreadsheet outlining quantities, placement and purpose behind infill plantings at both sites.
- Miyawaki - McGrath Planting Reference
 - Color coded map outlining planting locations for infill plantings at McGrath Lot.
- Miyawaki - Plumley Planting Reference
 - Color coded map outlining planting locations for infill plantings at Plumley Village.
- Irrigation Frequency and System Care
 - Guidelines for irrigation frequency based on season, spring system start up, end of season winterization, and general repair.