

GARDENING

URBAN FOREST GUIDE

SEE INSIDE
Design Templates
Tips & Tricks

Healthy
Garden
Series

Forest
Edition



KAWARTHA
CONSERVATION



GETTING STARTED

PREFERRED CONDITIONS

- 4-6+ hours of direct sun per day.
- Average to fast draining soil. Compost is not recommended unless you have very heavy clay soil. For information on soil types, see the **Additional Resources** section on the back cover.

You've decided you want to plant trees and naturalize your property but you're unsure where to start. Have you ever considered planting a Tiny Forest?

Miyawaki Forests, also known as Tiny Forests, are small, densely planted groupings of native trees and shrubs. This innovative planting method, developed by Dr. Akira Miyawaki in Japan, aims to restore degraded urban lands. Tiny Forests have gained popularity across Asia and are now being introduced in Canada.

Creating a Tiny Forest involves improving the soil, sourcing native plants, and planting 2 to 3 trees and shrubs per square meter. Additionally, mulching, regular watering, and weeding are essential for their growth and maintenance.

We offer four urban forest backyard templates that promote dense plantings and cater to the unique needs of your backyard. Depending on the template you select, you'll find 8-15 different species native to Ontario, including a species native to Southern Ontario to lend a hand in assisted forest migration.

Native plants support the local food web and wildlife more effectively than non-native species, enhancing biodiversity. Dense planting encourages trees to grow 10 times faster than conventional methods and promotes resource sharing among plants.

This guide includes templates tailored to your specific planting goals. We offer four distinct templates designed to fit yards of any size:

- **Big Backyard Forest** and **Small Backyard Forest**: Featuring popular choices like sugar maple and white pine, these templates are perfect for any backyard.
- **Sense-ational Forest**: Invigorate your senses with beautiful spring flowers, vibrant fall colors, and edible berries (if you can get to them before the birds).
- **Shoreline Tiny Forest**: Ideal for those by the water, this template helps restore, stabilize, and naturalize your shoreline.

You can plant in the spring or fall. If you can't plant your forest on the day you receive your trees and shrubs, be sure to water the plants and keep them in the shade.



photo by Carbon Wise

SHEET MULCHING

- Layer newspaper across the planting area, making sure the pages overlap.
- Water the surface.
- Sprinkle with soil (5cm) and a layer of mulch (5cm).
- For best results, let rest for a few months. Alternatively, you can plant into it right away.

HOW TO USE THIS GUIDE



This Forest Guide uses suggested configurations to plant 2-3 plants per square meter. Depending on the template you choose to follow, the footprint can range from 6m² to 12m². To determine which template is best for you think about your planting goals and where you are thinking of planting your Tiny Forest.

PICK YOUR TEMPLATE

Big Backyard Forest - 12m²

This forest is perfect for people who have additional space to restore back to nature.

Small Backyard Forest - 6m²


This forest is a perfect compact forest for smaller back yards and front lawns.

Sense-ational Forest - 6m²

This forest is a mix of native plants, trees and shrubs that invigorate your senses with smells, colours, and taste.

Shoreline Tiny Forest - 10m²


This planting is perfect for restoring and naturalizing shorelines. This design is a modular design with water loving species that you can customize to your specific shoreline



Make sure you plant your tiny forest a minimum of **15m from any foundation or septic tanks.**

PLANTING GUIDELINES

- Locate the forest at least 5m away from any structure with a foundation.
- Maintain a minimum of 2m around the perimeter of the forest for access. Avoid planting the forest within 2m of patios, sidewalks, and fences.
- Do not place the forest over underground utilities, or directly below overhead utilities (power lines, etc.).
- If using the circular configuration, mark where you would like the centre of the forest to be, then use the radius to define the outer edge of the planting area.



Scan the QR code for a video detailing the steps to properly plant a tree.



