Conservation Landscape Certification Resource Guide
Waldo, Knox-Lincoln Soil and Water Conservation Districts

CORE CRITERIA 1: PROVIDE WILDLIFE HABITAT

Creating Wildlife Habitat

Habitat is a combination of food, water, shelter, and space arranged to meet the needs of wildlife. Even a small yard can be landscaped to attract birds, butterflies, beneficial insects, and small animals. Trees, shrubs, and other plants provide shelter and food for wildlife.

The plants you use for food and cover will help determine the wildlife species attracted to your backyard. Nesting boxes, feeders, and watering sites can be added to improve the habitat.

Planning Your Wildlife Habitat

Planning is necessary for attractive and productive wildlife habitat. You have both a horizontal area to work with -- the size of your lot -- as well as a vertical area that stretches from your soil to the treetops. The vertical area is composed of the canopy formed by the tallest tree branches; understory vegetation consisting of smaller trees, shrubs, and vines; the floor which is often dominated by low-growing groundcovers; and the basement where a variety of organisms exist in the soil. Different wildlife species live in each of these zones, so numerous habitats can be provided on a small piece of land.

Trees and shrubs are the backbone of any landscaping design and are important for wildlife shelter. Many tree and shrub species are excellent sources of food for wildlife. Proper selection of plant material can meet both the aesthetic needs of the homeowner and the food and shelter needs of wildlife. Remember that you are part of the habitat!

Steps to Create Habitat for Wildlife

1. Identify all existing plants, if any. Note:
    - Condition of the plants and their locations.
    - How much shade the trees and shrubs provide.
    - Are trees evergreen or do they drop their leaves in the fall?
    - Do they provide valuable food sources?
2. Make a sketch of your yard noting all existing plants, buildings, utilities, and pathways. You may even consider removing some plants. In some cases, trees have been planted too close to buildings or have grown much larger than the previous owner envisioned. Some species may be of little wildlife value and may not be particularly attractive. Once

you have identified existing plants you want to save, start exploring options for plants that will work well with these species. The existing plants around your yard may be adequate to attract some wildlife, but a few changes can effectively enhance the existing habitat. Diversity in the landscape is necessary. Some plants provide food but very little cover; others provide cover but little food.

3. Add trees, shrubs, flowers, and groundcovers to your plan. Not all the planting needs to be done at once. If money or time is limited, consider it a work in progress.
4. Plant a variety of trees first. Select evergreen species for year-round cover and shelter. Select fruit or nut-bearing plants for a food source. Native species are well suited for providing wildlife habitat because they are adapted to the local soil, climate, and wildlife. Additional considerations for choosing and placement include:
    - Eventual size. Whether they are evergreen or deciduous (trees that drop their leaves). Deciduous trees planted on the south side of a house will provide summer shade but will not completely block winter sun.
    - Neighboring properties.
    - Flowering and fruiting habit. Select plants that flower and bear fruit at different times of the year. Some shrubs that produce berries can provide food throughout the year. Trees with nuts and fruit can also provide seasonal foods.
5. Fill in with smaller shade-tolerant understory trees and shrubs. Adding these to an existing landscape will enhance the vertical structure that is common in natural landscapes. Many smaller trees and shrubs are colorful in the spring when they flower and provide berries for fall and winter feed.
6. Flowering annuals (plants that live one growing season) and perennials (plants that live for more than a year) add color to the yard and can be added at any stage to attract birds and butterflies. If your yard is large, consider using part of it for tall native grasses that provide beauty, as well as a natural source of food and shelter. A native wildflower garden provides the same function. Even on a small lot, native wildflowers, as well as some common garden species, can provide attractive habitat for a variety of birds and butterflies. Avoid straight lines and perfect symmetry. Natural habitat has curves and clumps of vegetation. Wildlife is not particularly attracted to a well-manicured lawn. Wildlife is more likely to come out into the open for viewing when the boundary of the yard is designed and maintained as a retreat for animals**.**

Landscaping for Birds

Food and cover are essential for the survival of all species. Loss of suitable nesting sites is a major factor in the decline of some bird species. In the wild, many species nest in cavities of dead trees. With the loss of hedgerows in some parts of the country and the removal of dead trees in towns, natural nesting sites are often limited. Also, some highly competitive, non-native species of birds have taken over some of the existing nesting sites once occupied by native birds.

