

Lincoln Conservation Commission

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Buffer Zone Restoration Guidelines

Maintaining or restoring an area of native vegetation near wetlands will greatly benefit this important habitat by intercepting pollutants and slowing down stormwater runoff from adjacent land. In addition, native plants provide wildlife habitat and require much less maintenance and water than lawn.

What is a Native Plant? Native plants (also called indigenous plants) are plants that have evolved over thousands of years to adapt to the geography, hydrology, and climate of a particular region. As a result, native plants form communities with other plants that provide habitat for a variety of local wildlife species such as songbirds and butterflies.

Why Use Native Plants? Because native plants are adapted to local conditions, they provide a beautiful, hardy, drought resistant, low maintenance landscape while benefiting the environment. Once established, they can save time and money by eliminating the need for fertilizers, pesticides, water, and lawn maintenance equipment.



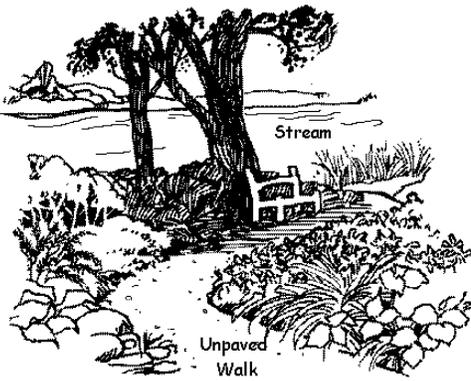
Tulip Tree

What is a Buffer Zone and why is it so important that it be “restored”? Wetlands, rivers, streams and ponds don’t thrive in isolation, but depend on the land surrounding them to keep them healthy. Land within 100-feet of wetland resource areas is known as the Buffer Zone and has additional protection under the MA Wetlands Protection Act and the Lincoln’s Wetland Protection Bylaw. Putting native plants back into a previously altered Buffer Zone helps to maintain ponds, streams and wetlands in their natural state by filtering out pollutants, providing habitats for wildlife, and securing stream banks against erosion.

NATIVE PLANTS:
<ul style="list-style-type: none">▪ Do not require fertilizers▪ Require fewer, if any, pesticides than lawns▪ Require less water than lawns▪ Help reduce air pollution▪ Provide shelter and food for wildlife

PUTTING A RESTORATION PLAN TOGETHER

1 - DETERMINE SIZE & LOCATION OF RESTORATION



A Buffer Zone can be a place to enjoy, as this picture shows.

If restoration is a requirement of a Conservation Permit, please discuss the restoration location with the Conservation Department.

Generally, the Conservation Commission requires the landowner to restore an area at a ratio of 1:1 of altered area to native vegetation. For example, if a homeowner wishes to construct a 10x10' shed on existing lawn ten feet from the wetland edge, then the commission may allow the shed if the homeowner converts a 100 sq foot area of lawn to native plants.

PREFERRED RESTORATION LOCATIONS:

- Previously developed areas/lawn that abut existing native vegetation
- Lawn that exists within the 100-foot buffer zone.

2 - CALCULATE THE NUMBER OF PLANTS NEEDED

CATEGORIES OF PLANTS USED IN A RESTORATION:

- **Trees** are the top story that provides habitat for birds, shade for wetlands. Common native trees are Red Maple, Oaks, Sassafras.
- **Shrubs** are the middle story that feeds a variety of animals and prevents erosion. Common shrubs are witch hazel, viburnums, blueberries.
- **Herbaceous Plants** are the lower story and include ferns, wildflowers, and groundcover.

Planting any number of native plants is an ecological improvement. However, if you wish to fully restore a particular area with native plants, it's important to consider adding a variety of native groundcover, shrubs, and trees. The number of plants from each category (trees, shrubs and herbaceous plants) depends on the total square footage to be restored. If restoration is a requirement of a Conservation Permit, The Conservation Commission's general rule requires the following minimum # of plants from each category based on the total square footage:

- One (1) sapling, 6-8' tall, for every 150 square feet.
- One (1) shrub, at least 24" tall, for every 80 square feet.
- One (1) herbaceous or groundcover plant for every 10 square feet, **OR** a native plant seed mix at the recommended coverage rate.

Therefore, if the proposed area to be restored equals 300 square feet, the landowner should plant 2 saplings, 4 shrubs, and 30 ferns, wildflowers or groundcover plants.

3 - SELECT THE TYPE OF NATIVE PLANTS



When selecting plants, keep in mind the amount of light and water the location gets as well as the type of soil. A sunny, dry location with sandy soil will need different plants from a shady, wet one with acid soil. Also keep in mind plants that provide natural foods for wildlife such as fruits, seeds, nuts, and nectar.