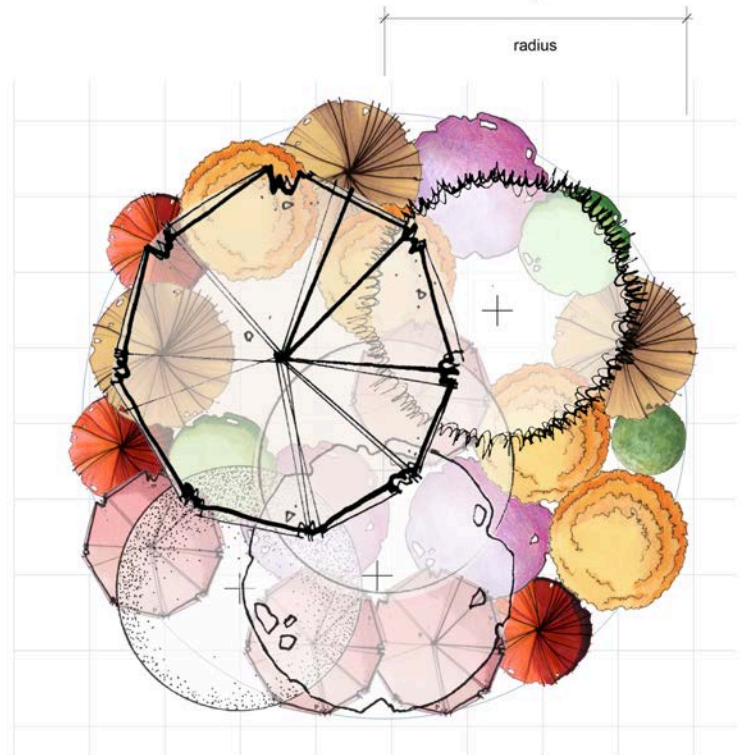
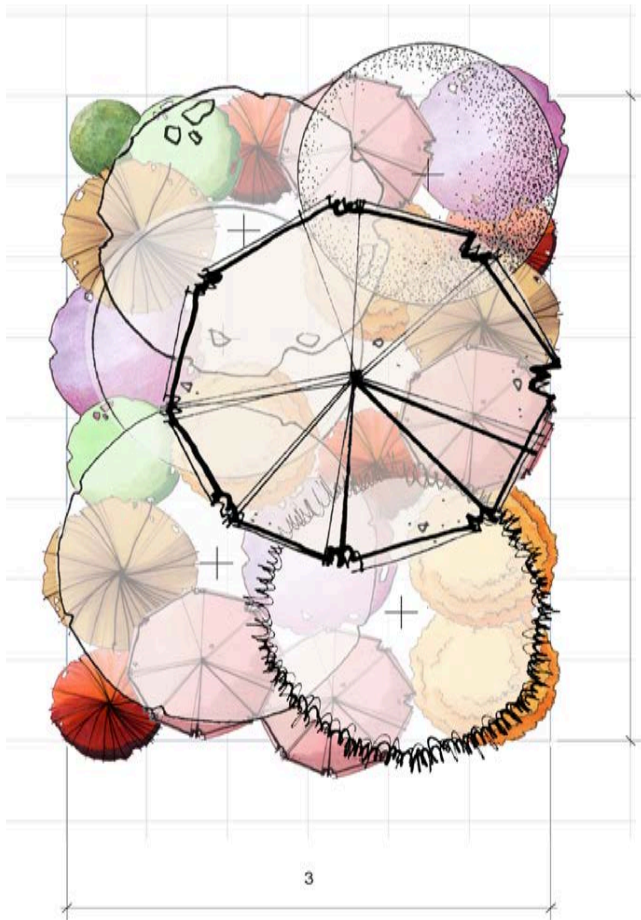
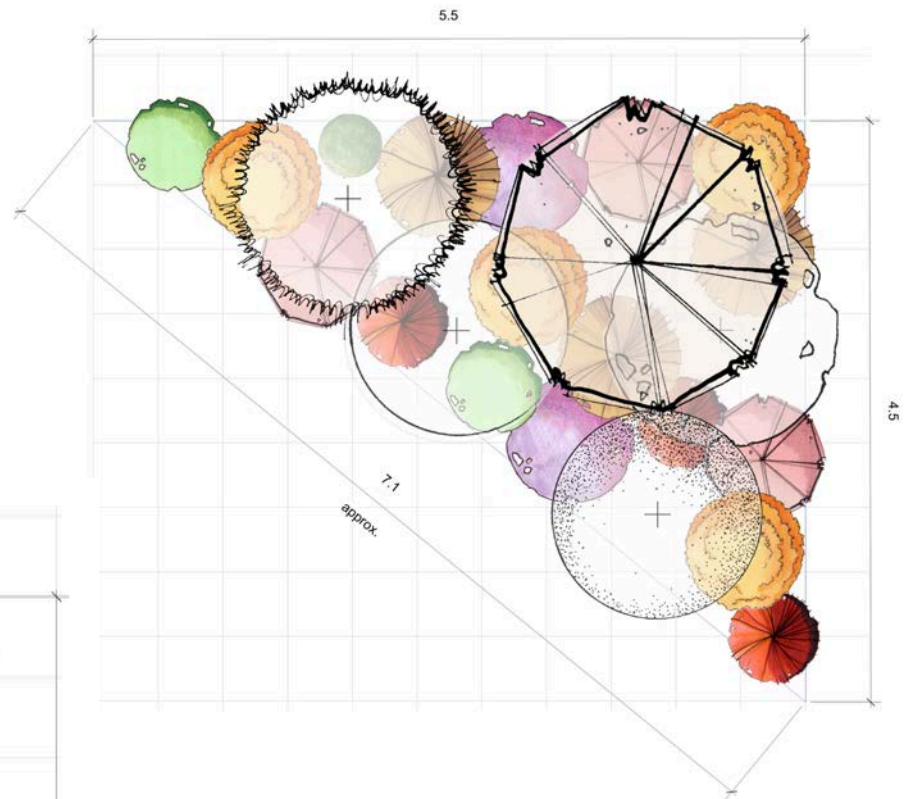


BIG BACKYARD FOREST

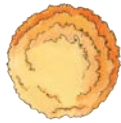
Choose the configuration that best suits your backyard.

Each square unit is 0.5m² and each template needs 12m² of open space.

Plant 2-3 trees/shrubs per square meter.



SPECIES LIST



Beaked Hazel
Corylus cornuta
Qty: 4



Canada Plum
Prunus nigra
Qty: 4



Smooth Serviceberry
Amelanchier labeis
Qty: 3



Purple Flowering Raspberry
Rubus odoratus
Qty: 3



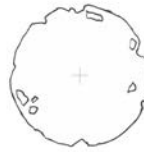
Fragrant Sumac
Rhus aromatica
Qty: 4



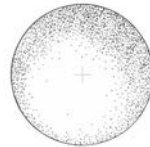
Ninebark
Physocarpus opulifolius
Qty: 2



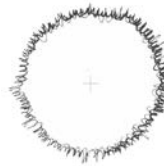
Lowbush Honeysuckle
Diervilla lonicera
Qty: 1



Sugar Maple
Acer saccharum
Qty: 1



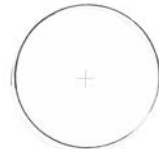
White Birch
Betula papyrifera
Qty: 1



White Pine
Pinus strobus
Qty: 1



Sycamore
Platanus occidentalis
Qty: 1



Hackberry
Celtis occidentalis
Qty: 1



Optional Tip

Add native grasses and wildflowers to your Tiny Forest if desired. Choose short-lived, early succession species, such as Black-Eyed Susan (*Rudbeckia hirta*) and Canada Wild Rye (*Elymus canadensis*), which will act as nurse crops. They slow the growth of weeds and shade the soil as trees and shrubs get established. These plants will also add visual interest for the first few seasons. They can be replaced with more shade tolerant, woodland perennials later if desired. (Note: Elymus species can be harmful to dogs.)



