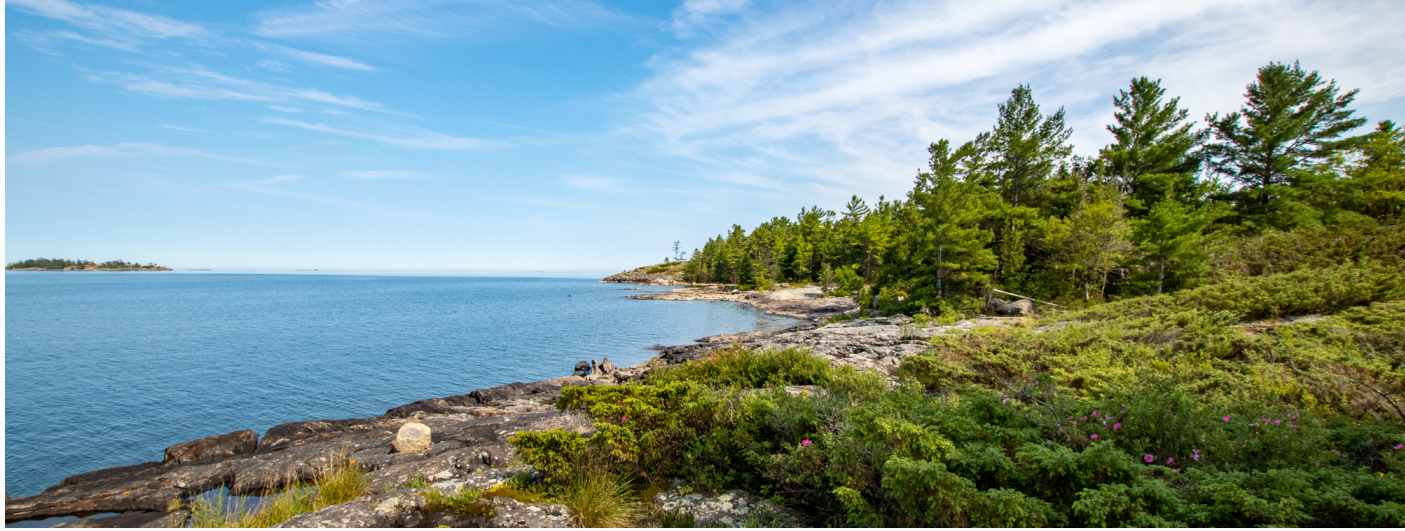
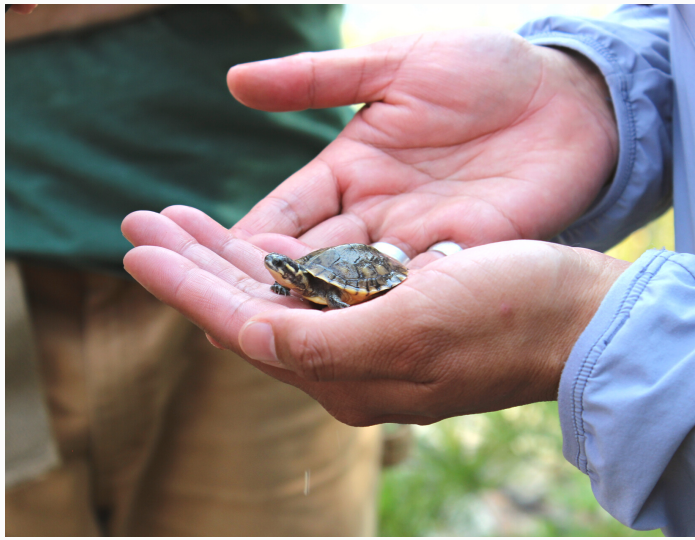
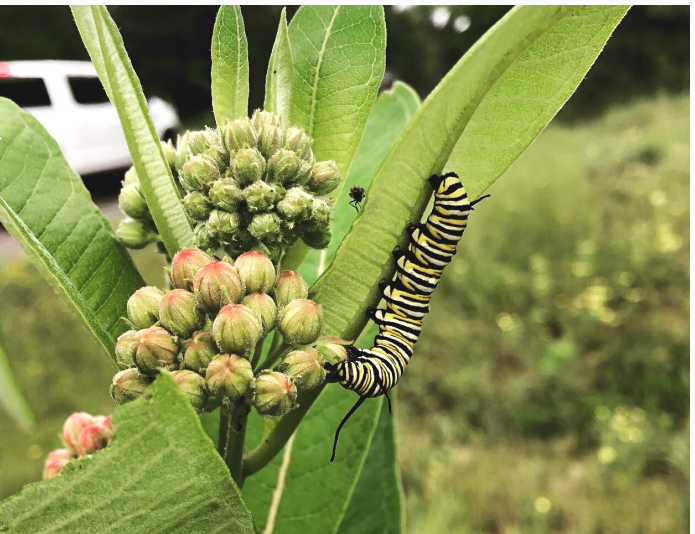
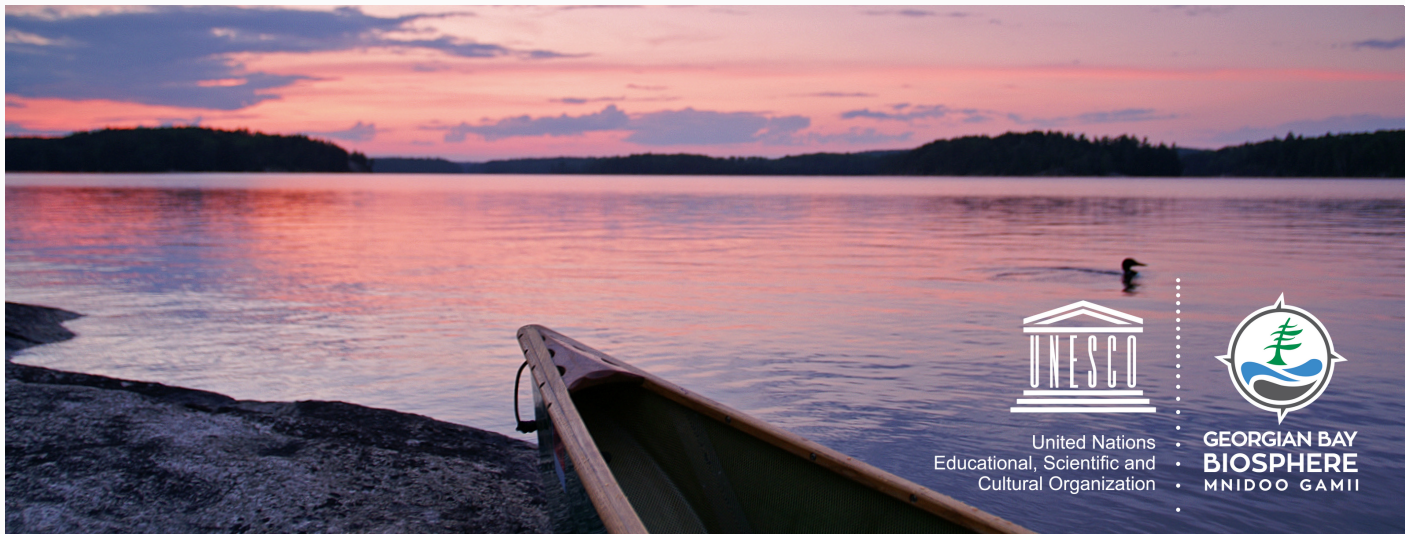


