sustainable WATERLOO ▸ REGION

MICROFOREST PLANTING PROGRAM

Land Stewardship and Maintenance Manual

2022

Land Stewardship and Maintenance Manual

Land Acknowledgement

The land on which we plant is on the traditional territory of the Neutral, Anishinaabe and Haudenosaunee peoples, and we are situated on the Haldimand Tract, land promised to the Haudenosaunee of the Six Nations territory. As part of reconciliation, we recognize the Indigenous peoples who continue to live here, care for, and remain interconnected with this land. The basis of the Haudenosaunee culture is the connection and care for the land for the future of our children. The work done through the microforest project is to care for, and preserve the land for a prosperous future together. We honour the wisdom brought by these peoples and strive to braid it into the work and projects we do every day.

What is a Microforest?

A microforest is a small area of land that is being returned to its natural state through the planting of native trees and shrubs. Microforests are planted on non-developable land and can be as small as a city residential building lot (500 square feet). It is a great way to re-naturalize a small piece of land in developed areas and has many ecological and social benefits.

The species that are planted are important to the benefits a microforest has. Everything planted in a microforest is native to the region, and includes shrubs and trees to create a naturalized layout. One element of a microforest, depending on soil health and other environmental conditions, is planting pollinator seed mixes adjacent to the microforest. This is to grow wildflowers and plants that aid in species diversity and pollination. To determine what species are best suited for different sites, SWR has partnered with the Grand River Conservation Authority (GRCA) to ensure proper planting practices are followed and species diversity is achieved.

Site Criteria

What qualifies as a microforest site with SWR?

The main goal for a microforest is to utilize otherwise un- or under- used urban space and renaturalize it. This leads to restoring our natural landscape and improving the ecological and human health of our communities.

The qualities we look for in a potential site:

Requirements:

- An area of at least 500 square feet OR an area large enough for at least 10 trees or shrubs, with the possibility of planting upwards of 100 trees in a larger plot of land.
- Unused area not being or planned to be developed for uses including buildings, sports fields, parking lots and other infrastructure.
- Close availability to a water source for watering in the first 2 years of growth.
- Land that can be delineated for the first 2 years of growth to prevent damage to trees and shrubs. This can be done using temporary fencing, signage, stones etc. that outline the planting (see example photo below).

Preferences:

- A plot of land that currently does not have any built infrastructure on it.
- A plot of land that currently holds either mown or unmown grass.
- Land with healthy soil fit for planting (however, soil amendments can be made if needed).
- Land not already surrounded by vegetation so as to target areas of most need (i.e. area surrounded by paved road, grass or buildings).

Planting Day

Based on a 100 tree/shrub microforest.

Planting Day is a very important element to the project. Each planting day can take anywhere from 2-4 hours. This depends on many factors including: number of volunteers, quantity of trees to be planted, water access, snack/food breaks, and tree and mulch delivery. It is important that everyone knows their roles and responsibilities, and that safety is a number one priority.

Volunteers

A group of 20-30 volunteers is needed for planting day. These volunteers could be a part of the sponsoring organization, the organization that the land is on, or groups of community volunteers. Volunteers must be over the age of 10 to be able to safely participate in planting day, and must be supervised by a parent or guardian if under the age of 16.

Tools and Materials

Required for planting day:

- Trees and shrubs purchased through SWR.
- Transportation for trees and tools (UHAUL rented in past years by SWR).
- Food provided for volunteers - coffee, tea, fruit, and lunch.
- Tent and folding table recommended to provide shelter from inclement weather and for the food provided for volunteers.
- Orange cones to clearly outline the planting site.
- Water source in close range.