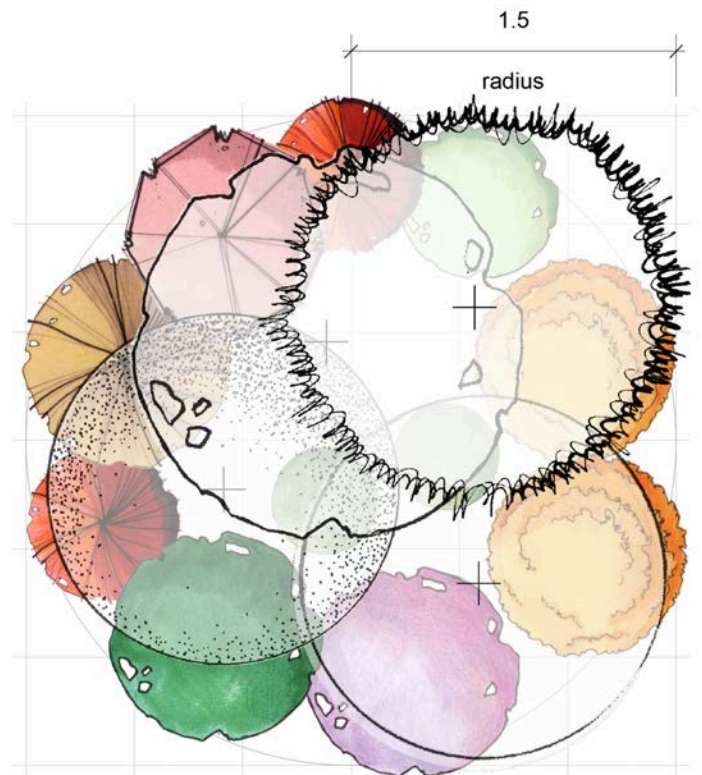
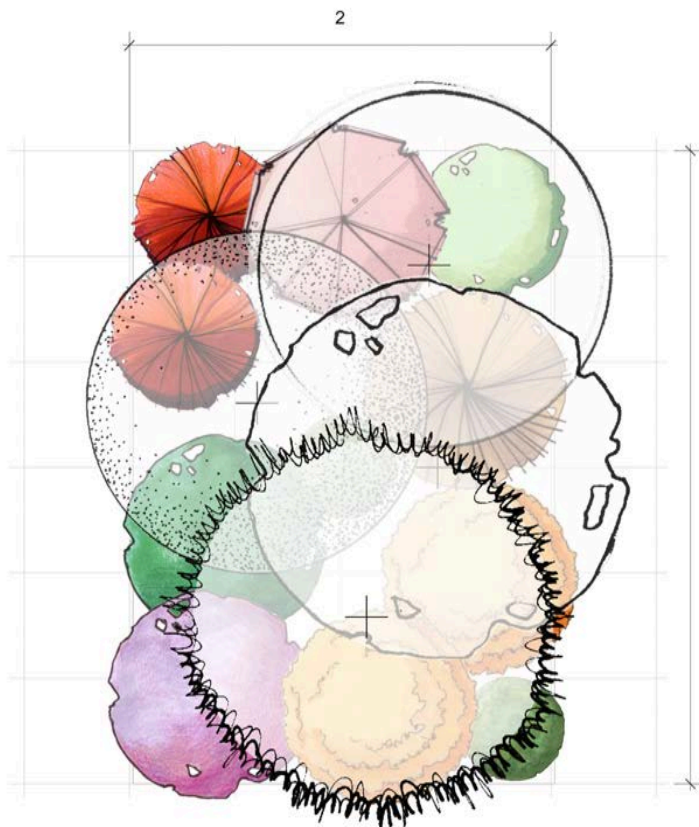
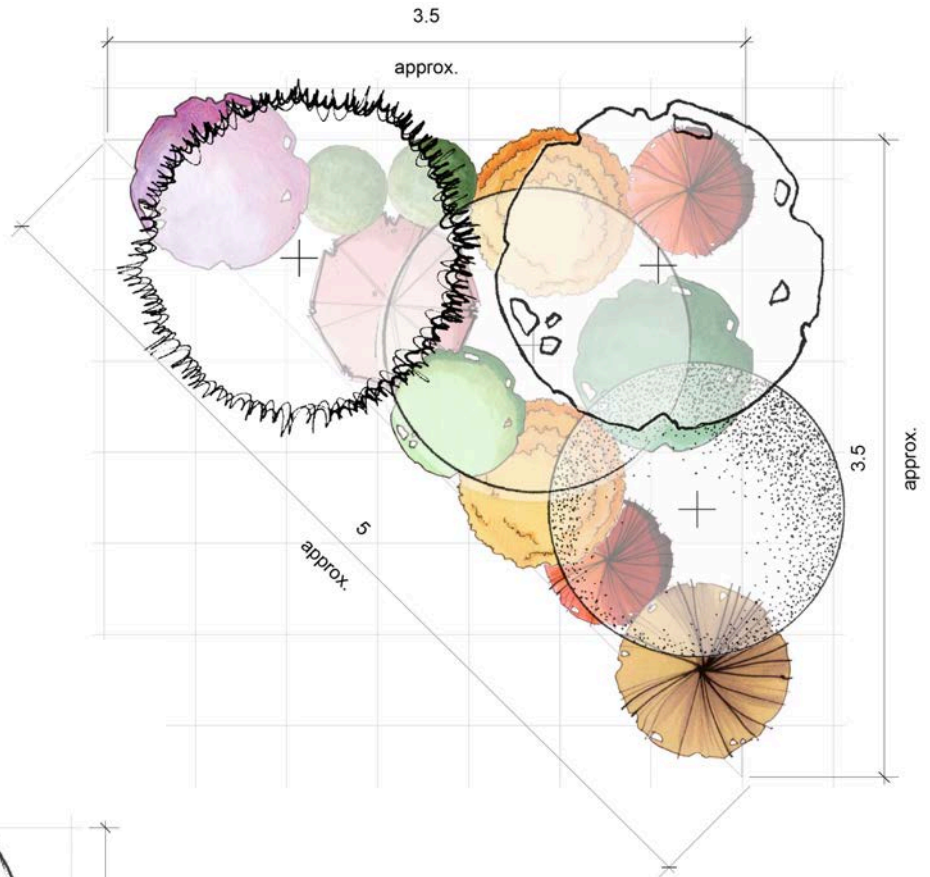


SMALL BACKYARD FOREST

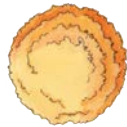
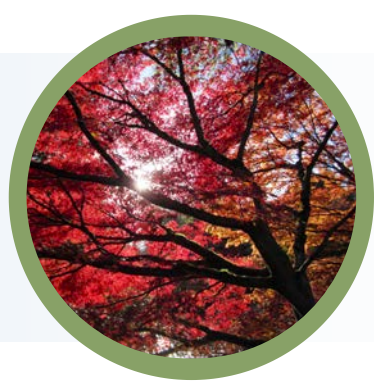
Choose the configuration that best suits your backyard.