The way plants spread is another consideration. Native plants that are annuals spread their seeds and die. Perennials can also spread by seed dispersal, but some can multiply by sending out underground runners. A runner plant like hay scented fern can take over quickly. Witch hazel or Joe pye weed is much better behaved.

4 - SUBMIT A PLAN

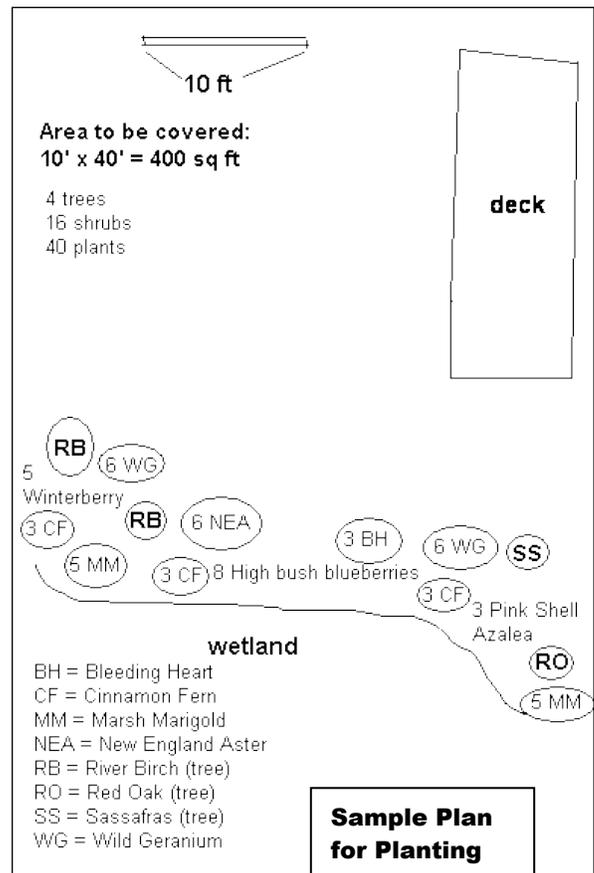
If restoration is a requirement of a Conservation Permit, draw up a sketch plan at a scale of 1" = 10'. Show approximately where the plants will go. Put the plants in clumps in your restoration area rather than planting them equidistant from each other. Some plants, though, need more room than others.

Fill out the form in Appendix 4 and submit that, with your plan, to the Conservation office.

RESOURCES IN THE GUIDE:

- Appendix 1 is a list of Internet Resources for how-to's.
- Appendix 2 is a list of trees, shrubs and groundcover based on their moisture and light requirements.
- Appendix 3 has a list of local nurseries that sell native plants.

- Vegetation should be planted in a "naturalistic manner" (i.e. clumping, mini-communities, etc.).



DOING THE WORK

1 - TIMES TO PLANT

Planting is largely an early spring or fall activity occurring at the beginning or end of the growing season. The growing season for Middlesex County goes from April 16 – October 18. Planting in hot, dry summer conditions may delay seed germination and plant growth or require extensive watering.

As with any planting, watering may be necessary while the plants are becoming established, especially during a drought or heat wave. Watering seeded areas, however, is usually not mandatory as native species will usually germinate when conditions are most appropriate. Mulch of dead leaves or compost helps to retain moisture in the soil for a young transplant.

Fall plantings should be done before the first frost which occurs sometime around October 18. Shrubs and trees, however, may be planted up to November 15, weather permitting. It should be noted, however, that some plant species are ill-suited to fall planting.

2 - REPLACING YOUR LAWN, IF NECESSARY

Proper soil preparation is the most important factor in the success of a native planting.

Use a sod cutter - which can be rented to remove sections of your existing lawn. Do not turn over the exposed soil. Disturbing the soil will expose weed seeds and encourage their growth. The weeds, especially non-native ones, will compete with new native seedlings for nutrients, water, and sunlight.

3 - PLANTING TREES, SHRUBS & GROUND COVER

Native plants are installed the same way as any other potted or bare root stock by digging a hole large enough so it will not constrict root systems. Mulching is often necessary to ameliorate soil and moisture conditions and ensure successful seed germination and early growth. You will want to use proper planting procedures - to make sure your native vegetation has the best chance for a long life.

