CATARAQUI REGION
CONSERVATION AUTHORITY

Appendix A: Planting Guidelines for the Cataraqui Region

1.0 PURPOSE

The purpose of this document is to assist people in the Cataraqui Region of southeastern Ontario with the planting and maintenance of healthy and vigorous trees, shrubs, vines and groundcovers that will serve various purposes. These guidelines outline considerations for plantings, and some appropriate species are recommended. The intended outcome is successful plantings that do not cause harm to native species in the surrounding natural environment.

Persons undertaking planting projects may wish to retain the expertise of an Ontario Landscape Architect, a Registered Professional Forester, and/or an ecologist consultant who can provide further guidance.

This document is Appendix A to the CRCA Environmental Planning Policies (2015). These guidelines will be updated from time to time.

Terms that are *italicized* throughout this document are either defined in the glossary or are the botanical (Latin) names of plant species.

2.0 BACKGROUND – OUR ROLE AND REGION

The Cataraqui Region Conservation Authority (CRCA) frequently reviews landscape plans that are prepared for urban and rural developments. Plans are most commonly prepared in support of site plan control and subdivision applications under the Planning Act. The CRCA normally reviews such plans for their general suitability and for anticipated effects on nearby natural areas. The Conservation Authority has a particular interest to prevent the introduction of *invasive species* (e.g. garlic mustard, phragmites reed) into forests, meadows and wetlands. Other aspects such as aesthetics, compatibility with underground infrastructure and crime prevention through environmental design fall outside of the Conservation Authority's mandate but are also important to consider.

A primary consideration for planting is our location in North America. The Cataraqui Region is located at the boundary between two *ecozones* – the Boreal forest of the Canadian Shield and the Mixedwood Plains of the Great Lakes – St. Lawrence River lowlands (OMNR, 2013a). The former is further classified by the Province of Ontario as Ecoregion 5E (Georgian Bay), while the latter is considered part of Ecoregion 6E (Lake Simcoe-Rideau) (see OMNR 2009 for a detailed

description). This location means that we have a high degree of biodiversity – many different species of flora and fauna call this region home.

The species appropriate for planting projects vary between the ecozones. It is important to recognize that the climate varies within the Cataraqui Region – from the relative warmth of Adolphustown along the Bay of Quinte to the cool highlands of Frontenac Park north of Sydenham. Southern portions of the Region fall into Plant Hardiness Zone 6a, while inland areas are located in Zones 5b and 5a (Natural Resources Canada, 2000).

3.0 SPECIFIC CONSIDERATIONS FOR PLANTINGS

The following considerations reflect the interests of the CRCA to promote healthy and appropriate plantings.

3.1 Existing Settings and Vegetation

Persons undertaking planting projects are encouraged to maintain as much of the existing setting and vegetation as possible – matching existing grades and carefully protecting trees, shrubs and their root systems during construction. This is best accomplished by fencing off areas at least 1.5 metres outside the dripline (canopy) of existing vegetation.

It should be noted that grading and filling activities associated with planting projects may be subject to restrictions and permissions. For example, work near water and wetlands may be subject to CRCA approvals per Ontario Regulation 148/06 under the Conservation Authorities Act, and municipal site alteration and/or tree-cutting by-laws enacted under the Municipal Act may also apply.

3.2 Erosion Protection and Shoreline Stabilization

Existing natural vegetation and soil mantles along shorelines should be retained for shoreline stabilization, and allowed to go "natural". Woody trees, shrubs, and vines, with deep fibrous roots should be planted along the water's edge (e.g., dogwoods, willows) to provide erosion protection and shoreline stabilization. Additional information can be found in Appendix F: Guidelines for Ecological Buffer Areas, and in Solutions for Shoreline Erosion: A Basic Guide to Bioengineering (RVCA, 2011).