Tools:

- Gardening gloves - 1 pair per volunteer (preferred they bring their own)
- Shovels - 1 per volunteer
- 3 wheelbarrows
- 3 rakes
- 1 or 2 knives to open trees/shrubs (which are bagged and bailed with heavy plastic - depending if potted version is bought or not)
- 2 pairs of scissors for rodent guards (need to be cut in half sometimes for smaller trees/shrubs)
- 5 or more plastic buckets (used for both watering and mulching)

Volunteers bring:

- Refillable water bottle
- Long sleeve shirt and pants
- Closed toe shoes
- Gardening gloves and shovel if they have them

Health and Safety Protocol

- Must ensure there are bathrooms available for volunteers to use on site.
- Training must be provided for physical safety, Covid protocols, and planting guidance - resources to be provided by SWR.

Roles and Responsibilities

- *Site supervisor* – SWR staff or a "lead volunteer" from the volunteer organizations with some prior training.
- *Digging & planting* – pre-marking the sites and preparing other volunteers to be distributing and planting the trees.
- *Mulching* – It is recommended that mulching begin shortly after planting and continue throughout the planting day.
- *Watering* – this is limited to one or two volunteers because there is typically only one hose available. It is recommended that watering begin just after planting, similar to mulching. Water

thoroughly before planting, and at planting time. This helps to settle the soil and get rid of large air pockets.

- *Photographer* – it is very helpful to have a designated photographer to ensure quality photos and that waivers are signed off. One photographer is sufficient (with transportation) for each site, and could likely move effectively between even more sites. Another possibility would be to have a volunteer at each site be responsible for taking pictures and sharing them (through social media or to a central social media contact) throughout the day at each site.

Cleanup

- *Fill (leftover dirt and grass clumps from digging)* - Making sure that any fill is broken up and distributed over the planting site before mulch is laid.
- *Food and plant waste* - Have effective receptacles on-site & channels for disposing of the waste: compost, recycling, and garbage. Have 5 or so volunteers do a final sweep of the site to ensure any waste, tools, or personal belongings aren't left behind.

Maintenance Plan

The bulk of the activity and impact of these Microforests comes during planting day, however there are a few key activities that come afterward that help us to ensure/maximize, as well as celebrate this impact. Below, the post-planting day activities are laid out, falling into two main sections:

- Maintenance and Stewardship
- Community Engagement

Maintenance and Stewardship

Maintaining the Microforests will help to increase the survival rate of the species planted, and increase the long-term health (and therefore impact) of the microforests.

Check-ins should be done quarterly by an assigned staff member or volunteer, and include ensuring:

- Branches are healthy, no dead or broken
- Bark is healthy with no fungus or missing areas
- Leaves are appropriate size and colour, no fungus visible
- Invasive species haven't taken over
- Monitoring of general death and decay, recording the loss rate over 5 years

First Two Years

Fencing: Temporary fencing may need to be installed around the forests to decrease risk of damage and vandalism.

Staking: Young trees may need to be staked to ensure they survive through winds and other abuse.

Water bags & watering:

The forest will require watering regularly in the first two years during the hot and dry season (June-September). Installing water bags and filling them as necessary reduces the burden of watering trees. When planting in the fall, trees can be soaked during initial planting and then continue with the follow plan after last frost in the spring:

- Water daily for the first week, then twice a week for the next month or so. Take your time and be sure the water soaks the entire root ball.
- Gradually water less frequently until, at about five weeks, you are watering the tree every seven days during the hot and dry season, and 14 days on a regular basis.
- Once trees are at least one inch in diameter, install tree watering bags and water during extended dry periods.

Additional mulching:

Re-mulching may be needed if weather and winter reduce the mulch built up on the area. This can be done 2 or more times per year, with assistance from community volunteers.

The appropriate amount of mulch is 2-3 inches thick, surrounding a foot radius around the tree. The mulch should be 'donut' shaped, with the base of the tree uncovered (see photos to the left).

Mulch may also be spread in a thin layer throughout the entire site as a cost effective and low maintenance method of reducing grass and weed growth.

Educational/community alignment:

Incorporating local organizations and land stewardship education can be a portion of the benefits of the microforest. This is something that can be developed with SWR.