Each square unit is 0.5m^2 and each template needs 6m^2 of open space.

Plant 2-3 trees/shrubs per square meter.



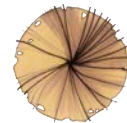
SPECIES LIST



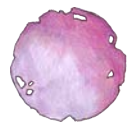
Beaked Hazel
Corylus cornuta
Qty: 2



Canada Plum
Prunus nigra
Qty: 1



Smooth Serviceberry
Amelanchier labeis
Qty: 1



Purple Flowering Raspberry
Rubus odoratus
Qty: 1



Silky Dogwood
Cornus amomus
Qty: 1



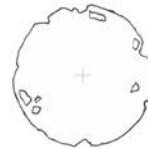
Fragrant Sumac
Rhus aromatica
Qty: 2



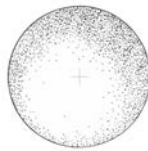
Ninebark
Physocarpus opulifolius
Qty: 1



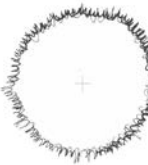
Lowbush Honeysuckle
Diervilla lonicera
Qty: 2



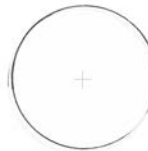
Sugar Maple
Acer saccharum
Qty: 1



White Birch
Betula papyrifera
Qty: 1



White Pine
Pinus strobus
Qty: 1



Hackberry
Celtis occidentalis
Qty: 1



Maintenance Tip

Pruning is essential for maintaining the health and shape of the plants in your backyard forest. Regularly inspect your trees and shrubs for any dead, diseased, or damaged branches and remove them promptly to prevent the spread of disease and to encourage healthy growth. Use clean, sharp pruning tools to make clean cuts and minimize damage to the plants. Avoid excessive pruning, as this can disrupt the natural look and balance of your forest. Instead, focus on selective pruning to enhance the structure and health of the plants without drastically altering their appearance.



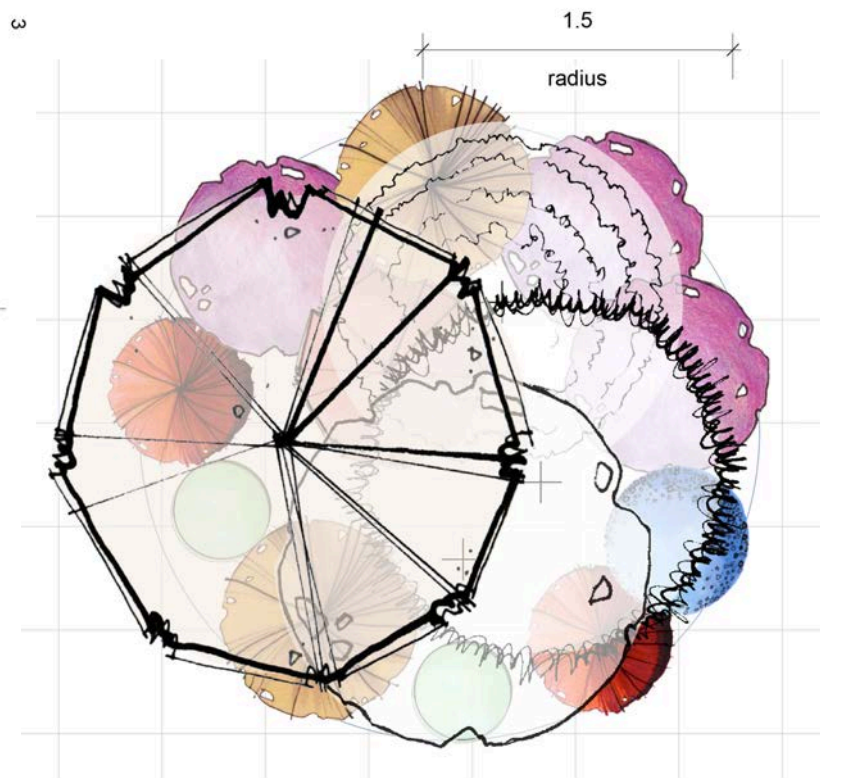
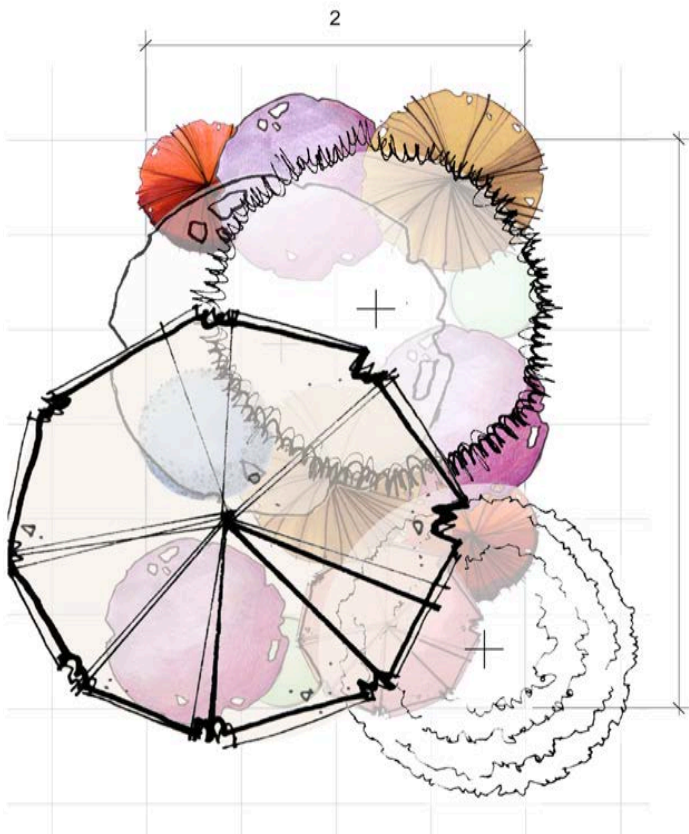
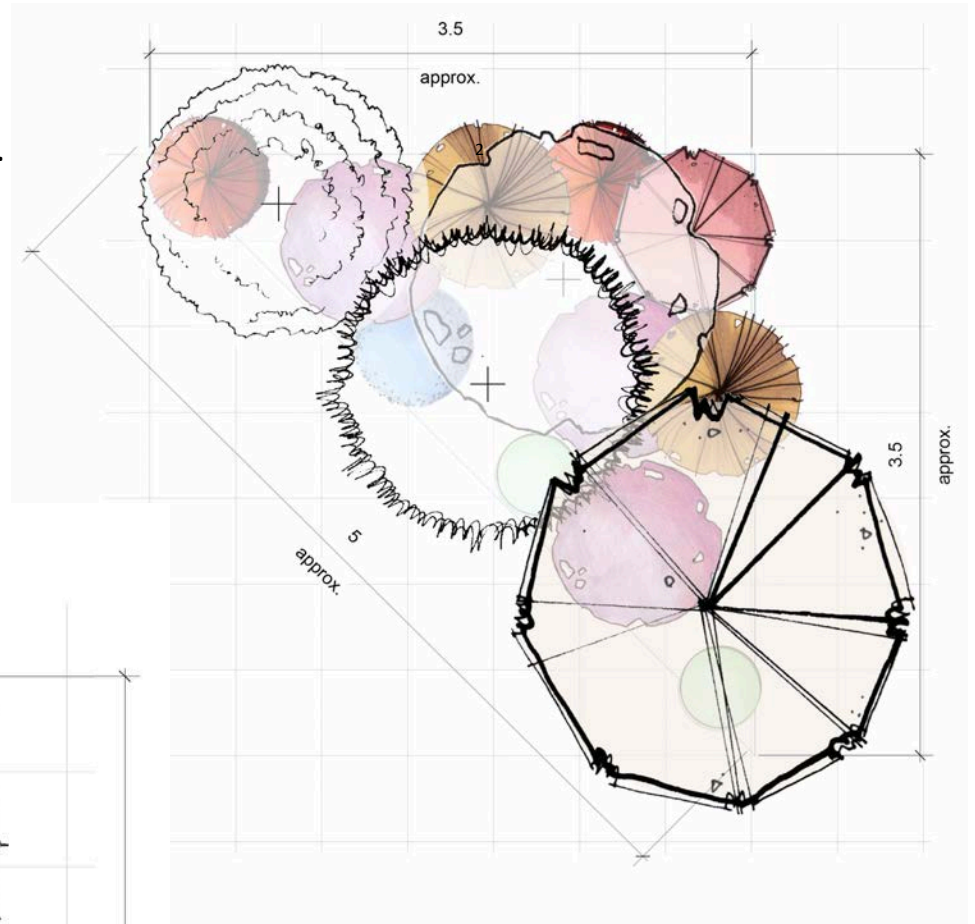


