

Dover Conservation Commission

(Approved by Commission August 2022)

Wetlands Buffer Zone Restoration Guidelines

Note: These Guidelines are based on Mass. DEP and MACC guidance and reference materials.

“Wetlands are the kidneys of nature.”

Maintaining or restoring a small living filter of native vegetation along wetlands will intercept pollutants, slow down runoff from adjacent land, provide wildlife habitat, and eliminate the need for watering and use of fertilizers, pesticides and herbicides.

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.

NATIVE PLANTS:

- Do not require fertilizers
- Do not require pesticides or herbicides
- Require less water than lawns
- Help reduce air pollution
- Provide shelter and food for wildlife



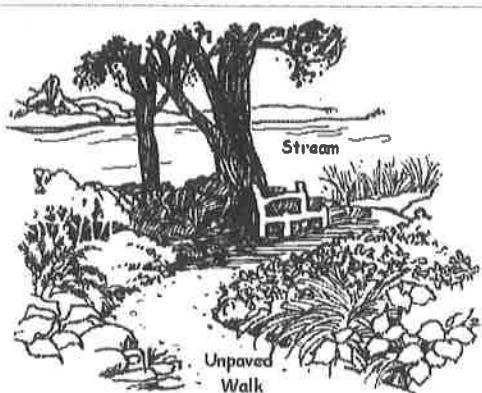
Tulip Tree

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. The 100 ft. Buffer Zone around a wetland resource area is protected under both the Mass. Wetlands Protection Act and the Dover Wetlands Protection Bylaw to help keep wetlands healthy and do what they do best. Putting native plants back into the 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.

PUTTING A RESTORATION PLAN TOGETHER

1 - DETERMINE SIZE & LOCATION OF RESTORATION



A Buffer Zone with native plantings can be a place to enjoy and provide critical natural functions.

If buffer zone restoration is a requirement of a Wetlands Permit or Enforcement Order, please discuss the restoration location and plan with the Dover Conservation Agent. The Commission may require that you retain the consulting services of a Wetland or Ecological Landscape Professional in developing and implementing your restoration plan. (See Item 4 below).

Generally, the Conservation Commission requires the landowner to restore an area at a ratio of 1:5 of altered area to native vegetation. For example, if a homeowner wishes to construct a 10x10' shed on existing lawn within 50 feet from the wetland edge, then the Commission may allow the shed, depending upon the existing site conditions, and require the homeowner to convert a 100 square foot area of lawn to native plants.

PREFERRED RESTORATION LOCATIONS:

- Areas that abut wetlands or existing native vegetation
- Lawn that exists within the 50-foot No Disturb Setback.

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, Dogwoods, Cherry and Crab Apples.
- **Shrubs** are the middle story that feeds a variety of animals and prevents erosion. Common shrubs are witch hazel, viburnums, blueberries & flowering shrubs
- **Herbaceous Plants** are the lower story and include ferns, wildflowers, and groundcover.

The number of plants from each category (trees, shrubs and herbaceous plants) depends on the total square footage to be restored. As a general rule, the Commission requires the following number and size of restoration plants from each category based on the total square footage:

- One (1) tree, 6-8' tall & 1.5-2" caliper for every 150 square feet.
- One (1) shrub, at least 36" tall or wide, for every 80 square feet. A denser amount of shrubs may be used where trees are not appropriate or desired due to existing site conditions..
- One (1) herbaceous or groundcover plant for every 25 square feet, **OR** a native plant seed mix at the recommended coverage rate.

Therefore if proposed area to be restored equals 300 square feet, the land owner should plant 2 trees, 4 shrubs, and 12 ferns, wild flowers or groundcover.



Witch hazel

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 hayscented fern can take over quickly, while Witch Hazel or Joe Pye Weed spreads more slowly.