# LIFE ON THE BAY

## A STEWARDSHIP GUIDE FOR EASTERN GEORGIAN BAY AND INLAND LAKES







United Nations Educational, Scientific and Cultural Organization

GEORGIAN BAY BIOSPHERE MNIDOO GAMII

# Worksheet #7a - Natural Buffers & Shoreline Access

Use this worksheet to learn about maintaining or restoring natural shoreline buffers.

## Why Should You Be Concerned?

- A buffer is an area of natural vegetation that runs along the shoreline or bank. Also referred to as the riparian zone, it extends from the water's edge to the high water mark, at a minimum, and often beyond that.

- Natural buffers can include wetlands, beaches, forest corridors, and any native vegetation along the shoreline or bank.

- A naturally vegetated shoreline supports a wide variety of plants and animal life. Ninety percent of all aquatic life depends on the area where land and water meet for at least part of their lives.

- Natural buffers have robust underground root networks that protect both the stability of the shoreline and water quality by filtering and purifying water before it enters a watercourse.

- In order to visually or physically access water, people sometimes remove all or part of a buffer. In doing so, the buffer's ability to protect against erosion and filter runoff is weakened or eliminated. Whether on a small or large scale, this will impact the ability of the buffer to function properly. It can also lead to disputes with neighbours and criminal charges if fish habitat is harmed.

## What Can You Do?

1. Maintain your shoreline in its natural predeveloped state. In some cases, your natural shoreline may be bedrock.

2. Refrain from cutting the grass right to the shoreline. Simply letting the vegetation grow there naturally will have a huge impact.

3. Restore buffers where they have previously been removed or degraded. Look at nearby undisturbed sites to determine which plant species are found at the shore. Plant climate-resilient species in buffer zones to protect against potential erosion and storm damage.

4. Minimize the number of water access points. Do not locate accessways through environmentally sensitive areas.

# Natural Buffers & Shoreline Access: How Do You Rate?

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| BUFFER ZONES | | | | | |
| 1. Disturbance to the buffer | Buffer is not traversed to provide access to water. | There is only a small designated path through the buffer. | Buffer is traversed but vegetation is allowed to re-establish naturally.<br><br>Breaks are concentrated in one area. | Buffer is mostly broken or non-existent. Vegetation cleared and prevented from re-establishing. | ☐ |
| 2. Size of buffer | Buffer is greater than 30 m (100 ft) wide and in environmentally sensitive areas (ESA), the buffer is 150 m (492 ft) wide. | Buffer is at least 30 m (100 ft) wide. | Buffer is less than 30 m (100 ft) wide. | There is no buffer present. Grass/lawn extends to water's edge. | ☐ |
| 3. Composition of buffer | Buffer contains only native vegetation and/or natural bedrock. | Buffer contains mostly native vegetation, natural bedrock, and some non-invasive, introduced species. | Buffer has some native vegetation and mostly non-invasive introduced species. | Buffer has no native vegetation and mostly invasive and/or non-invasive introduced species. | ☐ |
| 4. Property maintenance | Aware of, and actively protecting, any especially sensitive buffers, including wetlands, ESA, and Areas of Natural and Scientific Interest (ANSI). | Aware of any especially sensitive buffers, including wetlands, ESA, and ANSI, and plans to protect them. | Aware of any especially sensitive buffers including wetlands, ESA, ANSI. No plans to protect them. | No awareness of any especially sensitive buffers including wetlands, ESA, ANSI. | ☐ |
| | All trees, woody debris, and leaves are left in place with no alterations. | Vegetation alterations are limited to pruning branches from trees to provide sightlines to water. | Trees removed to provide sightlines to water. Other vegetation is not removed. | Trees are removed throughout to provide sightlines to water. | ☐ |

# Worksheet #7b – Trees & Plants

Use this worksheet to assess the plants on your property and their care and maintenance.

## Why Should You Be Concerned?

- Native trees and plants provide food and habitat for wildlife. Their presence is critical to the health of ecosystems and watersheds.
- Native plants have evolved as part of a greater ecological community. They are well adapted to local conditions and generally will suffer less from disease or insect problems. Using native species helps to maintain your property as a part of the larger landscape.
- Trees remove carbon dioxide, one of the main gases causing climate change, from the atmosphere. They also help to improve the quality of the air that we breathe by absorbing and storing many air pollutants.
- Trees can reduce your energy bill. Deciduous trees can be strategically planted around buildings to provide shade from the summer sun. Similarly, in winter, coniferous trees on the north or west side can provide shelter from cold winds. Tree and shrub roots anchor the soil and prevent erosion.
- Trees add value to a property. They not only help to create an established feeling in a neighbourhood or on a property, but they also improve the appearance.
- Invasive plant species are often difficult to eradicate and may introduce disease.
- Extensive lawns reduce biodiversity and require more maintenance than native species.

## What Can You Do?

1. Learn to confidently identify several invasive species, forest pests, and tree diseases common in your area.
2. Protect existing trees from insect and disease infestation and physical damage from machinery or weather events.
3. Identify mature and rare trees that you want to protect and include these in a long-term management plan.
4. Protect the forests! Reduce the spread of serious forest pests such as emerald ash borer by not purchasing and/or transporting firewood from other regions.
5. Choose native, climate-resilient species. They are best suited to local conditions.
6. Learn about the plant community in which you live and select plants from a reputable nursery.
7. Never plant invasive plants on your property. Identify invasive species that already exist in your area and work to remove them if possible.
8. Know your soil type and depth. Most areas in this region have very shallow soils. Choose your plants accordingly.
9. Reduce your lawn area to only what is needed for particular activities and keep it as far as possible from any shoreline.
10. Use low-maintenance plants that do not require watering or fertilizing.