SENSE-ATIONAL FOREST

Choose the configuration that best suits your backyard.

Each square unit is 0.5m^2 and each template needs 6m^2 of open space.

Plant 2-3 trees/shrubs per square meter.



SPECIES LIST



Smooth Serviceberry

Ameranchier laevis

Qty: 2



Canada Plum

Prunus nigra

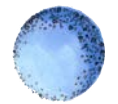
Qty: 1



Purple Flowering Raspberry

Rubus odoratus

Qty: 4



Canadian elderberry

Sambucus canadensis

Qty: 1



Fragrant Sumac

Rhus aromatic

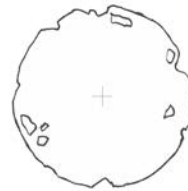
Qty: 2



Meadowsweet

Spiraea alba

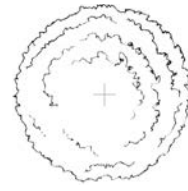
Qty: 2



Sugar Maple

Acer Saccharum

Qty: 1



Red Maple

Acer rubrum

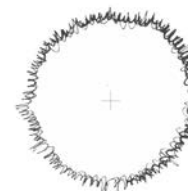
Qty: 1



Sycamore

Platanus occidentalis

Qty: 1



White Pine

Pinus strobus

Qty: 1



Fun Fact

Tiny Forests play a crucial role in supporting wildlife by providing essential habitats and resources within urban and suburban areas. These small-scale ecosystems offer a diverse array of native plants that attract and sustain various insects, birds, mammals, and other wildlife. The dense vegetation and layered structure of Tiny Forests create shelter and breeding grounds for numerous species, promoting biodiversity and ecological balance.



SHORELINE TINY FOREST

This template is modular. You can arrange this 5m x 2m² template in patterns, duplicate the planting to stretch the length of your unique shoreline.

Each square unit is 0.5m and each template needs 10m² of open space.

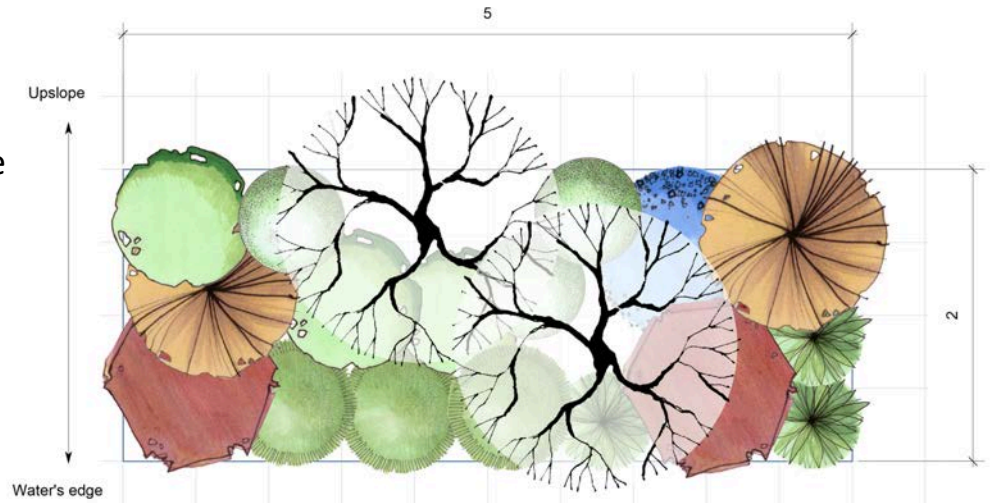


Figure 1: Base unit 5m by 2m. Arrange the plants with 2-3 shrubs per square meter.