4 - HIRE A WETLAND OR AN ECOLOGICAL LANDSCAPE PROFESSIONAL TO CREATE A PLAN

(See Appendix 1 for List of Ecological Landscape Professionals)

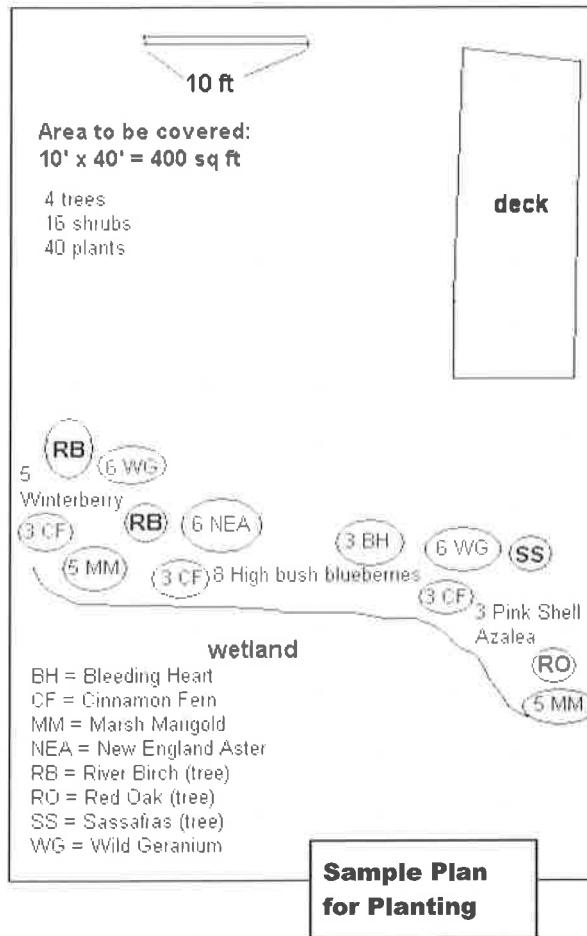
The Commission recommends and may require that the landowner hire a landscape and/or wetland professional with experience in wetland restoration who will assist with the selection of appropriate plants and will draw up a restoration planting plan at a scale of 1"=10' and that will show approximately where the plants will go. Plants should be shown in "clumps" in the restoration area rather than planting them equidistant from each other. Some plants, though, need more room than others.

Plan Submittal: Fill out the form in Appendix 4 and submit that, with your plan, to the Dover Conservation Commission 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 RESTORATION WORK

1 - TIMES TO PLANT



Air pockets leaves roots without soil



Upturned roots leaves plant without water and soil



Rock blocks plant's growth



Tangled roots limits plant's reach for water

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

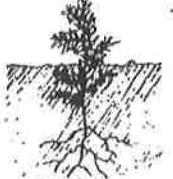
As with any planting, watering may be necessary while the plants are becoming established, especially during a drought or heat wave. Watering seeded areas, however, is usually not mandatory as native species will usually germinate when conditions are most appropriate. Mulch of dead leaves or compost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



Too shallow planting leaves roots exposed



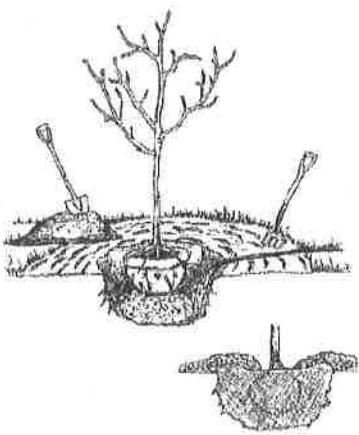
Too deep planting strangles the plant

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 AND SHRUBS

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 tree planting procedures - to make sure the tree has the best chance for a long life.



