



Community Partnership

INFORMATION BOOKLET



Table of Contents

- About *Forests for Calgary*
- About Miyawaki Forests
- Project Goals
- Community Benefits
- Roles and Responsibilities
- The Process
- About the Team

About *Forests for Calgary*

Forests for Calgary is a project of the Calgary Climate Hub, a volunteer-led, non-profit organization that brings Calgarians together to support local action on climate change. You can learn more about the Calgary Climate Hub at <https://www.calgaryclimatehub.ca>.

In the *Forests for Calgary* project, the Calgary Climate Hub is seeking partners such as schools, community associations and other community groups to work with us in establishing small urban forests using the successful Miyawaki method. This booklet provides an overview of our project and the Miyawaki method, the benefits of these small urban forests, as well as the roles and responsibilities of the Climate Hub and the community partner.

The *Forests for Calgary* project is funded by Alberta Ecotrust Foundation's Climate Innovation Grant Program.

Project Goals

The primary goal of *Forests for Calgary* is to create thriving forest ecosystems which provide the benefits of a beautiful natural landscape; habitat for local pollinators, birds and wildlife; soil improvement and remediation; shade to enjoy on hot summer days, and carbon sequestration.

- **Social and Health benefits**

Improves well being of those who spend time in the forest, lowering heart rate and reducing cortisol, a stress hormone.

- **Community Building**

Members of your community will be involved in planning, planting and caring for your forest. Bringing neighbours together to do something good for nature fosters cooperation and a stronger community spirit. It also helps people connect with natural spaces, which is often missing from our busy urban lives.

- **Share Indigenous Wisdom**

Elders and Knowledge Keepers can share teachings about the importance of nature and forest ecosystems from an Indigenous perspective. This knowledge helps us develop a deeper appreciation for Indigenous ways of knowing and their culturally important relationship to the lands we live, work and play on.

- **Urban Forests**

Municipal governments are keenly aware of the financial benefits of the trees in urban spaces, however citizens are rarely given the opportunity to better understand how to integrate nature into an urban setting. *Forests for Calgary* will provide an opportunity to create and maintain a thriving ecosystem, appreciate the services provided by the forest, and these learnings can be applied to your home and yard as well.

- **For Future Generations**

A tiny forest is a gift that we can give to future generations of our community.

"The one who plants trees, knowing that they will never sit in their shade, has at least started to understand the meaning of life." - Rabindranath Tagore



About Miyawaki Forests

A Miyawaki Forest is a small-footprint, native forest with a biodiverse assortment of seedlings, growing with minimal intervention. It is a dense, fast-growing woodland which is typically around the size of a tennis court (approx. 200 m²).

The Miyawaki forestation method is based on the work of Japanese botanist Akira Miyawaki, who pioneered a process incorporating soil preparation and amendment, careful selection of native plant species and community involvement in planting and ongoing care. The Miyawaki planting method makes it possible to grow a forest in ten years that would normally take a century to mature. The forest acts as an oasis for biodiversity, supporting up to 20 times as many species as non-native, managed forests.

Community Benefits of Miyawaki Forests

Forests are known to contribute to the health and well being of a community, making it a greener and more desirable place to live. There is beauty in a park filled with mature trees that goes beyond the physical aspects of the forest. In Japan, forest bathing (shinrin-yoku) is considered a powerful way to relax and recover from the stresses of urban life. A Miyawaki forest is a step towards reconnecting with nature and starting a community on a path towards increased forest canopy. As the forests grow, the benefits can be shared by those who live in or visit your community.

- **Connecting People with Nature**

Miyawaki forest projects promote social interaction and a sense of community, building stronger ties to neighbours, a greater sense of safety, and more use of outdoor public spaces.

- **Citizen Science and Ecology**

People have an opportunity to become citizen ecologists creating a greater awareness and understanding of nature. They also gain a sense of pride and ownership in the tiny forests they are creating.

- **Education**

Planning and planting a Miyawaki forest provides schools with on-site opportunities for land based learning. For example, the Alberta curriculum currently includes units on seasonal changes (Grade 1), plant growth (Grade 4) and trees and forests (Grade 6). The forest can be used in support of these educational programs, while children and youth benefit from participation in scientific activities like soil testing and analysis, the selection of plant species, and the planning of forest layout.