Figure 2: Base unit 5m by 2m arranged in different configurations to stretch the length of desired shoreline to be naturalized.

Siting guidelines:

- The base unit shown in Figure 1 can be repeated and arranged as needed to follow the shoreline. An example configuration is shown above in Figure 2.
- Do not place the forest over underground utilities, or directly below overhead utilities (power lines, etc.).

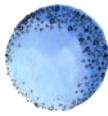
SPECIES LIST



Nannyberry
Viburnum letago
Qty: 2



Smooth Serviceberry
Amelanchier laevis
Qty: 2



Canadian Elderberry
Sambucus canadensis
Qty: 2



Red Osier Dogwood
Cornus sericea
Qty: 2



Ninebark
Physocarpus opulifolius
Qty: 3



Buttonbush
Cephalanthus occidentalis
Qty: 3



Pussy Willow
Salix discolor
Qty: 3



Sweet Gale
Myrica gale
Qty: 3



This stylized rendering depicts a Shoreline Tiny Forest at different points throughout the season (late spring to early fall).



PLANTING PLAN



Make sure the mulch is away from the bark of the plant.

Think of mulching a “donut” not “volcano”.

See Page 15 for Material list.

TIME TO PLANT

1. Gather your items: Plant material, spade shovel, mulch, gloves, watering can.
2. Lay out your plants. Make adjustments to the design if desired. The plants will be close together, this is intentional.
3. Using a spade shovel, dig a hole the same depth and twice as wide as each plant. Remove each plant from its container and loosen the roots if they appear stuck (gently squeezing the sides of the container can help). Place each plant in its hole, tucking roots downward and ensuring the top of the soil surface is level with that of the surrounding soil (not too deep, not too shallow). Using your hands, fill in the gaps around the plant with soil, tucking down along the edges.
4. After planting, layer 5cm of mulch in a donut shape around the plants (not on them).
5. Water as soon as possible, until soil is saturated. See Page 16 for maintenance.

PLANT SPECIES

Trees & Nurse Crop

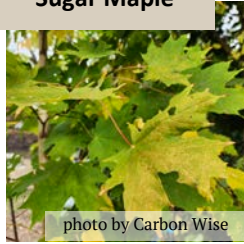


White Pine



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 25 x 12 m
Bloom time: April, May
Benefits: Provides valuable nesting habitat and shelter.
Alt: White Spruce, Tamarack

Sugar Maple



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 35 x 24 m
Bloom time: April - June
Benefits: Provides habitat for a variety of insects and birds.
Alt: Red Oak, Bur Oak

Red Maple



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 18 x 13 m
Bloom time: Spring
Benefits: Provide habitat for butterflies and moths.
Alt: Freeman Maple

Sycamore



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 20 x 15 m
Bloom time: May
Benefits: Help to moderate air temperature.
Alt: Bitternut Hickory, Shagbark Hickory

Hackberry



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 15 x 15m
Bloom time: April - May
Benefits: Provide habitat for wildlife. Excellent urban tolerance.
Alt: Red oak, Bur oak, Beech

White Birch



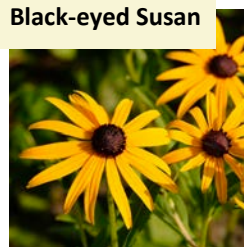
Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 25 x 6 m
Bloom time: May - April
Benefits: Food source for birds and animals.
Alt: Yellow Birch, Beech

Canada Rye



Nursery size: 10cm pots
Mature size (h x w): 60 - 60 cm
Bloom time: March - June
Benefits: Improves soil health, and helps suppress weeds under tiny forest.
Alt: Bottle Brush Grass

Black-eyed Susan

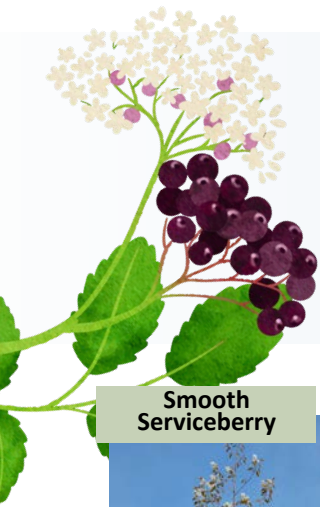


Nursery size: 10cm pots
Mature size (h x w): 30 x 30 cm
Bloom time: June - August
Benefits: Provides habitat for insects and helps suppress weeds in tiny forest.
Alt: Wild Columbine



PLANT SPECIES

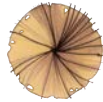
Shrubs



Smooth Serviceberry

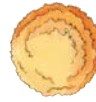


photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4-8m x 4-8m
Bloom time: April - May
Benefits: Stabilizes soils with its root system. Food for wildlife
Alt: American Hazel, Eastern Redbud, Shadblow Serviceberry

Beaked Hazel



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4-6m x 4-6m
Bloom time: March-April
Benefits: Food source for wildlife
Alt: American Hazel, Smooth Serviceberry, Witch Hazel

Purple Flowering Raspberry



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 1-3m x 1-3m
Bloom time: June-August
Benefits: Food source for wildlife, supports pollinators, ornamental value
Alt: Black raspberry, Smooth Serviceberry, Ninebark

Canadian Plum



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 9m x 4.5m
Bloom time: April - May
Benefits: Food for wildlife, supports pollinators
Alt: Shadblow serviceberry, Highbush Cranberry