- 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 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.
- 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 non-organic fertilizers, herbicides and pesticides are prohibited by the Dover Conservation Commission in the wetlands 100 ft. buffer zone. Maintenance should be limited to manual (by hand) invasive species removal to maintain native plant diversity. It is the responsibility of the land owner to ensure that at least 75% of the surface area of the restoration area be re-established with native plants within two growing seasons. The landowner should remove invasive species that grow within the restoration area. It is the land owner's responsibility to replace trees and shrubs that do not survive and the Commission may require the submittal of monitoring reports that provide information on the condition and survival rate of the restoration plantings.



Summary

By choosing native plants suited to the site conditions, little maintenance, no use of 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 and maximum protection of the wetlands.

INTERNET RESOURCES

Appendix 1

(Note: This listing is not inclusive and the Dover Conservation Commission does not endorse any specific vendors or businesses)

FINDING A QUALIFIED ECOLOGICAL LANDSCAPE PROFESSIONAL

Ecological Landscaping Alliance - Provides a list of landscape professionals who promote ecological and sustainable landscape practices and who can assist you in your buffer zone restoration project (click on 'Eco-Directory" link on the website)

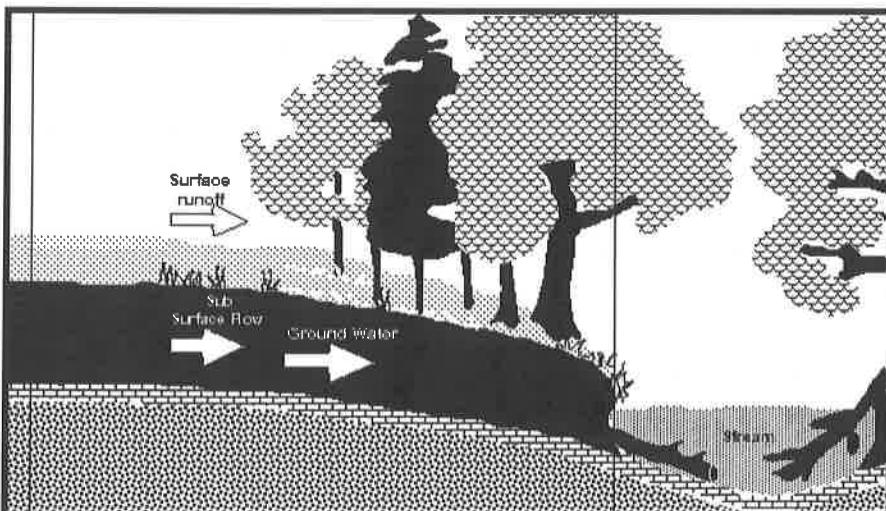
<http://www.ecolandscaping.org>

GUIDANCE ON SELECTING AND PLANTING NATIVE PLANTS

Native Plant Guide and The Plant Nursery at the Native Plant Trust (formerly the New England Wildflower Society) Plant Nursery - Garden in the Woods (Framingham) provides extensive information on native plants and how to convert your lawn into a native landscape as well as avoid and manage invasive plants and is an excellent place to go to see how native plants can be used in landscaping.

<http://www.nativeplanttrust.org>

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 (Including Pollinators and Plants Providing High Food Value for Wildlife)

For a complete listing, please refer to The Native Plant Trust native plant listing at: www.nativeplanttrust.org

Easy Plants for Dry Soils

T R E E S

Quercus Alba - White Oak

Quercus rubra -

 Northern Red Oak

Pinus strobus - Eastern

 White Pine



S H R U B S

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

G R O U N D C O V E R A N D H E R B A C E O U S P L A N T S

Antennaria species - Pussy-toes

Aquilegia species - Columbine

Asclepias tuberosa - Butterfly Weed

Carex pensylvanica - Pennsylvania Sedge

Gaultheria procumbens - Wintergreen

Helianthus maximiliani - Maximilian
 Sunflower

Heuchera cultivars - 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 v. sullivantii - Black-eyed
 Susan