- **Cost Benefits**

When planted next to buildings, shade from tiny forests provides cooling in summer. They also act as a windbreak in winter and reduce heating costs.

Expenses related to landscaping turf grass, such as labour, fuel and equipment for mowing, are reduced because forests do not require mowing, fertilizing or aeration.

Natural-looking forests are attractive and eliminate the need for planting annual flower beds or pruning of shrubs. Once a forest is established, it requires very little watering in comparison to a grass lawn or English-style gardening.

- **Restoring Biodiversity**

One of the main benefits of a Miyawaki forest, versus traditional urban tree planting, is that it provides a more complete and natural ecosystem that results in improved biodiversity. The forest provides a home to birds, butterflies, bees and other small wildlife. Below ground, the biodiversity and resilience of the soil is also improved. Biodiversity improves plants' resistance to pests, disease, drought and flooding, and also improves pollination in the area.

- **Natural Infrastructure**

Miyawaki forests provide natural infrastructure that serves people and communities in many ways. As the forests grow, they provide an increasing amount of beneficial services including:

- improving water filtration during rains and reducing stormwater runoff
- storing water to increase drought resilience of the forest
- reducing the risk of floods by absorbing greater amounts of rainwater than a typical turf grass lawn
- reducing the heat island effect in green spaces; a heat island is an unshaded or poorly shaded urban area that is hotter than surrounding areas by as much as 15°C, making the spaces too hot to enjoy
- improving the soil structure and increasing water-holding capacity with new and extensive root systems. The roots also release carbon to support soil organisms.
- filtering pollutants from the air and providing oxygen
- sequestering carbon

- **Indigenous Land-based Wisdom**

Creating forests promotes development of a diverse ecosystem using native species and teachings from the original people. Your community will have an opportunity to learn from Indigenous people, which helps foster a deeper understanding of land-based wisdom, natural systems and Indigenous ways of knowing.

- Knowledge Carriers are involved in plant selection, and sharing teachings about traditional uses for those plants
- Elders will be leading planting ceremonies for the community to participate in
- Your forest design process will be led by an Indigenous landscape designer
- The Forests For Calgary Guidebook will include detailed information about at least five plants, and their cultural importance to Indigenous people

Roles & Responsibilities

Each *Forests for Calgary* site involves a partnership between a community group and the Calgary Climate Hub, with each partner having specific roles and responsibilities as outlined below. The Climate Hub supports the community in planning and planting the forest as well as for a period after the forest is established. The community partner takes responsibility for the on-going maintenance of the forest, which builds a connection with the forest and fosters community spirit.

Calgary Climate Hub provides:

- **Project management**

- Soil testing and analysis
- Selection of soil amendments
- Collaborative forest design and plant selection (community members offer their input for style, shape and plant selection for the design of their unique forest)
- Coordinate earthworks (sod removal, soil excavation and replacement)
- Order compost, soil amendments, mulch, plants. (tree and shrub seedlings, ground cover, wildflower seeds)
- Manage schedule and budget
- Note: If planting in a city park, Calgary Parks may provide project management and the Climate Hub will coordinate with the Parks team

- **Communications**

- Promote planting event through the Calgary Climate Hub
- Create event posters, press release / media invite and other promotional material.
- Provide photography at community event
- Publish an open-source guidebook for future community forest projects

- **Tree Planting event**
 - Plan and organize Tree Planting Day including Indigenous ceremony, and media coverage
 - Provide event photography

Community Partner provides:

- **Site for the forest** (typically the approximate size of a tennis court or 10-m diameter circle)
 - Landscape design may be tailored to the size and shape of the space available at the proposed location
 - If the community partner doesn't have land available, planting in a city park may be an option, in which case a request must be made with Calgary Parks
 - Letter of support prior to the project and brief statement at the end to be included in the guidebook publication
- **Water supply**
 - Community volunteers water the forest 2-3 times per week for the first year and as needed (based on monitoring the soil) in the subsequent two years. After three years, Miyawaki forests are typically self-sustaining.
 - If the forest is on community property, the location should have access to water. If the forest is in a city park, city staff will manage watering but we recommend that community volunteers monitor the soil and provide supplemental watering when required
 - Community involvement in the on-going maintenance builds a connection with the forest and responsibility for the forest's health
- **Volunteers to plant and maintain the forest**
 - Soil amendment: 5 to 10 volunteers to assist in mixing and spreading soil
 - Planting: 30 to 50 volunteers for tree-planting day
The Calgary Climate Hub can provide additional volunteers for planting the forest as needed
 - Soil monitoring: one volunteer to check the soil once a week. This can be the responsibility of the watering team
 - Weeding: 3 to 4 volunteers as needed (typically once a month)
- **Community Committee**
 - Volunteer management: 1 to 3 people. Tasks include recruiting and coordinating community volunteers during the tree planting event, and recruiting people to water and weed the forest afterwards.
 - Community Liaison: 1-2 people. Tasks include meeting with Calgary Climate Hub volunteers weekly in the weeks leading up to tree planting, monthly in the first summer after planting, and every two months for the following year, working with Hub volunteers to resolve any problems. Meetings will be held from April to October.

THE PROCESS

Find a Location

The ideal location is a space that is frequently visited by people in the community, such as a small park or a green space next to a community centre or sports facility. A small forest next to a community garden is another great location where people can take a break and get out of the hot sun.

School grounds are a popular location that provide an educational opportunity for students to get involved in planning, planting and monitoring the success of the tiny forest. A school location often has water available and is convenient for students to monitor tree growth and provide some weeding when required.

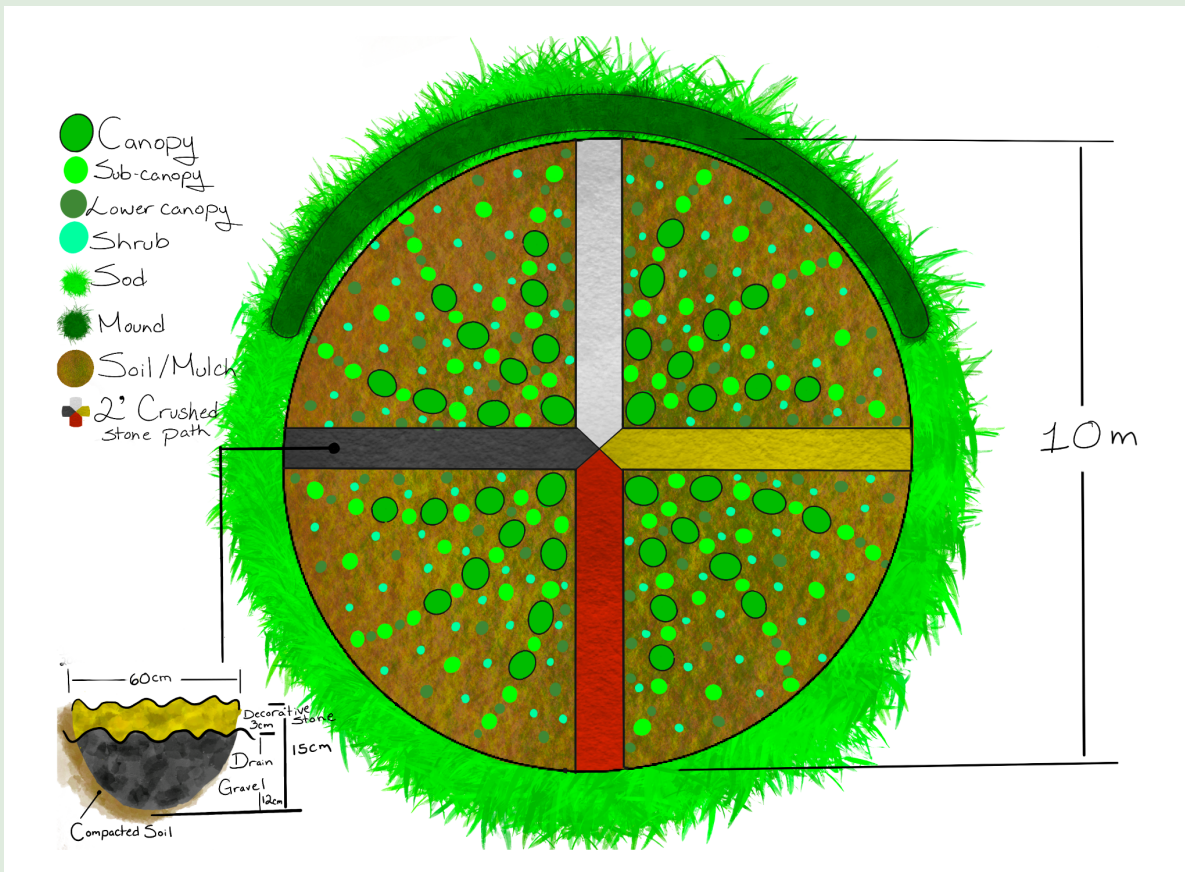
A location on private property has advantages because it allows us to work with the community to fully plan the forest and follow every step of the Miyawaki method. In the absence of some private land, we can request a community planting event with Calgary Parks where a small forest is planted in a local park. There are advantages to this approach in that Calgary Parks will plan the forest, supply the seedlings and soil additives, and facilitate the planting event. Watering and maintenance after the forest is planted may be shared between the community and Calgary Parks.