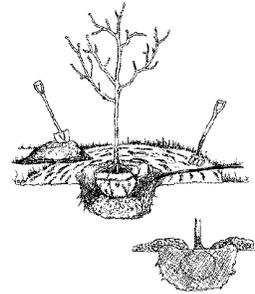
Design Considerations

- Full size nursery plants should be spaced taking into consideration their mature size, which will be on the label. Lay them out in your space before you plant them. Space them so that they will adjoin one another when they are full sized. Install groups of at least 3, depending on the size of your site. Larger groups of 5 or 7 are even better!
- Masses and drifts of plant groupings have more visual impact and look more attractive than random, “dotty” arrangements. Groupings like this occur in nature and make forage and nectar sources easier to find for the pollinators who rely on particular plants.

**LINCOLN CONSERVATION COMMISSION
BUFFER ZONE RESTORATION GUIDELINES**

Planting 101

- Dig the hole as deep as the root ball and twice as wide.
- Check to see if the soil around the hole is too hard - if it is, loosen it up a bit with the shovel.
- Remove the container from the root ball. - The roots are like the plant's blood vessels and they work best if they are not all twisted and knotted up, so you might need to straighten them out if they are circling around after having grown in the container.
- Place the tree/shrub in the hole, making sure the soil is at the same level on the tree as when the tree grew in the garden center. If your tree has burlap around the root ball, place the tree in the hole and then carefully untie the burlap. Leave the burlap lying in the bottom of the hole - this is okay - the burlap will simply turn into organic matter over a period of time.
- Fill in around the root ball with soil and pack the soil with your hands and feet to make sure that there are no air pockets.
- Make a little dam around the base of the plant as wide as the hole with left over soil or grass clumps to hold in the water.



Groundcovers 101

- Groundcover plants inhibit weeds and eliminate the need to add mulch every year. Plugs are the quickest way to cover the ground economically. They might look puny the first year, but they are adaptable and will be full and well established in a couple of years.
- Space ground cover plugs 12” apart on center. Over time you can edit them as needed.

Ground Stabilization

- Add wood chips around new plantings to retain moisture and suppress weed competition as the new plants get established.
- Place fine and coarse woody debris within the restored area. There should be logs, various sized branches, and even leaf litter placed in the area to provide these habitat features.

4 - MONITORING OF RESTORED AREA

Applications of fertilizers or pesticides are not allowed in the buffer zone or Riverfront Area without Conservation Commission review and approval. Maintenance should be limited to invasive species removal to maintain native plant diversity. If restoration is a requirement of a Conservation Permit, it is the responsibility of the landowner to (1) ensure that at least 75% of the surface area of the restoration area be re-established with native plants within two growing seasons; (2) remove invasive species that grow within the restoration area; and (3) replace trees, shrubs, and groundcover that do not survive.

**LINCOLN CONSERVATION COMMISSION
BUFFER ZONE RESTORATION GUIDELINES**

INTERNET REFERENCES

Check out these key resources to help select native plants, identify invasive plants to remove, and practical tips for creating a pollinator friendly yard.

Plant Identification

- Go Botany - Learn about native species in New England and check other common garden plants to see which are native <https://gobotany.nativeplanttrust.org>

Native Plant Resources

- The principles of ecological gardening - See Native Plant Trust's Ecological Gardening Page for a downloadable Pollinator-gardening Manual and much more: <https://www.nativeplanttrust.org/for-your-garden-2/ecological-gardening/>
- Lincoln Land Conservation Trust's Pollinator Toolkits and Action Plan - <https://lincolnconservation.org/pollinators/toolkits/>
- Weston Nurseries has great information about planting native plants: <https://www.westonnurseries.com/natives/>

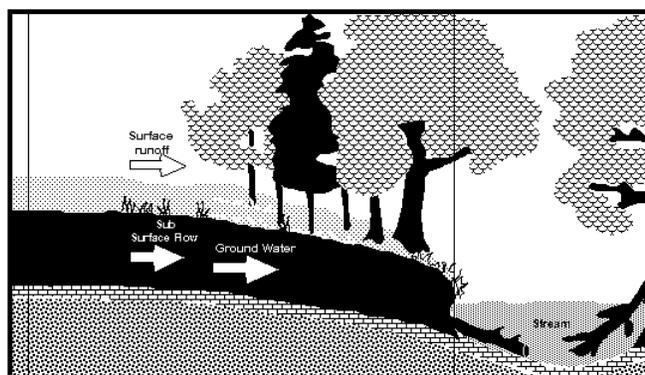
Learn to Identify Invasive Plants (for removal)