## Trees & Plants on Your Property: How Do You Rate?

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| TREE ECOLOGY | | | | | |
| 1. **Understanding and appreciation for the role of trees in ecosystem health** | Proper instructions are followed when planting trees.<br><br>Tree species are selected to suit existing site conditions.<br><br>Only native species are planted. | Trees are planted following proper instructions.<br><br>Tree species selected to suit existing site conditions. | Non-invasive, introduced species are planted. | No consideration given to tree ecology in selection of new trees.<br><br>Invasive species are planted. | ☐ |
| | Dead but stable trees are left in place to provide habitat. Only hazard trees are felled and left to rot in place.<br><br>Trees that overhang the water or fall into the water are left in place. | Both standing and hazard dead trees are felled and left to rot in place. | Some wood is left to rot and provide habitat while some is removed. | All felled wood is removed.<br><br>Trees are removed from the water. | ☐ |
| | Trees and shrubs on slopes or near water are protected and never removed (unless hazardous). | Only some trees (e.g., hazard trees) are removed from slopes and near water. | Many trees are removed from slopes and the water's edge. | Natural vegetation is removed from the majority of the property.<br><br>***Tree limbs that overhang the shore or water are cut.*** | ☐ |

**These conditions may violate provincial legislation or municipal bylaws.*

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| TREE MANAGEMENT | | | | | |
| 2. **Tree maintenance and care** | All trees are protected against injury and potential diseases.<br><br>No healthy trees are removed. | Trees in buffers are protected.<br><br>No healthy trees are removed. | Trees are not protected.<br><br>Some healthy trees are removed. | Lot is generally cleared. | ☐ |
| | Branch pruning is done properly and at the right time for tree health. | Branch pruning is irregular but is done properly. | | Trees are pruned carelessly or without regard for tree health and vigour. | ☐ |
| | Trees are watered properly and regularly for a minimum of three years after planting.<br><br>Mulch is properly piled at least 3 inches away from the tree trunk. | Trees are watered during hot, dry periods for the first three years after planting.<br><br>Mulch is properly piled at least 3 in away from tree trunk. | Trees are watered irregularly.<br><br>Mulch is piled too close to the tree trunk, causing damage to bark. | Watering is inadequate during the first three years following planting.<br><br>Mulch is piled too close to the tree trunk, causing damage to bark. | ☐ |
| 3. **Knowledge of issues related to tree health** | Knowledge of potential insect and disease problems in your area.<br><br>A certified arborist is hired to assess tree health and development and to develop a long-term management plan. | A certified arborist is hired to assess tree health and development and to develop a long-term management plan. | Existing trees are checked periodically for disease or insect infestation. | No consideration is given to tree health or insect problems in the area. | ☐ |

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| **TREE MANAGEMENT** | | | | | |
| 4. Tree root system | Tree rooting zone has adequate soil volume and conditions appropriate for the tree species selected. | Tree rooting zone is adequate but may need supplemental feeding. | Tree rooting zone is not less than 60% of appropriate volume and may require supplemental watering during dry spells. | Soil volume and growing conditions of rooting zone are inadequate for the tree species selected. | ☐ |
| **INVASIVE SPECIES** | | | | | |
| 5. Plant selection and invasive species | No new planting of invasive plants.<br><br>Measures taken to eliminate existing invasive plants. | | No new planting of invasive plants. | Continued use of invasive plants. | ☐ |
| | Complete eradication and proper disposal of existing invasive plants. | Long-term management plan for the eradication of existing invasive plants. | Short-term management plan for the eradication of existing invasive plants. | No attempts to eradicate invasive plants. | ☐ |
| | Match tree and plant selection to your soil conditions.<br><br>Use only native plants. | Tree and plant selection suits local soil and climate conditions.<br><br>Non-invasive plants selected. | Occasional addition of nutrients to support non-invasive plants. | Tree and plant selection does not suit local soil and climate conditions. | ☐ |
| 6. Garden monitoring | Regular checks to ensure that invasive species have not established in gardens.<br><br>Once spotted, invasive plants are removed and immediately disposed of in an appropriate manner. | Occasional checks to ensure that invasive species are not established in gardens.<br><br>Once spotted, invasive plants are removed and immediately disposed of in an inappropriate manner. | Occasional checks to ensure that invasive species are not established in gardens.<br><br>Once spotted, invasive plants are removed and eventually disposed of in an inappropriate manner. | No checks to ensure that invasive species are not established in gardens.<br><br>If spotted, invasive plants are not removed. | ☐ |

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| INVASIVE SPECIES | | | | | |
| 7. **Lawns** | No traditional lawn. | Lawn is limited to area over the septic bed with no use of pesticides, fertilizers, or irrigation. | Lawn is kept to a minimum size and as far from the shoreline as possible. | Much of the property is lawn.<br><br>Lawn extends to the shoreline. | ☐ |
| | Learn about appropriate alternative groundcovers from local experts and plant them.<br><br>Encourage local nurseries to stock native groundcovers. | Mix of native and non-invasive plants that tolerate some mowing and drought. | Non-invasive plants used that tolerate some mowing and drought. | Species used require extensive use of irrigation and fertilizer.<br><br>Use of invasive species. | ☐ |

# Worksheet #7c – Nutrients

Use this worksheet to learn about the role of nutrients in the landscape.

## Why Should You Be Concerned?

- Nutrients have an important and beneficial role in plant growth and soil amendments. As plant roots take up nutrients from the soil over time, the soil may become depleted, resulting in less vigorous plant and lawn growth.

- Over-application of fertilizers can result in fertilizer running off the garden or lawn. This can contaminate both ground and surface water, and encourage excessive algae growth.

- Activities on land and along shorelines affect the nutrient-loading of waterbodies.

- Nutrients are the foundation of the aquatic ecosystem, but too many nutrients can lead to what is known as eutrophication. Waterbodies that are eutrophic are more likely to experience nuisance algae blooms which impair water quality and use.

## What Can You Do?

1. Plant native species that require little or no fertilizing.

2. Test your soil for nitrogen, phosphorous, and potassium levels before adding nutrients. Contact a soil testing lab for more details on soil sampling.

3. Reduce your nutrient application volume and time applications according to need and forecasted rain.

4. Use natural fertilizers like compost produced on-site or grass clipping tea.

5. In the fall, let leaves decay on site and when mowing grass, do not collect the clippings (unless using for grass clipping tea).

6. Learn about how plants use different nutrients to better target any nutrient applications. Nitrogen (N) is for leaf development and vivid green colour. Phosphorus (P) is for root growth. Potassium (K) is for root development and disease resistance.