Bird species are extremely variable in their habits. Some like deeply wooded areas; others prefer open fields and meadows. Many species are year-round residents, while others such as the cedar waxwing appear only for a few days a year during migration. Other species such as sparrows, blue jays, cardinals, robins, juncos, and chickadees are highly adaptable and found in many environments.

Many people are not aware of the value of dead, dying, and hollow trees, as well as logs on the ground, for birds and other wildlife. Dead trees provide homes to more than 400 species of birds, mammals, and amphibians. Fish, plants, and fungi also benefit from dead and dying trees. Consider leaving standing dead and dying trees in your yard unless they pose a human safety or property hazard and use old logs and stumps in gardens and landscaping.

Plant Species for Birds

See plant lists and recommended books for plants that provide wildlife habitat value. Remember most native plants support native insects which are now in decline.

Online Resources and Organizations for Wildlife Habitat

National Audubon Native Plants for Birds Database https://www.audubon.org/native-plants

National Wildlife Federation https://www.nwf.org/Garden-for-Wildlife/Create Many ideas and a step-by-step process for creating wildlife habitat.

Of Pools and People http://www.vernalpools.me/ Lot of resources for learning about vernal pools, which are a very important habitat in our forests.

Xerces Society https://xerces.org/ Lots of beautiful, useful books and publications on helping insects from bees, butterflies and other pollinators as well as other native beneficial insects.

Cornell University's All About Birds https://www.allaboutbirds.org/news/ Lots of ways to learn about, help and enjoy birds on your landscape.

#BringBirdsBack https://www.3billionbirds.org/ Strategies for stopping the steep decline in birds.

Bat Conservation International https://www.batcon.org/ Build bat houses and other information on helping bats.

Maine Audubon http://maineaudubon.org/publications-resources/ offers many relevant guides to managing land for habitat.

CORE CRITERIA 2: PRACTICE SOIL & WATER CONSERVATION

Introduction

Soil & Water Conservation Districts exist for these two critical resources. Nationwide, we seek to support best management practices for landowners via education, outreach, and technical assistance. Districts know that successful landscapes whether existing or newly planted, designed or wild, will only survive—and thrive—if plants are growing in adequate soil and receiving regular water whether it is for horticultural or agricultural purposes. We also know humans create large amounts of built landscape—roads, driveways, buildings, parking lots, etc. It is critical to address stormwater runoff to avoid erosion and potential contamination of nearby waterways. Each property can be considered a piece in the fabric of the larger landscape—all connected. Therefore, each landowner's soil and water conservation efforts on the landscape contribute to a cumulative collective impact in best management practices, conserving our land and water for generations to come.

Soil

Soil is an entire ecosystem beneath our feet! It is comprised of water (25%), air (25%), minerals (45%) and organic matter (5%). The texture of the mineral content and organic matter create different soil textures: sand, silt, loam and clay. Combining these elements with the parent material (mineral content), climate, topography, biological factors, and time and you will get one of the 20,000 types identified here in the United States! Each of these soil types support different plant and animals accordingly. Our soils provide foundations for our buildings, farms, gardens, and infrastructure. Every time we disturb it, soil particles and anything attached to it, especially pollutants can runoff into our water resources. As a result, it is important to keep our soils intact by keeping

Soil Resources

What type of soil do I have? Use one of the following online resources to get a soil map of your property.

Web Soil Survey https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Soil Web https://casoilresource.lawr.ucdavis.edu/gmap/

How can I improve my soil? Test it!

Testing your soil: https://extension.umaine.edu/publications/2286e/

Interpreting your soil test results: https://umaine.edu/soiltestinglab/

Soil Best Management Practices

Maine DEP: https://www.maine.gov/dep/land/erosion/escbmps/index.html

Soil Health: https://soilhealthinstitute.org/

Composting

Umaine Cooperative Extension has abundant resources
https://extension.umaine.edu/gardening/manual/composting/

Build your own compost bin or box:
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/60161e28f0007e386c412da2/1612062248308/building-compost-bins_cornell.pdf

Erosion Control Mulch
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/5fd65724b1c3f31c7a7fb0fe/1607882532528/Erosion_Control_Mix.pdf

Comprehensive List of Erosion Control Practices and Resources

https://www.knox-lincoln.org/conservation-practices

Water Conservation

Water is critical for life. Here in Maine, we are fortunate to have an abundance of both fresh and salt water alike contributing to drinking water, recreation, fisheries, agriculture and more. Whether you live on top of a mountain of right on the coastal shoreline, you live in a watershed. 50% of all rainfall ends up as runoff traveling across surfaces and ending up in the nearest stream, river, lake, or ocean. That means what you do on your property can help—or hurt—the watershed you live in. Thus, every additional measure you take to infiltrate, divert or use rainfall on site will reduce potential nonpoint source pollution in your communities' waterways.