- Learn about non-native plants threatening our local habitats, and how you can control them in your own backyard! The Lincoln Land Conservation Trust and Conservation Department have collaborated to release a free booklet about invasive plants and native alternatives that can be viewed here. <https://lincolnconservation.org/wp-content/uploads/2022/11/Invasives-Booklet-Draft-2022-Final.pdf>. Copies are available at the Lincoln Conservation Office.
- Invasive plants Info - Be sure **not to plant invasive species**, one of nature's major threats. See: https://www.nativeplanttrust.org/documents/321/Managing_Common_Invasives_40519.pdf

Get Professional Help

- List of landscape designers who can assist you in your buffer zone restoration project (Select "MA" but leave the zip code blank): <https://www.ecolandscaping.org/member-directory/>

A buffer zone (between the 2 vertical lines) allows water to slow down and be filtered before it empties into the stream or wetland. This helps keep our groundwater and surface waters cleaner.



SUGGESTED NATIVE PLANTS

For a complete listing, consider downloading Native Plant Trust's plant list at:
<https://www.nativeplanttrust.org/for-your-garden-2/buy-native-plants-new/>

Easy Plants for Dry Soils

TREES

- Sassafras albidum* - Sassafras
- Quercus Alba* - White Oak
- Quercus rubra* - Northern Red Oak
- Pinus strobus* - Eastern White Pine



Sassafras

SHRUBS

- Amelanchier* species - Serviceberry
- Cornus racemosa* - Gray Dogwood
- Ilex glabra* - Inkberry Holly
- Kalmia angustifolia* - Sheep Laurel
- Myrica pensylvanica* - Morella carolinensis - Bayberry
- Rhododendron vaseyi* - Pink-shell Azalea
- Rosa virginiana* - Virginia Rose
- Spiraea alba var latifolia* - Meadowsweet
- Vaccinium angustifolium* - Lowbush Blueberry
- Vaccinium pallidum* - Hillside Blueberry

GROUND COVER AND HERBACEOUS PLANTS

- Antennaria* species - Pussy-toes
- Aquilegia* species - Columbine
- Asclepias tuberosa* - Butterfly Weed
- Carex pensylvanica* - Pennsylvania Sedge
- Gaultheria procumbens* - Wintergreen
- Helianthus maximiliani* - Maximilian Sunflower
- Heuchera cultioars* - Alumroot, Coralbells
- Houstonia caerulea* - Bluets, Quaker Ladies
- Iris verna v. smalliana* - Clumping Dwarf Iris
- Maianthemum canadense* - Canada Mayflower
- Potentilla tridentata* - Three-toothed Cinquefoil
- Rudbeckia fulgida* - Black-eyed Susan
- Ruellia humilis* - Wild Petunia
- Schizachyrium scoparium* - Little Bluestem
- Waldsteinia fragarioides* - Barren Strawberry

FERNS

- Dennstaedtia punctilobula* - Hayscented Fern
- Polystichum acrostichoides* - Christmas Fern

Easy Plants for Moist Soils

TREES

- Acer Rubrum* - Red Maple
- Betula nigra* 'Heritage' - River Birch
- Cercis canadensis* - Eastern Redbud
- Liriodendron tulipifera* - Tulip Tree
- Quercus rubra* - Red Oak
- Quercus palustris* - Pin Oak



Red Oak

SHRUBS

- Amelanchier canadensis* - Serviceberry
- Clethra* spp. - Sweet Pepperbush
- Cornus alternifolia* - Pagoda Dogwood
- Hamamelis virginiana* - Common Witchhazel
- Ilex verticillata* - Winterberry
- Kalmia latifolia* - Mountain Laurel
- Rhododendron vaseyi* - Pink-shell Azalea
- Sambucus canadensis* - Elderberry
- Vaccinium corymbosum* - Highbush Blueberry
- Viburnum dentatum* - Arrowwood
- Viburnum nudum* - Witherod Viburnum

GROUND COVER AND HERBACEOUS PLANTS

- Arisaema triphyllum* - Jack-in-the-Pulpit
- Symphytotrichum novae-angliae* - New England Aster
- Camassia leichtlinii* 'Blue Danube' - Camas Lily
- Coreopsis tripteris* - Tall Coreopsis
- Eupatorium* species - Joe-Pye Weed
- Geranium maculatum* - Wild Geranium
- Lobelia cardinalis* - Cardinal Flower



Jack-in-the-Pulpit

Maianthemum - Smilacina stellatum - Star Flower
Parthenocissus quinquefolia - Virginia Creeper
Phlox divaricata - Wood Phlox
Podophyllum peltatum - Mayapple

GROUND COVER AND HERBACEOUS PLANTS (CONT.)