# Nutrients: How Do You Rate?

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| FERTILIZER USE & APPLICATION | | | | | |
| 1. **Understanding of plant requirements and fertilizer use** | Good understanding of plant nutrient requirements.<br><br>Soil is tested to determine nutrient requirements before fertilizing. Fertilizer used accordingly. | Good understanding of plant nutrient requirements.<br><br>Plants are monitored regularly to detect nutrient deficiencies. Fertilizer used accordingly. | Basic understanding of plant nutrient requirements.<br><br>Occasional monitoring for plant nutrient deficiencies. Fertilizer used regularly. | No consideration of soil condition or plant nutrient requirements.<br><br>Excessive use of fertilizer. | ☐ |
| | Fully-composted manure and yard waste are used appropriately to amend soil. | Fully-composted manure and yard waste are used appropriately to amend soil.<br><br>Controlled spot use of fertilizer if necessary. | Fertilizer occasionally applied over the entire garden and/or lawn. | Fertilizer frequently applied to entire lawn and/or garden without consideration for soil needs.<br><br>Poor care taken in following package instructions. | ☐ |
| | Locally-produced, well-rotted compost or manure is used. | Locally-produced, well-rotted compost or manure is used.<br><br>Slow-release synthetic fertilizer is used. | Well-rotted compost or manure is used but not obtained from local sources.<br><br>Quick-release fertilizer is used but the nutrient composition is appropriate for the situation. | A quick-release synthetic/commercial fertilizer is over-used. | ☐ |

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| **FERTILIZER USE & APPLICATION** | | | | | |
| 2. **Application practices and water access** | Nutrient application is a minimum of 30 m (100 ft) from wells, water intakes, and all watercourses.<br><br>A permanently vegetated buffer, greater than 3 m (10 ft) wide runs between the area of nutrient application and any well, water intake, or watercourse. | Nutrient application is a minimum of 30 m (100 ft) from wells, water intakes, and all watercourses. | | **Nutrient application is closer than 30 m (100 ft) to wells, water intakes, and/or watercourses.* | ☐ |
| | Nutrients are never applied on frozen or saturated soil, or where surface runoff is likely.<br><br>Check to ensure that heavy rain or thunderstorms are not forecast for at least 24 hours following application. | Nutrients are never applied on frozen or saturated soil, or where surface runoff is likely. | Nutrients are rarely applied on frozen or saturated soil, or where surface runoff is likely. | Fertilizer, compost, or manure applied to frozen or saturated soils, or on slopes where surface runoff is likely.<br><br>Nutrients applied regardless of forecast. | |
| **COMPOST MANAGEMENT** | | | | | |
| 3. **Composting practices** | Household compost is rodent proof.<br><br>Compost composition is monitored and mixed regularly.<br><br>Compost is used on-site. | Compost composition is monitored and mixed regularly.<br><br>Compost is used on-site. | Household compostable waste is sent to a local composting facility or to a friend/neighbour's compost. | Compostable material not composted. | ☐ |

**These conditions may violate provincial legislation or municipal bylaws.*

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| WATER FEATURES | | | | | |
| 4. **Water features and ponds** | There is no artificial water feature or pond on the property. | Water feature is designed to minimize the amount of artificial light on it.<br><br>Water is continuously moving in water feature.<br><br>Water feature is located as far from natural waterbodies as possible. | Water feature is located as far from natural waterbodies as possible. | Indiscriminate design, placement, and chemical treatment of artificial water features. | |

# Worksheet #7d – Landscape Water Efficiency

Use this worksheet to assess your water use on your property.

## Why Should You Be Concerned?

- There is a limited supply of fresh, clean water.
- If groundwater is used at a rate faster than it can be replenished by the water cycle, severe shortages and damage to aquatic systems may result.
- Whether your drinking water comes from a private or a municipal system, everyone is pulling water from the same source.
- Both surface and well water require energy to treat and pump.

## What Can You Do?

1. Calculate how much water you use in your landscaping and gardening.
2. Purchase or build a rain gauge to monitor how much water your yard receives.
3. Choose proper equipment that is water-efficient, such as soaker hoses rather than sprinklers. Keep equipment in good condition.
4. Choose native plants that grow well in local conditions without irrigation.
5. Divert downspouts into screened rain barrels and use the water for your plants.

# Landscape Water Efficiency: How Do You Rate?

| Topic | Best 4 | Good 3 | Fair 2 | Poor 1 | Your Rating |
|---|---|---|---|---|---|
| WATER MANAGEMENT AND USE | | | | | |
| 1. **Knowledge of water use in the landscape** | Water use is monitored regularly and steps are taken to improve efficiency. | | Water use is monitored on occasion. | Water use is not monitored. | ☐ |
| | Hoses, faucets, etc. are regularly monitored for leaks. Leaks are fixed immediately. | | Leaks are repaired only when they become a problem. | Leaks are not repaired. | ☐ |
| 2. **Irrigation equipment type** | No irrigation equipment used. | Irrigation equipment applies water to the plant rooting area only (e.g., drip system). | Low-level sprinkler system or mobile sprinkler head. | Fixed sprinkler head. | ☐ |
| 3. **Irrigation design** | System is properly designed and sized for the size of the garden or landscaped area. | | | Irrigation system is larger than needed for the garden area. | ☐ |
| | No ponding of irrigation water. | Water ponds briefly but then infiltrates soil. | Irrigation water ponds but does not run off the property. | Water runoff along the surface and into any underground drains. | ☐ |
| 4. **Watering plants** | Watering schedule is adjusted according to rainfall, stage of plant development, use of water gauges, and plant appearance. | Watering schedule is sometimes adjusted according to rainfall, stage of plant development, use of water gauges, and plant appearance. | Monitored watering limited to when establishing new plants. | Watering is not adjusted according to rainfall, stage of plant development, use of water gauges, and/or plant appearance. | ☐ |
| | Water only in the early morning to reduce the chance of fungal disease on plants. | Water only in the early morning or early evening. | Water only in the late evening using a soaker hose. | Water using a sprinkler system during the hottest hours of the day. | ☐ |

# Helpful Hints

## Purchasing Plants

- At the nursery, be sure to ask:
    - What native, local plants do you have?
    - Are they nursey grown or harvested from the wild?
    - Is there a potential for invasion?
    - How can you control or eradicate if necessary?
    - What are the nutrient and water requirements?

- Cues for proper species selection can be gained by looking at nearby native plants that are thriving in the same conditions as those on your property.

- If planting a traditional lawn with non-native grass, choose a grass that is hardy, pest resistant, and non-invasive.