<u>Some facts about water here in Maine:</u>

6,000 lakes and ponds

30,000 miles of rivers and streams

3,478 miles of tidal shoreline

Average annual rainfall: 42 inches[1]. Equivalent to 73,500,000 acre-feet or 24 trillion gallons[2].

Run-off: About 50% of precipitation, or about 12 trillion gallons, runs off the landscape in streams and rivers[3].

Evaporation/transpiration: About 30-40% of rainfall evaporates or is transpired through vegetation[3,5]. This equals about 7-10 trillion gallons.

Infiltration to groundwater: About 10-20% of precipitation infiltrates to recharge groundwater[3]. This is about 2-5 trillion gallons annually.

50% people are getting drinking water from public water systems and 50% have wells.

Our fisheries support our economy:

- Wild brook trout $300 million
- Lobster $1.5 billion
- Aquaculture $137 million

Suggestions to help protect our soil and water resources:

- Get your soil tested! Contact your local SWCD to get a test kit. Let the experts guide you with appropriate amendments, if needed.
- Compost veggie/fruit waste, leaves and grass clippings to reuse in garden beds
- On slopes where plants cannot grow successfully spread erosion control mulch
- Install rain barrel(s) off gutters to use rainwater in garden beds or potted plants
- If structures lack gutters, install a drip edge to help infiltrate the runoff
- Maintain gravel roads and driveways
- Install open bottom culverts or bridges in place of standard circular culverts
- If you have significant land use concerns or need a specialized plan, contact a licensed site evaluator: https://www.mainese.com/

Online Resources for Water Conservation

Buffer Plantings

Landscaping at the Water's Edge:
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/601617fb31367d7eb9b23bdd/1612060675760/Resource004159_Rep5940.pdf

Buffer Handbook:
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/6016182d3bc1b048411e0192/1612060726740/buffhandbook.pdf

Buffer Plant List:
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/60161861264e0108022ce21f/1612060775280/buffer_plant_list.pdf

Planting and Maintaining Buffers:
https://static1.squarespace.com/static/5f29bae933f80a3131b6ba93/t/601618892d18b947f90a5004/1612060809320/PLANTING+and+MAINTAINING+BUFFERS.pdf

Lake Water Quality

LakeSmart Program: https://www.lakes.me/lakesmart

Streams

Stream Crossings: StreamSmart Program**:** https://maineaudubon.org/projects/stream-smart/

Vernal Pools

Of Pools and People: A great place to start for vernal pools resources:
http://www.vernalpools.me/

CORE CRITERIA 3: CONTROL INVASIVE SPECIES

Invasive Plants

Invasive plants and insects pose serious risks to the biodiversity and functionality of our ecosystems as well as for producing lands including forests and agriculture. Many landowners have invasive plants on their land or nearby and want to understand how to control them or prevent infestation.

What are invasive plants?

In Maine a plant is considered invasive if it:

1. Is not native to Maine
2. Has spread (or has the potential to spread) into minimally managed plant communities (habitats)
3. Causes economic or environmental harm by developing self-sustaining populations that are dominant or disruptive to native species

Invasive plants are a direct threat to what we value about Maine's natural and working landscapes. The aggressive growth of invasive plants increases costs for agriculture, can affect forest regeneration, threatens our recreational experiences, and reduces the value of habitats for mammals, birds and pollinators. Species like Japanese barberry and multiflora rose can form thorny, impenetrable thickets in forests and agricultural fields.

Invasive species are the second-greatest threat to global biodiversity after loss of habitat. Invading plants out compete native species by hogging sunlight, water, nutrients, and space. They change animal habitat by eliminating native foods, altering cover, and destroying nesting opportunities. Some invaders are so aggressive they leave no room for our natives.

Controlling Invasive Plants

There are two basic approaches to the address terrestrial invasive plants: mechanical and chemical.