Fragrant Sumac



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 2m x 3m
Bloom time: April - May
Benefits: Food source for wildlife, supports pollinators, ornamental value
Alt: Ninebark, Easter Redbud, American Hazel

Low Bush Honeysuckle



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 1.2m x 1.2m
Bloom time: July - August
Benefits: Food source for wildlife, supports pollinators, supports soils
Alt: Red Osier Dogwood, Northern Bush Honeysuckle

Ninebark



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4m x 3m
Bloom time: May - June
Benefits: Food source for wildlife, supports pollinators, ornamental value
Alt: Elderberry, Red Osier Dogwood, New Jersey Tea

Silky Dogwood



photo by Carbon Wise

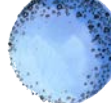


Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4m x 2m
Bloom time: May - June
Benefits: Food source for wildlife, supports pollinators, ornamental value
Alt: Red Osier Dogwood, Elderberry, Serviceberry, Ninebark

Canadian Elderberry



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4m x 4m
Bloom time: June - July
Benefits: Food source for wildlife, supports pollinators, ornamental value
Alt: Serviceberry, Ninebark, Highbush Cranberry, Red Osier Dogwood

PLANT SPECIES

Shrubs



Meadowsweet



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 2m x 1.5m
Bloom time: July - August
Benefits: Supports pollinators, ornamental value, stabilizes soil
Alt: New Jersey Tea, Red Osier dogwood, Ninebark

Buttonbush



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4m x 3m
Bloom time: July - August
Benefits: Supports pollinators, stabilizes soil, supports wetland habitat
Alt: Silky Dogwood, Grey Dogwood, Dogwood Spp.

Nannyberry



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 6m x 4m
Bloom time: May - June
Benefits: Food source for wildlife, supports pollinators, soil stabilization
Alt: Red Osier dogwood, Ninebark

Red Osier Dogwood



photo by Carbon Wise

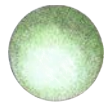


Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 4m x 4m
Bloom time: May - June
Benefits: Food for wildlife, supports pollinator, stabilizes soils, ornamental value
Alt: Buttonbush, Ninebark, Smooth Serviceberry

Pussy Willow



photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 3m x 3m
Bloom time: March - April
Benefits: Attracts wildlife, supports pollinators, stabilizes soils
Alt: Red Osier Dogwood, Ninebark

Sweet Gale

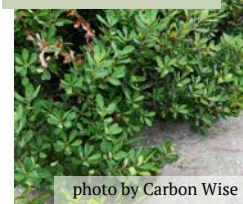


photo by Carbon Wise



Nursery size: 1, 2, or 3 gallon pots
Mature size (h x w): 2m x 2m
Bloom time: May - June
Benefits: Attracts wildlife, supports pollinators, stabilizes soil
Alt: Buttonbush, Dogwood Spp.

CHINESE PROVERB

The best time to plant a tree was 20 years ago, the second best time is now.



MATERIALS

MULCH ALTERNATIVES

Shredded dry leaves saved from the previous autumn. Wait to shred until the threat of frost has passed in the spring.

Arborist woodchips, which can often be obtained for free from arborists. Note that you cannot usually control when or how much is delivered.

Landscape fabric is not recommended. It prevents plants from spreading as intended and fails over time.

Don't be afraid to leave a few spots in your Tiny Forest free of mulch. Some pollinators, like the Metallic Sweat Bee, use these soil patches to create their nests.



Acronym Key

- BBF - Big Backyard Forest
- SBF - Small Backyard Forest
- SF - Sense-ational Forest
- STF - Shoreline Tiny Forest

Item	Unit	# / Base Unit	Notes
Plants	per square meter	2-3	See page 3, 5, 7, and 9 for Plant Species list per guide recommendations. Some species may only be found at native plant nurseries.
Soil	Cubic yards BBF SBF SF STF	0.75 0.40 0.40 0.60	Assumes 5 cm depth to replace sod or to spread over newspaper if sheet mulching. Avoid peat mix.
*Compost & Sand	Cubic yards BBF SBF SF STF	0.45 0.20 0.20 0.35	Not recommended unless soil is heavy clay. order half the volume of sand and compost to equal the total amount needed. EX 0.1cu of sand; 0.1cu of compost
Mulch	Cubic yards BBF SBF SF STF	0.40 0.40 0.60 0.75	Assumes 5cm depth. Avoid dyed mulch. Natural cedar, pine, or 'Ontario Blends' preferred.
*Cardboard	Meters squared BBF SBF SF STF	6 6 10 12	Required for sheet mulching. Matte 10 cardboard can be used, but only use 1 layer and give it 2 - 3 months to break down. Can use Newspaper.

* Optional items

SOURCING PLANTS



Sourcing your native trees and shrubs from a local nursery is an excellent choice for both your garden and the environment. When you purchase plants from a local nursery, you are not only supporting local businesses but also ensuring that the plant stock you bring home is well-suited to your region. These nurseries specialize in growing trees that have adapted over time to thrive in the specific climate and soil conditions of your backyard.



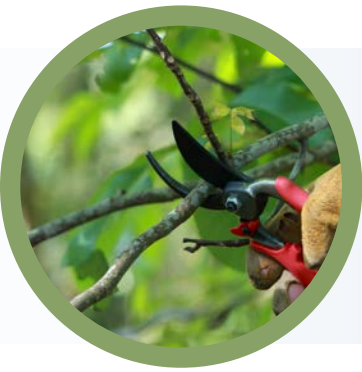
Native plants are more resilient to local pests, diseases, and weather patterns, reducing the need for chemical interventions and extra maintenance. By choosing plants that are already acclimated to your environment, you increase the likelihood of successful growth and a flourishing garden.



For a successful planting season, it's important to plan ahead by contacting your local nurseries early. For fall planting, reach out to nurseries in the summer to reserve the specific plant stock you need.



For spring planting, it's best to connect with your nursery in the fall of the previous year. By reserving your plants ahead of time, you ensure a smoother planting process and a more vibrant garden.



PRUNING TIPS

PRUNE AT THE RIGHT TIME

Dormant Season - Late Fall to Early Spring

The dormant season is the ideal time to prune native trees and shrubs, primarily because the plants are not actively growing during this period. Pruning while the trees and shrubs are dormant helps preserve their energy for the upcoming growing season. By waiting until dormancy, you reduce the risk of accidentally removing flower buds that may have already formed, which can happen if pruning is done too early in the year.