- A well-intentioned 'gift' from a friend or neighbour may end up taking over your garden and spreading into nearby plant communities where it can have a disastrous impact on the health of the ecosystem. A well-contained plant in your garden may run rampant in a friend's garden. Never accept or give outdoor plants if you are unsure.

**Get Involved!**

Contribute to biodiversity science by joining the Georgian Bay Biosphere iNaturalist project!

Learn more: www.gbbr.ca/citizen-science

## Plant Care

- Protect trees during construction by ensuring that there is no disturbance within the dripline.

- Spread a layer of natural mulch 8-10 cm (3-4 in) thick over your garden. This will prevent weed seeds from germinating.

- Never pile mulch right up against the trunk of a tree. This can damage the bark, possibly girdling and killing the tree.

- If necessary, ensure trees are properly staked after planting and that stakes are removed after two years.

- NEVER compost invasive species. Research proper disposal methods for the species you are dealing with.

## Nutrients

- If you are experiencing problems with algae in your water feature or pond, be sure to properly diagnose the cause of the problem before attempting treatment.

# Helpful Hints

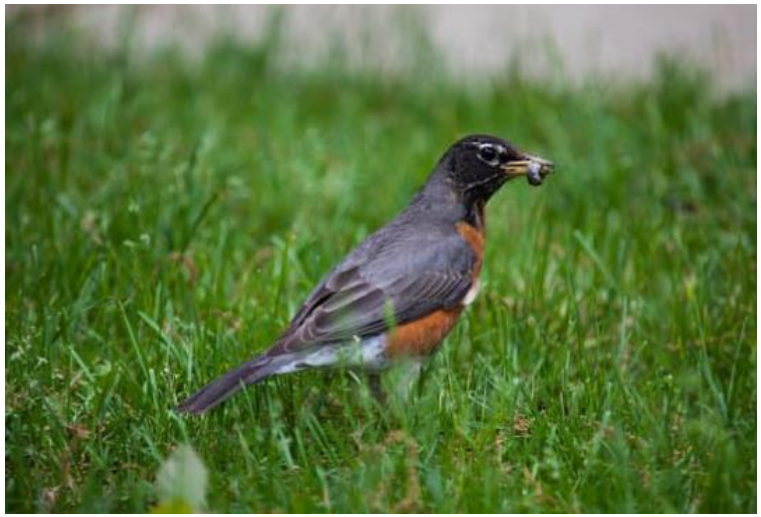
## Pesticide Alternatives

- Ontario's cosmetic pesticides ban took effect in 2009. Pesticides cannot be used for cosmetic purposes on lawns, vegetable and ornamental gardens, patios, driveways, cemeteries, and in parks and school yards.

- Try old-fashioned remedies for pests, such as borax sprinkled around ant nests, insecticidal soap for sap-sucking insects, and baking soda or sulphur for fungal diseases.

- Create suitable habitat for birds that will eat insect pests.

- To make plants less appetizing to garden pests, use a garlic spray (10 cloves of garlic in 1 L of water, heat for 5 minutes, let cool before application).



## Healthy, Low-Maintenance Lawns

- In hot, dry weather allow grass to go dormant. Water 7-12 mm (0.25-0.5 in) every two or three weeks. The grass will look brown but it is dormant, not dead.

- Encourage deep rooting by watering infrequently but thoroughly. Your lawn only needs 2.5 cm (1 in) of water per week.

- Mow when the grass is as dry as possible and leave your grass at least 8 cm (3 in) long. This encourages root growth and lessens moisture loss. Leave grass clippings on the lawn and you can increase soil fertility by up to 50%.

- Aerating your lawn improves rooting conditions.

- If you do use a fertilizer, choose a slow-release product. The nutrients are released slowly, preventing ‘lawn burn’ and water contamination.

- Remove unwanted plants from the lawn by hand using long-handled tools. It is easier to remove weeds when the ground is damp. Alternatively, pour boiling water or small amounts of white vinegar over the exposed roots of unwanted plants.

# Best for the Biosphere: Native Plant List

## Native Plant List

All of the plants in this list are appropriate for the eastern Georgian Bay area. You may have some of these species growing naturally in your neighbourhood!

## Legend - Plant Blossom Colour

White | Pink | Blue | Yellow | O | Red | Green

| Common Name | Scientific Name | Bloom Colour & Timing: Apr to June | Bloom Colour & Timing: June to Aug | Bloom Colour & Timing: Aug to Oct | Height | Soil Type | Light Requirements | Meadow | Shorelines & Wet Areas | Forest |
|---|---|---|---|---|---|---|---|---|---|---|
| **WILDFLOWERS** | | | | | | | | | | |
| Bearberry | *Arctostaphylos uva-ursi* | White, Pink | | | 15 - 30 cm | dry to moist, sand, loam, gravel | full to part sun | ■ | | |
| Black Eyed Susan | *Rudbeckia hirta* | | Yellow | | 30 - 50 cm | dry to moist, sand, loam | sun to part shade | ■ | | |
| Bloodroot | *Sanguinaria canadensis* | White | | | 7 - 30 cm | moist to wet, sand, loam, clay | shade | | | ■ |
| Blue Flag Iris | *Iris versicolor* | Blue, Purple | | | 60 - 90 cm | moist, wet | sun to part shade | | ■ | |
| Blue Vervain | *Verbena hastata* | | Blue, Purple | | 60 - 180 cm | normal to wet, clay, loam, sand | sun to part shade | ■ | ■ | |
| Blue Violet | *Viola sororia* | Blue, Purple | | | 7 - 20 cm | normal to moist, sand, clay, loam | sun to part shade | | | ■ |
| Blue-stem Goldenrod | *Solidago caesia* | | | | 30 - 90 cm | dry to normal, loam, humus | shade to part shade | ■ | | ■ |
| Bunchberry | *Cornus Canadensis* | White | | | 7 - 20 cm | normal to moist, sand, clay, loam, humus, acidic | sun to parth shade | | | ■ |
| Butterfly Weed | *Asclepias tuberosa* | | Orange | | 30 - 75 cm | dry to normal, sand, loam | sun to part shade | ■ | | |
| Canada Goldenrod | *Solidago Canadensis* | | | Yellow | 30 - 120 cm | dry to normal, sand, clay, loam | sun to part shade | ■ | | |
| Cardinal Flower | *Lobelia cardinalis* | | Red | | 60 - 120 cm | normal to wet, loam, humus | sun to part shade | | ■ | |
| Common Boneset | *Eupatorium perfoliatum* | | | White | 60 - 160 cm | wet to moist, clay, sand, loam | sun to part shade | ■ | ■ | |
| Common Milkweed | *Asclepias syriaca* | | Pink | | 60 - 120 cm | dry to normal, sand, loam, clay | sun | ■ | | |
| Cup Plant | *Silphium perfoliatum* | | Yellow | | 100 - 150 cm | normal to moist, sand, clay | sun | ■ | | |
| Dense Blazing Star | *Liatris spicata* | | Purple | | 30 - 180 cm | moist, sand, loam | sun | ■ | | |
| Dutchman's Breeches | *Dicentra cucularia* | White | | | 10 - 30 cm | normal to moist, humus | part shade to shade | | | ■ |
| Fireweed | *Chamerion angustifolium* | | Pink | | 60 - 180 cm | dry to moist, sand, loam | sun | | ■ | |