Types of Mechanical Removal

- Physical (hand digging or machines)
- Cultural (interplanting with natives—"suppressing invasive spread")
- Biological (use of insects, bacteria, or other means to reduce/eliminate invasive)

Types of Chemical Removal:

- Foliar –spraying leaves
- Basal Bark—spraying bark around the base of the invasive plant.
- Cut-stump—Mechanical removal of above ground portion of plant. Then treat fresh cut stump. Chemical absorbed systemically.

Suggestions:

- Identify any/all invasive plants you find on your property

- Look for insect and disease pests such as hemlock wooly adelgid (exclusive to Hemlock), Asian Long horned Beetle, Beech Leaf Disease and others; Contact Maine Forest Service if any are found.
- Pull any early detection species as soon as possible to prevent further spread. See list of widespread vs early detection plants in source list.
- Use iMapInvasives app to mark your plants. This will create a map(s) and management tracking tool for you. It is a free service managed by the State of Maine for tracking spread of invasive species.
- Create a plan to manage species identified. If more than one plant/pest is identified, and especially if they are numerous, it can seem overwhelming. Prioritize your efforts. Remember they didn't establish overnight. It will take time to reclaim and restore your landscape.

Online Resources and Organizations for Invasive Species

- The **Maine Forest Service** [link to http://www.maine.gov/dacf/mfs/] provides information and assistance with forest insect pests and other pathogens.
- The **Department of Agriculture, Conservation and Forestry, Horticulture Department** has much more information on invasive plants here. [link to http://www.maine.gov/dacf/php/horticulture/invasiveplants.shtml]The site includes recommendation for plants to replace invasive plants. Maine's new rules regarding the sale of invasive plants are available on this website.
- **Invasive Plants in Maine - Maine Natural Areas Program** Invasive and potentially invasive plants list for Maine, with fact sheets for each**.** http://www.maine.gov/dacf/mnap/features/invasive_plants/invsheets.htm
- **Invasive.org -** A great starting place, with numerous images of each plant, and concise, thorough fact sheets on different species. The link Species is where you can find info pages on each plant and pictures as well as additional links. http://www.invasive.org/index.cfm
  Invasipedia Excellent literature summary articles on most invasive plants, more in-depth than fact sheets**.** http://wiki.bugwood.org/Invasipedia
  USDA Forest Service FEIS Database This site provides an in-depth profile of each invasive species, with citations to assist further research.
- https://www.fs.fed.us/database/feis/plants/weed/index.html
- **Imap Invasives - Maine Natural Areas Program** IMap Invasives is an invasives tracking program now available in Maine, with many tools and data resources to help communities and land owners and managers plan for invasives control. http://www.maine.gov/dacf/mnap/features/invasive_plants/imap.htm
  Vermont Invasives Resources Vermont has a well-developed invasives program which includes several excellent guides, available here. http://vtinvasives.org/land/management

- **For aquatic invasive plants- Maine Volunteer Lake Monitoring Program** Many opportunities to volunteer, and they offer some excellent training workshops and materials on aquatic invasives.
- http://www.mainevlmp.org/

CORE CRITERIA 4: PLAN AND PLANT FOR ECOSYSTEM SUPPORT

Introduction

If you nurture native plants present on your property and add a variety of new natives of different sizes you can't go wrong. Adding plants not native to our counties but that grow in southern Maine can both add diverse food and shelter for wildlife and potentially make your landscape resilient for the future as conditions change. If you have a residential lawn, consider adding or keeping plants there other than traditional grass turf. You'll find it is much more interesting and beautiful, and can be great habitat. If you don't have other vertical layers such as shrubs, small trees and large trees, you can begin planting those types of plants. Layering is also more attractive than one level of vegetation.

General Suggestions

- Provide wildlife food such as berry and nut producing plants, winter feeders, and seed and nectar producing perennials.
- Add trees with high wildlife value that also support our native insects such as oaks, willows, birches, cherries and other fruit trees.
- Have areas with different vegetation communities or plant guilds including: meadows, diverse lawn, wetlands, wet meadows and rain gardens, ponds, shrub areas, flower gardens, woods, edge plantings, hedges or tree groves.
- Make sure you have plants of all heights so there are ground level, low shrubs, tall shrubs, small trees and tall trees. A variety of forms such as deciduous, evergreen, herbaceous, vines, grass like and aquatic plants is ideal.
- Create or support diverse plant groups for each type of area on your property, such as sun or shade, dry or wet, forested or open areas.