Avoid - Spring and Early Summer

Dormant pruning minimizes the risk of disease. Since the plants are not actively growing, their wounds from pruning have a reduced chance of attracting pests or pathogens that could lead to infections. The cooler, less humid conditions of the dormant season also help to lower the likelihood of disease spreading.

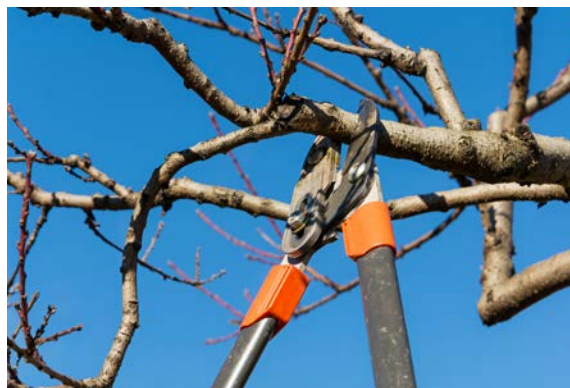
TOOLS

Pruning shears for small branches <3cm

Loopers for branches between 3-6cm in diameter.

Pruning Saw for larger branches greater than 6cms in diameter.

Pole Pruners for higher branches



SPECIAL

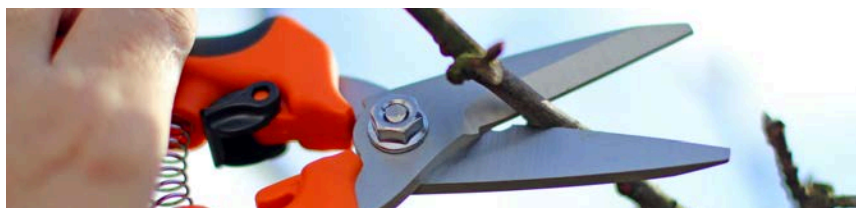
CONSIDERATION

Oak Trees: Avoid pruning in spring and early summer to prevent oak wilt disease.

Maple Trees: Pruning in late winter or early spring may cause sap bleeding, which is not harmful but can be messy.

STEPS TO PRUNE

1. **Inspect the Tree:** Identify any dead, diseased, or crossing branches that need to be removed.
2. **Cut at the Right Place:** When removing a branch, make the cut just outside the branch collar (the swollen area where the branch joins the trunk or another branch).
3. **Make Clean Cuts:** Ensure cuts are smooth and clean to promote healing.
4. **Do Not Over-prune:** Avoid removing more than 25% of the tree's canopy in a single year to prevent stress.



MAINTENANCE

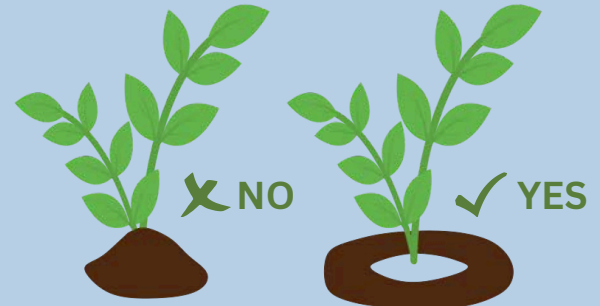
DID YOU KNOW?
There are over 1,000 species of pollinating insects in Canada, including bees, butterflies, moths, beetles, and flies.



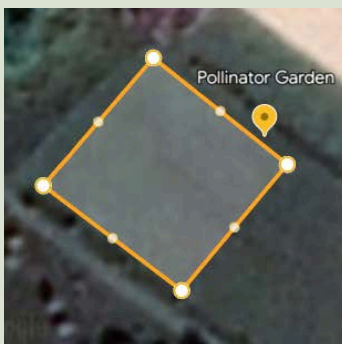
- Water regularly in the weeks and months after planting. Eventually, you will only need to water during droughts.
- Monitor the forest for weeds. The forest will eventually create its own methods of dealing with pests and weeds. Refrain from using chemical herbicides or pesticides to maintain the natural balance and maintain the soil health. You may wish to reapply mulch annually.
- Resist the urge to clean up your garden in the fall. Dead plant material provides important habitat for pollinators.
- Pruning shrubs in the fall will help maintain a desired height or shape. If you want the natural experience let the plants grow freely pruning back any deadwood or codominant main leaders.



PROPER MULCHING



Remember, when applying mulch - think donuts, not volcanoes! Mulch applied to plant stems can cause dampness and rot.



MAPPING

You can measure your space with digital tools like Google Earth Online or the City of Kawartha Lakes Maps and Apps Portal:

- earth.google.com
- geohub-kawartha.hub.arcgis.com

ADDITIONAL RESOURCES

This Forest Guide is part of our Healthy Garden Guide Series. All are available through Kawartha Conservation's Healthy Gardens program. If your space does not meet the preferred conditions of the Urban Forest Guide, or you wish to plant multiple gardens, check out the other guides in the series.

Native Plant Understory Garden
Low Maintenance Rain Garden
Native Plant Pollinator Garden



View these additional resources to help you assess your site conditions and prepare your site for planting.

- How to Conduct an Infiltration or Soil Drainage Test (Reep Green Solutions): bit.ly/SoilDrainage
- Ribbon Test for Soil Texture (Grow It Build It): bit.ly/RibbonTest
- Mason Jar Test for Soil Texture (Grow It Build It): bit.ly/MasonTest
- Ontario One Call (Call Before You Dig): OntarioOneCall.ca
- Proper Mulching Techniques: <https://bit.ly/ProperMulchingTechniques>



**KAWARTHA
CONSERVATION**

Discover • Protect • Restore

Contact Us

Phone: 705-328-2271

Email: GenInfo@KawarthaConservation.com

Online: KawarthaConservation.com/Gardens



Gardening Guide graphics developed by Carbon Wise Landscape Design. Guide production and design by Kawartha Conservation.

All renderings and planting plans are provided by Carbon Wise Landscape Design.