# Best for the Biosphere: Native Plant List

## WILDFLOWERS Continued

| Common Name | Scientific Name | Bloom Colour & Timing: Apr to June | Bloom Colour & Timing: June to Aug | Bloom Colour & Timing: Aug to Oct | Height | Soil Type | Light Requirements | Meadow | Shorelines & Wet Areas | Forest |
|---|---|---|---|---|---|---|---|---|---|---|
| Flat-topped Aster | *Doellingeria umbellata* | | | | 60 - 200 cm | normal to wet | sun | ■ | ■ | |
| Foamflower | *Tiarella Cordifolia* | | | | 15 - 30 cm | normal to moist, humus, loam, acidic | shade to part shade | | ■ | |
| Foxglove Beardtongue | *Penestemon digitalis* | | | | 30 - 100 cm | dry to moist, clay, sand, loam, acidic | sun to part shade | ■ | | |
| Golden Alexander | *Zizia aurea* | | | | 30 - 75 cm | dry to wet, clay, sand, loam | sun to part shade | ■ | | |
| Great Blue Lobelia | *Lobelia siphilitica* | | | | 30 - 120 cm | normal to wet, loam, humus | sun to part shade | | ■ | |
| Heath Aster | *Symphyotrichum ericoides* | | | | 30 - 90 cm | dry to moist, sand, clay, loam, humus | sun | ■ | | |
| New England Aster | *Symphyotrichum novae-angliae* | | | | 90 - 210 cm | dry to moist, sand, clay, loam | sun to part shade | ■ | ■ | |
| Pearly Everlasting | *Anaphalis margaritacea* | | | | 30 - 90 cm | dry, sand | sun | ■ | | |
| Rough Woodland Sunflower | *Helianthus divaricatus* | | | | 40 - 150 cm | dry to normal, sand | sun to part shade | ■ | | |
| Rough-stemmed Goldenrod | *Solidago rugosa* | | | | 30 - 80 cm | most to wet, sand | sun to part shade | ■ | | |
| Spotted Joe-Pye Weed | *Eupatorium maculatum* | | | | 60 - 180 cm | normal to wet, clay, sand, loam, humus | sun to part shade | | ■ | |
| Swamp Milkweed | *Asclepias incarnata* | | | | 30 - 150 cm | moist to wet, clay, loam | sun | | ■ | |
| Sweet Oxeye | *Heliopsis helianthoides* | | | | 50 - 150 cm | dry to moist, sand, clay, loam | sun to part shade | ■ | ■ | |
| Tall Meadowrue | *Thalictrum pubescens* | | | | 60 - 200 cm | moist, loam, acidic | part shade | | ■ | |
| Turtlehead | *Chelone glabra* | | | | 30 - 90 cm | moist to wet, acidic | shade, part shade, sun | | ■ | ■ |
| Wild Bergamot | *Monarda fistulosa* | | | | 60 - 120 cm | dry to moist, sand, clay, loam, humus | sun | ■ | | |
| Wild Columbine | *Aquilegia Canadensis* | | | | 30 - 90 cm | dry to moist, sand, loam | sun to part shade | ■ | | |
| Wild Strawberry | *Fragaria virginiana* | | | | 5 - 25 cm | dry to normal, clay, sand | sun to part shade | ■ | | |
| Yarrow | *Achillea millefolium* | | | | 30 - 70 cm | dry to normal, clay, sand | sun | ■ | | |
| Zigzag Goldenrod | *Solidago flexicaulis* | | | | 30 - 100 cm | moist, sand, loam, humus, acidic | shade to part shade | | | ■ |

# Best for the Biosphere: Native Plant List

| Common Name | Scientific Name | Bloom Colour & Timing: Apr to June | Bloom Colour & Timing: June to Aug | Bloom Colour & Timing: Aug to Oct | Height | Soil Type | Light Requirements | Meadow | Shorelines & Wet Areas | Forest |
|---|---|---|---|---|---|---|---|---|---|---|
| **GRASSES** | | | | | | | | | | |
| Big Bluestem | *Andropogon gerardii* | | | | 90 - 250 cm | normal to moist, sand, loam | sun to part shade | ■ | | |
| Canada Wild Rye | *Elymus canadensis* | | | | 90 - 150 cm | dry to moist, clay, sand | sun, part shade, shade | ■ | | |
| Indian Grass | *Sorghastrum nutans* | | | | 90 - 240 cm | dry to moist, sand, clay, loam | sun to part shade | ■ | | |
| **SHRUBS** | | | | | | | | | | |
| Alternate Leaf Dogwood | *Cornus alternifolia* | | | | 4 - 8 m | normal to moist, humus, acidic | shade to part shade | | | ■ |
| Bush Honeysuckle | *Diervilla lonicera* | | | | 1 - 1.5m | dry to normal, sand, loam | sun to part shade | ■ | | |
| Buttonbush | *Cephalanthus occidentalis* | | | | 1 - 3.5 m | moist to wet, clay, sand, loam | sun to shade | | ■ | |
| Common Elderberry | *Sambucus canadensis* | | | | 1 - 4 m | moist to wet, sand, clay, loam | sun to part shade | | ■ | |
| Highbush Cranberry | *Viburnum trilobum* | | | | 2 - 4 m | normal to moist, sand, loam | sun to part shade | ■ | ■ | |
| Low Sweet Blueberry | *Vaccinium angustifolium* | | | | 30 - 60 cm | dry to moist, sand, loam | sun to part shade | ■ | | |
| Meadowsweet | *Spiraea alba* | | | | 1 - 1.5 m | normal to wet, sand, loam, clay | sun to part shade | ■ | ■ | |
| Nannyberry | *Viburnum lentago* | | | | 4 to 7 m | dry to moist, sand, loam, clay | sun to part shade | ■ | | |
| Ninebark | *Physocarpus opulifolius* | | | | 2 to 3 m | dry to moist, sand, loam | sun to part shade | ■ | ■ | |
| Purple-flowering Raspberry | *Rubus odoratus* | | | | 1 - 1.8 m | normal to moist, sand, loam, clay | sun to part shade | ■ | | |
| Pussy Willow | *Salix Discolor* | | | | 2 - 8 m | moist to wet, sand, clay, loam | sun | | ■ | |
| Red Elderberry | *Sambucus pubens* | | | | 2 - 5 m | moist to wet, sand, clay, loam | sun to part shade | | ■ | |
| Red Osier Dogwood | *Cornus sericea* | | | | 1.5 - 4 m | normal to wet, clay, sand, loam | sun to part shade | | ■ | |
| Slender Willow | *Salix petiolaris* | | | | 1 - 8 m | moist to wet, sand, loam, clay | sun to part shade | | ■ | |
| Smooth Rose | *Rosa blanda* | | | | 0.5 - 1.5 m | dry, clay, sand, loam | sun | ■ | | |
| Smooth Serviceberry | *Amelanchier laevis* | | | | 2 - 10 m | normal to moist, clay, loam, sand, humus | sun to part shade | ■ | | |