Between 2-5 Years

Pollinator Component

After the trees have established in the first couple of years, you may have the capacity to implement a pollinator plant component to your microforest! This is because mulching isn't necessary as the trees have developed - so what do you do with the areas growing grasses now? Adding seed on the outskirts for pollinator wildflowers and other plants has great ecological benefits, and is an easy and cost effective way to improve the beauty of your microforest.

- **How do you do it?**

  Time of year: Spring is the time for planting wildflower seeds. These little seeds can be direct sown from late March to early May.

  Seed mix: This can be obtained from the Grand River Conservation Authority (you can also contact SWR for assistance).

  Other tools and resources: Seed spreader, shovel, rake - bring your own or purchase.

  Planting:

1. Get the ground ready
   - Remove existing large plants and weeds.
   - Remove all grasses that are present in the area you are hoping to plant in, as they will compete with the flower seedlings.
   - The seeds need to have some soil to nestle into, so break the ground up a little.
2. Spread the seed
   - In small areas, seeds can be scattered by hand.
   - In larger areas, you may want to employ a lawn spreader or some other mechanical means.
   - We recommend adding 1-2 parts clean, dry sand to 1 part wildflower seeds which will help the seeds spread evenly. Do not use beach sand, as it usually contains salt. Perlite also works, and it's white, so it allows you to see the seeded areas better.
   - Scatter the seeds over the soil, reserving about 15% so that you can use them to fill in gaps over the course of the season.
3. Grow!
   - After that, these low-maintenance flowers don't need a lot of tending. If soil is dry, water it and keep it damp. Before they grow tall, you will need to remove fast-growing weeds so that they don't shade out the young plants. If you plant them in the right

spot, wildflowers should self-sow for several years, creating a miniature meadow. Add more seed if the meadow looks patchy.

Removing invasive species

As your Microforest matures, you should let it grow naturally and allow any naturally occurring death and decay of your plants to happen, as it is supposed to mimic a natural forest. That being said, there are specific species that are extremely ecologically harmful and should be removed to reduce overwhelming and exacerbating issues with your existing plants.

There is a great resource from the GRCA outlining invasive species to look out for and how to remove them: https://www.grandriver.ca/en/our-watershed/Invasive-plants.aspx.

Should you require any further assistance in identifying and removing invasive species, please reach out to SWR or the GRCA.

Replanting at the 5 year mark

The 5 year mark is a great time to take inventory of the existing trees, weighing the percentage of losses, and deciding where you may need to fill in with more vegetation. You will need to assess what species did the best, or contrarily, which species were lost, and plant to fill in these gaps while still ensuring a good amount of species diversity. This is done with assistance from the GRCA and SWR, and what steps to take moving forward are dependent upon the specific site.

Community Engagement

Signage

Each Microforest will be set up with a sign that outlines the general benefits of a microforest, acknowledges the sponsors and partners that made the microforest possible, and includes a QR code that directs you straight to our Microforest webpage. (see pilot example below)

Community, Education and Event Examples

- **Outdoor classroom**. Could help engage and educate the community and children in schools on local plant species, and also bring attention to the ecological and human health importance of trees, shrubs and wildflowers.
- **Adoption.** The site can also be adopted by a local organization for similar purposes to an outdoor classroom, except they are responsible for stewarding the land.
- **Greenspace**. Used for outdoor seating and as a greenspace for mental health improvement and community use. There is the possibility to create paths within the microforest and set up seating areas (benches, picnic tables, rocks).
- **Events.** Creating a calendar of events with activities for the neighborhood and/or local schools.

Additional Resources

- Site preparation for tree planting: Clearing the Way: Preparing the Site for Tree Planting (lrconline.com)
- Planning a school tree planting: PLANNING A SCHOOL TREE PLANT (lrconline.com)
- Naturalizing your local park/backyard: Naturalize Backyard Fact Sheet (lrconline.com)
- Creating a pollinator habitat: https://www.youtube.com/watch?v=TlA9VYxwAYY
- MNRF Manual on tree planting: https://can-adapt.ca/knowledge-base/nature-based-solutions/afforestation-guide-for-southern-ontario