3.3 Native, Non-cultivar Species

For many years the CRCA has encouraged the use of native, non-cultivar species of eastern Ontario stock. Native species are those known to have prospered in southeastern Ontario before the area was cleared for agriculture and settlement in the 1800s. With the exception of Boreal species that may not be suited to a changing climate, most native species will be the most appropriate for our disease, moisture, pollen, soil and temperature conditions. Non-cultivar species are the natural, non-hybridized, not genetically modified varieties of a given plant.

Eastern Ontario stock means seedlings and plants that have been grown using seeds from local plants. The plants that grow from this stock are also more likely to prosper in our setting. Maps published by the Ontario Ministry of Natural Resources show that the Cataraqui Region falls into Seed Zone 36 (OMNR, 2011).

3.4 Invasive Species

A primary concern of the Cataraqui Region Conservation Authority with respect to plantings is to avoid the introduction of *invasive species* into natural areas such as alvars, meadows, wetlands and woodlands. *Invasive species* are known to have negative ecological, economic and human health impacts (OMNR, 2012). Unfortunately they can be difficult or impossible to eradicate once introduced to an area.

Invasive species often escape from developments and ornamental gardens onto adjacent lands. The ability to spread is dependent on the competitive nature of the plant and the means through which it is able to spread (propagate). Plants that produce large quantities of seed, spread by rhizomes, and grow rapidly are difficult to control once they become established.

Some examples of problematic *invasive species* (which were planted originally as garden plants) include:

Common reed	*Phragmites australis*
Dog-strangling vine	*Vincetoxicum rossicum*
Garlic mustard	*Alliaria petiolata*
Giant hogweed	*Heracleum mantegazzianum*
Norway maple	*Acer platanoides*
Purple loosestrife	*Lythrum salicaria*
Wild parsnip	*Pastinaca sativa*
European buckthorn	*Rhamnus cathartica*
Tartarian honeysuckle	*Lonicera tatarica*

The Ontario Invasive Species Awareness Program has established an Invading Species Hotline (1-800-563-7711).

3.5 Biodiversity

Ecosystems tend to thrive when they include many different types of flora and fauna. They prosper through their richness in genes and through complex relationships, for example, between trees and the fungi that grown on their roots and facilitate the transfer of water and nutrients. As noted above, the Cataraqui Region enjoys a high degree of biodiversity because of our location between southern and northern *ecozones*. People can protect and foster this biodiversity by protecting natural areas as part of landscaping, and by planting a variety of appropriate species.

3.6 Plant Association

Some circumstances require further investigation of existing plants within an existing site, before prescribing plants that you would like to introduce into the same site. For example, some fungus such as rust species, require two (2) hosts to complete its lifecycle. White pine blister rust (*Cronartium ribicola)* can be fatal to white pine trees and requires *Ribes spp.* (Currants or Gooseberries) as its alternate host to complete its lifecycle. Therefore, if Currants or Gooseberries exist within the proposed planting site, White pine should not be introduced.

Cedar-apple rust (*Gymnosporangium juniperi-virginianae)* also requires two (2) hosts to complete its lifecycle. Eastern red cedar and apple or crab apple trees. The rust can affect the health of apple trees and ruin the fruit crop.

3.7 Climate Change

The climate of southeastern Ontario is changing, and this has implications for plantings. Average temperatures are expected to rise by three to eight degrees Celsius over the next century (OMNR, 2013b).

Historically we have been located at the transition between Carolinian and Boreal zones. It is possible that the Boreal species such as white spruce *(Picea glauca)* will cease to grow in the Cataraqui Region over the longer-term (OFRI 1998, s.9). The climate may change more quickly than the species can adapt to that change. We encourage the use of native plants that are shown to be adaptable to climate change.

3.8 Food for Wildlife

Plantings can be designed to encourage and support wildlife – from songbirds to butterflies and bees. An example of a native shrub that serves this purpose is Nannyberry (*Viburnum lentago*). Native wildlife may not consume non-native (introduced) plant species, which can increase the plant species' opportunity to spread uncontrolled.