# Best for the Biosphere: Native Plant List

| Common Name | Scientific Name | Bloom Colour & Timing: Apr to June | Bloom Colour & Timing: June to Aug | Bloom Colour & Timing: Aug to Oct | Height | Soil Type | Light Requirements | Meadow | Shorelines & Wet Areas | Forest |
|---|---|---|---|---|---|---|---|---|---|---|
| **SHRUBS Continued** | | | | | | | | | | |
| Staghorn Sumac | *Rhus typhina* | | | | 1 - 8 m | dry to normal, clay, loam, sand | sun to part shade | ■ | | |
| Swamp Rose | *Rosa palustris* | | | | 0.5 - 2 m | moist to wet, clay, loam, sand | sun to part shade | | ■ | |
| Wild Red Raspberry | *Rubus idaeus* | | | | 0.5 - 2 m | dry to moist, sand, loam, humus | sun to part shade | ■ | | |
| Winterberry | *Ilex verticillata* | | | | 1.5 - 2.5 m | normal to wet, sand, loam, clay, acidic | sun to part shade | | ■ | |
| **TREES** | | | | | | | | | | |
| Basswood | *Tilia americana* | | | | 18 - 22 m | dry to moist, sand, loam | sun to part shade | ■ | | |
| Black Cherry | *Prunus serotina* | | | | 6 - 10 m | moist, clay, sand, loam | part shade | ■ | | |
| Black Spruce | *Picea mariana* | | | | 12 - 25 m | moist to wet, clay, sand, loam, humus, acidic | sun to shade | | ■ | ■ |
| Chokecherry | *Prunus virginiana* | | | | 4 - 8 m | dry to moist, clay, loam, sand | sun to part shade | ■ | | |
| Eastern Hemlock | *Tsuga canadensis* | | | | 6 - 30 m | normal to moist, sand, loam, acidic | shade to part shade | | ■ | ■ |
| Eastern White Cedar | *Thuja occidentalis* | | | | 9 - 16 m | dry to moist, clay, sand, loam | sun to part shade | | ■ | ■ |
| Pin Cherry | *Prunus pensylvanica* | | | | 1 - 12 m | dry to moist, sand, loam | sun | ■ | | |
| Red Maple | *Acer rubrum* | | | | 12 - 25 m | moist to wet, loam, humus | shade, part shade, sun | | ■ | ■ |
| Red Pine | *Pinus resinosa* | | | | 4 - 25 m | dry to moist, sand, loam, acidic | sun | ■ | | |
| Sugar Maple | *Acer saccharum* | | | | 20 - 35 m | normal to moist, sand, loam, humus | shade, part shade, sun | | | ■ |
| White Spruce | *Picea glauca* | | | | 20 - 30 m | normal to moist, sand, clay, loam | sun to part shade | ■ | | ■ |
| Yellow Birch | *Betula alleghaniensis* | | | | 15 - 25 m | moist to wet, loam | part shade to shade | | | ■ |

# Forest Pests & Diseases

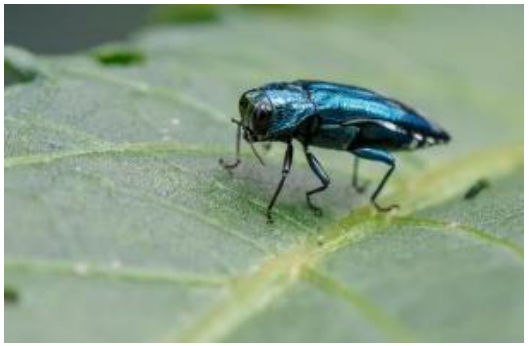
A selection of forest pests and diseases common to this region are introduced here. Please refer to the resource list for additional information.

### Beech Bark Disease

- Caused by an insect-fungus complex consisting of a scale insect and a canker fungus

### Emerald Ash Borer

- Invasive species from Asia
- Larvae bore into bark, overwinter in trees
- Adults feed on leaves throughout their lives

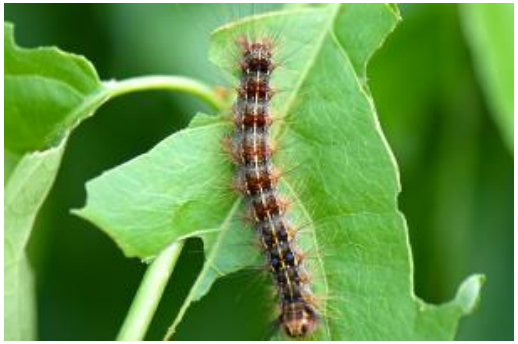


### Forest Tent Caterpillar

- Forest tent caterpillar outbreaks occur on average every 10-12 years in Ontario
- Each outbreak lasts about 3-5 years

### LDD Moth

- Invasive pest that feeds on the leaves of over 300 host species in its larval stage
- Adult moths reproduce but do not feed

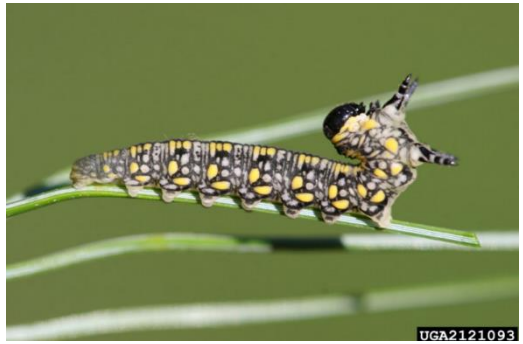


### Spruce Budworm

- Defoliates primarily balsam fir and spruce trees
- Larvae feed from the top of a tree downwards