Identify Native Species

The Calgary Climate Hub has access to multiple resources to help identify native plant species for locations in Calgary. Native plant lists for Calgary will narrow the selection with special consideration being given to trees, shrubs and herbaceous ground cover that have special significance to Indigenous communities.

The Calgary Climate Hub will also work with communities that want to have input to the plant selection. Non-native species will be excluded, but there are many native species options available, including fruit-bearing shrubs and a variety of deciduous trees.





Create a Forest Design

Once a location and plant species are selected, a forest design can be created. The location will determine the shape of the forest. It can be the standard 10m x 20m tennis court size, a 10m to 20m diameter circle, a long narrow rectangle with minimum 4m width or even irregular shapes—it all depends on the space that is available. Our project manager will create a detailed design which includes the forest shape and the locations for each plant within the forest. The shape of your forest can reflect the spirit of your community: the trees can be planted in the shape of a leaf, tree, animal or another form which may be visible from Google Earth. This design will be reviewed with our community partners and used as a “planting map” for volunteers at the forest-planting event.

Soil Analysis

Determining the type of soil and its composition at the planting site is an important step in the Miyawaki method. Soil is a complex ecosystem, in which microbes, fungi, and other organisms play a vital role. Soil and plants are interconnected and dependent on one another. In order to grow, a tree needs a healthy soil that holds water, provides space to extend its roots, supplies nutrients, and provides diverse microbial partners.

Soil testing and analysis will be done to identify any deficiencies in the soil composition at the planting site. If there is a natural forest in the area, additional soil testing may be done to identify the desired soil chemistry.

The soil type will determine the amount of earthworks required to prepare the soil. If the soil is already rich in organic matter and not compacted, it may not need much amendment and minimal tilling (only to a depth of 30 cm). However, if the soil is compacted, very sandy, or high in clay, then excavation may be required up to a depth of 60 cm with extensive soil amendment including compost, mulch and other ingredients.

Create a Soil Plan

Our project manager will create a plan that includes the types of soil amendments and amounts for the tiny forest site. This plan will be based on the amount of soil that can be reused, the depth of the amended soil, and the best composition to provide what will become a healthy soil that supports plant growth.

The amount of earthworks will be estimated including the equipment and amount of labour required. A soil prep event will be planned where volunteers help with mixing and spreading the amended soil. The soil plan will aim to keep as much of the excavated soil on site as possible. Sod and excess soil will be mounded to form a windbreak and heat sink next to the forest, typically on the north end of the site.