Rudbeckia fulgida v. sullivantii - Black-eyed Susan
Stylophorum diphyllum - Celandine Poppy
Trillium grandiflorum - Showy Trillium
Uvularia sessilifolia 'Variegata' - Wild Oat Lily

FERNS

Athyrium filix-femina - Lady Fern
Matteuccia struthiopteris - Ostrich Fern

Summary

By choosing native plants suited to the site conditions, little maintenance, chemical fertilizers, herbicides, or additional watering will be necessary for the plants to thrive. This all adds up to time and cost savings as well as a healthier habitat for you and the wildlife that inhabit your yard.

Easy Plants for Wet Soils

TREES

Platanus occidentalis - American Sycamore
Quercus palustris - Pin Oak
Acer Rubrum - Red Maple
Fraxinus Pennsylvania - Green Ash



Green Ash

SHRUBS

Aronia arbutifolia - Red Chokeberry
Ilex glabra - Inkberry Holly
Ilex verticillata - Winterberry
Lindera benzoin - Spicebush
Rhododendron viscosum - Swamp Azalea
Vaccinium corymbosum - Highbush Blueberry

GROUND COVER AND HERBACEOUS PLANTS

Asclepias incarnata - Swamp Milkweed
Caltha palustris - Marsh Marigold
Camassia species - Camas Lily
Liatris spicata - Marsh Blazing Star
Lobelia cardinalis - Cardinal Flower
Symplocarpus foetidus - Skunk Cabbage

FERNS

Osmunda cinnamomea - Cinnamon Fern
Osmunda claytoniana - Interrupted Fern
Osmunda regalis - Royal Fern



Cinnamon Fern

LOCAL NURSERIES THAT SELL NATIVE PLANTS

<p>Bigelow Nurseries, Inc. 455 West Main Street - NOT Rte 20 Northboro, MA 01532 Phone: 508-845-2143</p>	<p>This is a semi-local nursery that has a standard variety of native - and non-native plants. http://www.bigelownurseries.com/</p>
<p>New England Wetland Plants 820 West St. Amherst, MA 01002 Phone: 413-548-8000</p>	<p>These are the experts in wetland plants and will answer questions. They have seed mixes for a variety of conditions. They will ship seed & plants, but they encourage you to pick them up. http://www.newp.com/</p>
<p>Native Plant Trust 180 Hemenway Road Framingham, MA 01701 Phone: 508-877-7630</p>	<p>Native Plant Trust runs 2 nurseries specializing in native plants. One is in Framingham at the <i>Garden in the Woods</i>, the Trust's museum. Their other nursery, <i>Nasami Farms</i>, is in Whately, MA. https://www.nativeplanttrust.org/</p>
<p>Russell's Garden Center 397 Boston Post Rd - Rt. 20 Wayland, MA 01778 Phone: 508-358-2283</p>	<p>This is a semi-local nursery that has a standard variety of native - and non-native plants. A treat to walk in the greenhouses in winter. http://www.russellsgardencenter.com/</p>
<p>Weston Nurseries 93 East Main Street - Rte. 135 Hopkinton, MA 01748 Phone: 508-435-3414</p>	<p>Weston Nurseries has a variety of native plants. http://www.westonnurseries.com/ A new garden store is coming to Lincoln in 2024!</p>

NURSERIES OUTSIDE MA THAT SHIP NATIVE PLANTS & SEEDS

<p>Blue Stem Native</p>	<p>https://www.bluestemnatives.com/</p>
<p>Bagley Pond Perennials</p>	<p>https://bagleypondperennials.com/</p>
<p>Izel Nursery</p>	<p>https://www.izelplants.com/</p>
<p>Prairie Moon Nurseries</p>	<p>https://www.prairiemoon.com/</p>

Town of Lincoln Conservation Commission Native Plant Restoration Form

(Please complete If restoration is a requirement of a Conservation Permit

Name _____

Address _____

Location of Restoration Area _____

Size of Restoration Area - square feet _____

Name and Type of native vegetation to be planted

Tree Saplings: 6-8' tall; 1 for every 150 square feet

Common Name	Latin Name	Quantity
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_____	_____	_____
_____	_____	_____

Shrubs; 24" tall: 1 shrub for every 80 square feet

Common Name	Latin Name	Quantity
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_____	_____	_____
_____	_____	_____

Groundcover: 1 herbaceous plant for every 10 square feet (or seed mix)

Common Name	Latin Name	Quantity
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_____	_____	_____
_____	_____	_____

Nursery where plants will be purchased _____

Proposed date of planting _____

**Please attach a sketch plan of Restoration Area
With the approximate location of plantings
at a scale of 1"=10'.**