### Introduced Pine Sawfly

- Invasive species first found in 1931 in Ontario
- Produces two generations during the growing season



# Resource List

## Stewardship & Conservation

- Best for the Biosphere Plant List
  www.gbbr.ca/conservation-guides
- Composting Council of Canada
  www.compost.org/backyard_compost/
- Food Gardens
  www.gbbr.ca/gardens
- Forest Gene Conservation Association
  www.fgca.net
- Forests Ontario
  www.forestsontario.ca/en/programs
- Georgian Bay Biosphere Webinars: Gardening with Native Plants, Building Shoreline Resilience, Forest Pests & Diseases
  www.youtube.com/c/GeorgianBayBiosphere
- Grow Me Instead
  www.ontarioinvasiveplants.ca/resources/grow-me-instead
- LDD Moth in the Georgian Bay Biosphere
  www.gbbr.ca/conservation-guides
- Master Gardeners of Ontario
  www.mgoi.ca
- Muskoka Water Web – Waterfront Living
  www.muskokawaterweb.ca/waterfront-living
- Ontario Invasive Species
  www.invadingspecies.com/invaders/
- Ontario Woodlot Association
  www.ontariowoodlot.com/
- Society for Ecological Restoration – Native Plant Resource Guide
  www.chapter.ser.org/ontario/resources/seropublications
- Westwind Forest Stewardship Inc.
  www.westwindforest.ca

## Government

- Forest Health – Pests, Diseases, and Severe Weather
  www.ontario.ca/page/forest-health-pests-diseases-and-severe-weather-conditions
- Managing Invasive Species in Ontario
  www.ontario.ca/page/managing-invasive-species-ontario
- Natural Garden Pest Management
  www.ontario.ca/page/natural-ways-manage-pests-home-gardens
- Using Pesticides in Ontario
  www.ontario.ca/page/using-pesticides-ontario

# Action Plan Worksheet

## Gardening & Landscaping

Any ratings of 1 or 2 indicate areas of your landscape management that require changes to reduce the potential for environmental damage. Use the information from the worksheets and the resource list to help analyze your potential problems and decide what you can do to solve or control them. Remember, this is YOUR action plan. It must suit you and your property.

| Topic Number | Workshop Theme | My Rating | Short-term Action | Long-term Action |
|---|---|---|---|---|
| *4-a* | *Watering Your Plants* | *2* | *Research water needs of your plants and purchase a water gauge.* | *Water schedule always adjusted according to rainfall and plants requirements.* |
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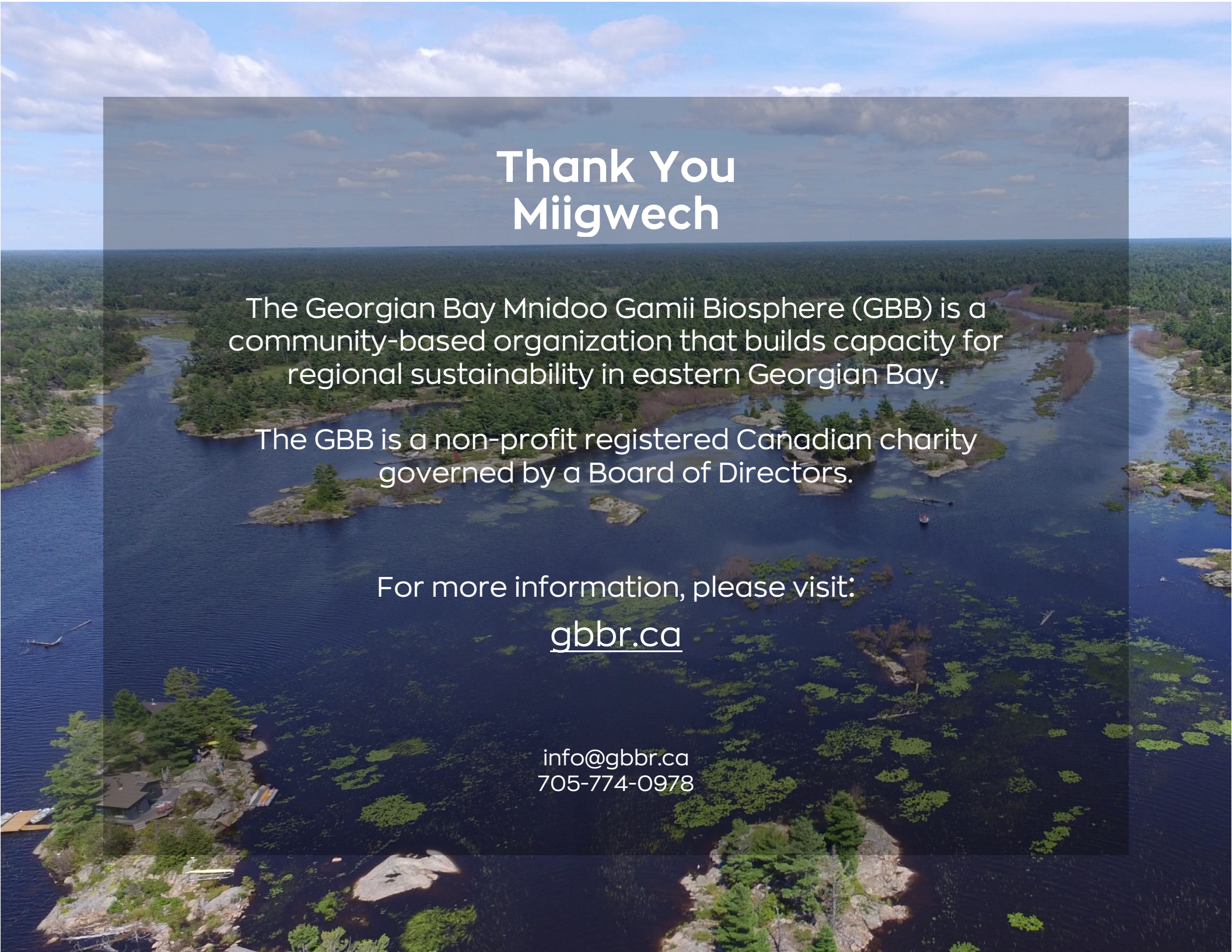

# Thank You
# Miigwech

The Georgian Bay Mnidoo Gamii Biosphere (GBB) is a community-based organization that builds capacity for regional sustainability in eastern Georgian Bay.

The GBB is a non-profit registered Canadian charity governed by a Board of Directors.

For more information, please visit:

gbbr.ca

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