Community Outreach / Fundraising

The Calgary Climate Hub has funding to support a basic forest-planting event, as described under the “Roles and Responsibilities” section. However, a community may want to seek additional funding to incorporate non-standard components to the forest design. Examples of non-standard components are as follows:

- signage for naming or dedicating the forest
- pathways that add significant cost to the design
- forest area greater than 200 square meters
- fencing around the forest
- specialty trees that add significant cost to the design
- any non-standard costs that exceed our budget for a single forest

Community outreach is fundamental to building support within the community. People should be made aware of the forest planting project and kept informed on its progress, through community newsletters and/or social media groups. Outreach includes seeking volunteers for planting and maintenance, as well as looking for individuals to form a forest committee responsible for ongoing care and maintenance.



Planting Event

The planting event is the fun highlight of each project! Community partners should be prepared to organize 30 to 50 volunteers, but the Calgary Climate Hub will help with recruiting additional volunteers from both inside and outside the community.

The Hub will organize the event providing a welcome, Indigenous blessing and smudge ceremony, planting demonstration, safety talk and coordination of volunteers. All ages will be welcome and included; the very young and those with mobility challenges will be given wildflower seeds to scatter between the planted trees.

Volunteers will be asked to bring appropriate footwear (no open-toed footwear), gardening or work gloves, and their own shovels if available, as well as water and snacks. The Hub will provide plants and tools to support the event. Additional sponsorship may be found through the community residents and businesses to provide drinks and snacks.

The Hub will have a photographer / videographer on hand to record the event and will provide the community with these materials after the event.

Based on our experience with our first planting event in Bowmont Park in the fall of 2022, participants have a wonderful time and really appreciate the opportunity to make a positive change in their community. Planting forests creates a sense of accomplishment and legacy.

Post-Planting Care

The community is responsible for caring for the new forest. For the first three years, these responsibilities include watering two to three times a week, depending on weather, and weeding about once a month. After three years, the forest should be resilient enough to be left on its own, but communities may opt to provide ongoing care in the form of weeding and watering.

About the Team

Project Manager

Heather Morigeau is a mixed-Indigenous Two Spirit artist, permaculture designer and activist. They are a member of the Metis Nation of Alberta and served as the Askiy Environmental Guardians Committee Representative for Region 3. As well as Cree, French, German and Celtic heritage, Heather has ancestral connections to the Ktunaxa Nation, and the Kootenays are regarded as their traditional homeland. Their ancestors are celebrated at the Museum in Golden BC.

Heather is the founder of FoodScape Cooperative, an Indigenous-led landscape design social enterprise with the goal to remind people permaculture is Indigenous land-based science, and to encourage everyone to adopt this wisdom into the land they care for at home and in their communities. They are currently working with the Earth Activist Training Institute to achieve their advanced permaculture certificate and degree. Heather maintains their arts practice at NvrInd Arts Studio in Inglewood.

Contact Heather at hmorigeau@calgaryclimatehub.ca or 403-605-0107

Project Steering Committee:

Angela McIntyre is the Director of the Calgary Climate Hub. Angela has extensive experience in nonprofit management and leadership. Contact Angela at director@calgaryclimatehub.ca

Sandra Mills is a UX designer, product manager, bird lover and artist. She is currently a product manager for a Calgary-based software company working to enable solar sales. She is also one half of the [BirdNerds Canada](#) duo and is a passionate advocate for biodiversity, conservation and natural solutions to the Climate emergency. Contact Sandra at smills@calgaryclimatehub.ca

Rob Miller is a retired systems engineer who is now focusing on climate activism and urban forestation. As a Calgary Climate Hub Volunteer, he's organized community events such as a Bio-Blitz at Dale Hodges Park and a community tree planting event with Parks Calgary in Bowmont Park. He's also published several articles on the importance and benefits of forests. His interest in reforesting Dale Hodges Park led him to learning about the Miyawaki forest method and collaborating with Parks Calgary. Contact Rob at rmiller@calgaryclimatehub.ca

Heather Addy has a PhD in plant-fungal interactions from the University of Guelph. As a member of the Biological Sciences Department at the University of Calgary, she taught a range of biology courses for 24 years. Now retired, she volunteers with the Calgary Climate Hub and looks forward to using her background in plant and fungal biology to support the Miyawaki forest project and other Calgary Climate Hub initiatives. Contact Heather at heathera@calgaryclimatehub.ca