Ruellia humilis - Wild Petunia

Schizachyrium scoparium -

 Little Bluestem

Waldsteinia fragarioides -

 Barren Strawberry

F E R N S

Dennstaedtia punctilobula - Hayscented Fern

Polystichum acrostichoides - Christmas Fern

Easy Plants for Moist Soils

T R E E S

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

S H R U B S

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

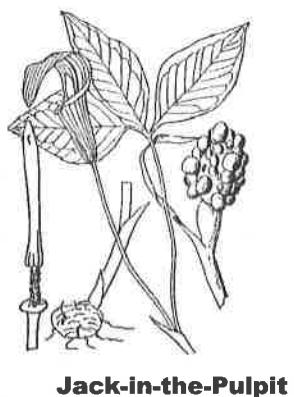


Easy Plants for Wet Soils

Easy Plants for Moist Soils

G R O U N D C O V E R A N D H E R B A C E O U S P L A N T S

Arisaema triphyllum - Jack-in-the-Pulpit
Symphytum 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
Maianthemum - Smilacina stellatum - Star Flower
Parthenocissus quinquefolia - Virginia Creeper
Phlox divaricata - Wood Phlox
Podophyllum peltatum - Mayapple
Rudbeckia fulgida v. sullivantii - Black-eyed Susan
Stylophorum diphyllum - Celandine Poppy
Trillium grandiflorum - Showy Trillium
Uvularia sessilifolia 'Variegata' - Wild Oat Lily



Jack-in-the-Pulpit

F E R N S

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

T R E E S

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



S H R U B S

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

G R O U N D C O V E R A N D H E R B A C E O U S P L A N T S

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

F E R N S

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



Cinnamon Fern

Appendix 3

LOCAL NURSERIES THAT SELL NATIVE PLANTS

(Note: This listing is not inclusive and the Dover Conservation Commission does not endorse any specific vendors or businesses)

Bigelow Nurseries, Inc. 455 West Main Street - NOT Rte 20 P.O. Box 718 Northboro, MA 01532 Phone: 508-845-2143 FAX: 508-842-9245	This is a semi-local nursery that has a standard variety of native - and non-native plants. http://www.bigelownurseries.com/
New England Wetland Plants, Inc 820 West St. Amherst, MA 01002 Phone: 413-548-8000 Fax: 413-549-4000	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. About 1 ½ hours from Dover. http://www.newp.com/
The Native Plant Trust 180 Hemenway Road Framingham, MA 01701 Phone: 508-877-7630 TTY: 508-877-6553	The Native Plant Trust runs 2 nurseries specializing in native plants of all kinds. One is in Framingham at the <i>Garden in the Woods</i> , the Trust's museum - and garden idea center for wildflowers and other native plants. Their other nursery, <i>Nasami Farms</i> , is in Whately, MA. If you want to get creative this is the place for you. http://www.nativeplanttrust.org
Russell's Garden Center 397 Boston Post Rd - Rt. 20 Wayland, MA 01778 Phone: 508-358-2283 FAX: 508-358-2473	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/index.htm
Weston Nurseries of Hopkinton, Inc. 93 East Main Street - Rte. 135 P.O. Box 186 Hopkinton, MA 01748 Phone: 508-435-3414	This is also a semi-local nursery which does some of its own hybridizing. It has a variety of native - and non-native plants. http://www.westonnurseries.com/

Appendix 4

Dover Conservation Commission

Form for Wetlands Buffer Zone Native Plant Restoration Plan

Name of Landowner. _____

Address _____

Location of Restoration Area _____

Size of Restoration Area - square feet _____

Name of Landscape Professional _____

Name and Type of Native Vegetation to be Planted

Tree Saplings; 6-8' tall and 1.5" - 2" caliper inches; 1 for every 150 square feet
Common Name **Quantity**

Shrubs; 36" tall or wide; 1 shrub for every 80 square feet

Groundcover; 1 herbaceous plant for every 25 square feet

Nursery where plants will be purchased

*Please submit receipt to the Dover Conservation Office

Proposed date of planting _____

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