3.9 Drought Resistance

Low water conditions are experienced in the Cataraqui Region from time to time, and may become longer and more prevalent as our climate changes in the future. An approach called *xeriscaping* is used to minimize the water needs of plantings by avoiding lawn cover and instead using drought resistant species such as groundcovers and wildflowers (see Utilities Kingston, 2014 and City of Toronto, 2013).

3.10 Salt Tolerance

The salt applied every winter season to our roads, parking areas and walkways can harm plantings. It can also cause hard surfaces such as concrete to degrade more rapidly. Some species are more susceptible to die-back than others. For example, while the Red-osier Dogwood (*Cornus stolonifera*) has a low salt tolerance, the Pussy Willow (S*alix discolor*) has a

high salt tolerance (City of Ottawa, 2013). Also, while White Pine (*Pinus strobus)* has a low salt tolerance, Eastern Larch (*Larix laricina)* has a high salt tolerance.

3.11 Persuasive Planting

Shrubs can be used to discourage pedestrian traffic through a technique called *persuasive planting*. This is a common practice around stormwater management facilities (ponds and swales) that look inviting but may have hazards such as steep slopes and variable water levels. Wild rose (*Rosa acicularis*) and Hawthorn (*Crataegus chrysocarpa*) are two species commonly used in persuasive plantings.

4.0 RECOMMENDED SPECIES

The following species are native, non-cultivars that are likely to thrive throughout the Cataraqui Region and for which eastern Ontario stock (Seed Zone 36) may be available from nurseries and suppliers.

Planters may also wish to refer to other resources, such as the following:

- City of Ottawa Forests and Greenspace Advisory Committee website (City of Ottawa, 2013); it has an on-line database of native tree and shrub species that lists their moisture and light requirements, salt tolerance and height at maturity.
  Visit http://www.ofnc.ca/ofgac/displaytreelisten.php?orderby=NameEn

- Grow Me Instead: A Guide For Southern Ontario: Beautiful Non-Invasive Plants for Your Garden (Ontario Invasive Plant Council, 2011); it has a list of invasive species to avoid and alternatives to consider, with a focus on groundcovers and shrubs.
  Visit http://www.ontarioinvasiveplants.ca/files/GMI2012web.pdf

4.1 Trees

Eastern white pine	*Pinus strobus*
Eastern white cedar	*Thuja occidentalis*
Red oak	*Quercus rubra*
Red pine	*Pinus resinosa*
Sugar maple	*Acer saccharum*

4.2 Shrubs

Eastern white cedar	*Thuja occidentalis*
Gray dogwood	*Cornus racemosa*
Nannyberry	*Viburnum lentago*
Red cedar	*Juniperus virginiana*
Serviceberry	*Amelanchier*

4.3 Vines

Virginia creeper	*Parthenocissus vitacea*
Climbing hydrangea	*Hydrangea anomala*
American wisteria	*Wisteria frutescens*

4.4 Grasses and Groundcovers

Big bluestem	*Andropogan gerardii*
Indian grass	*Sorghastrum nutans*
Wild geranium	*Geranium maculatum*

DEFINITIONS

Ecozone means a large area of land and water that is characterized by bedrock and climate that differs from the areas next to it (after OMNR, 2013a).

Invasive species means harmful alien species whose introduction or spread threatens the environment, the economy, or society, including human health. Once established, invasive species are extremely difficult and costly to control and eradicate, and their ecological effects are often irreversible (OMNR, 2012).

Persuasive plantings means groups of shrubs or similar vegetation that due to their density or physical characteristics tend to encourage pedestrians to move to other areas.

Xeriscaping means designing landscapes that match local conditions with xeric (or waterwise) plants, trees and shrubs that will thrive (City of Toronto, 2013).

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FOR MORE INFORMATION

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