Lawn

Change up the grass lawn!

- Replace turf grass with low mow, no-water grasses, or spreading cover plantings (such as low fescue grasses and sedges), or even flower or vegetable gardens.
- Create a meadowscape area with beautiful native flowers and grasses
- Create a wet area garden or wet meadow in constantly moist or muddy areas.
- Allow your lawn to create its own blend of wildflowers and grass, or add other plants, such as bluets, clover or violets. Dandelions are great for bees early in the season!

Create a healthy, vigorous lawn with less chemicals: A lawn with healthy soil and no pesticides will support soil dwellers that feed birds and their offspring, and is better for children and pets.

- Manage turf without weed killers, instead do the following to suppress weeds:
- Leave clippings (mow with a mulching mower)
- Mow high: Let grass grow taller to outcompete weeds, with the blade set at 3 inches high or more.
- Fertilize young lawns with a nitrogen (10-0-0) fertilizer. Older lawns just need clippings or perhaps a top dressing of compost.
- Add perennial ryegrass or fine fescue seeds over lawn for a boost.
- Use a rain gauge to know how much to water. Lawns need just a little more than 1 inch of water per week…or let your lawn go dormant during summer drought.
- Hand pull or spot treat weeds.
- Do a soil test to find out what your yard or garden needs.
- Beneficial organisms can be added to fight pests, including nematodes, fungi, or bacteria.
- Add or keep moss, lichen, and acid loving plants if your soil is suited to that.
- Remove invasive plants! See Criteria 3 on our website for more information and resources.
- To choose native plants that provide food for birds, wildlife and beneficial insects, see the plant lists below.
- Let a lawn, pasture or field grow into a meadow. Mow once a year in late fall to encourage a variety of plants to grow and to protect wildlife, and create areas to add native plants by seeding or planting. See The Meadow Project for more information, and our recommended book Urban and Suburban Meadows.

Woodland areas

- Enhance woodland areas by planting new species of trees and shrubs.
- Learn which natural communities of plants are present on your property, or perhaps near it if you have a small residential yard. Add plants that often are found in that natural community, and preserve the diversity of plants you already have. See the book Natural Landscapes of Maine by Susan Gawler and Andrew Cutko to identify natural communities in your area.

Native Plant Lists

Maine DACF Site http://www.maine.gov/dacf/php/pesticides/yardscaping/plants/index.htm] or [umaine list] for plants that can be used.

University of Maine Cooperative Extension Native Plant Lists
https://extension.umaine.edu/publications/2500e/ and
https://extension.umaine.edu/gardening/manual/plants-for-the-maine-landscape/

Wild Seed Project Comprehensive Plant List https://wildseedproject.net/comprehensive-plant-list/

National Audubon Native Plants for Birds Database https://www.audubon.org/native-plants

Online Resources and Organizations for Plants and Planting

Yardscaping We recommend the Maine Department of Agriculture, Conservation and Forestry's website on **Yardscaping** [link words to http://www.maine.gov/dacf/php/pesticides/yardscaping/index.htm] for many helpful tips on healthy residential landscaping.

The Wild Seed Project http://wildseedproject.net/ A wonderful resource on native plants, with many excellent articles. They also sell Maine native plant seeds.

UMaine Cooperative Extension A large library of short publications to help with many aspects of caring for land, including native plant lists and guides.

National Audubon Society Native Plant Database https://www.audubon.org/native-plants Just type in your zip code for a custom list of native plants that support birds and wildlife. The site also lists native plant nurseries and seed sources.

Eco Landscape Alliance https://www.ecolandscaping.org/ A wealth of articles on ecological landscaping, as well as many online and in person educational workshops throughout New England.

Native Plant Trust https://www.nativeplanttrust.org/ A fantastic resource for learning about native plants and plant conservation, and their online key Gobotany is the best place to identify New England native plants for beginners and experts alike. Resources include lists of native plants to use for different purposes.

Landscape for Life http://landscapeforlife.org/ This site offers excellent lessons on soil, water, plants and other topics, based on the Sustainable Sites Initiative. Teacher lesson modules are also available on these topics.

The Meadow Project https://themeadowproject.com/ A resource site for meadowscaping.

CORE CRITERIA 5: IMPLEMENT ORGANIC AND INTEGRATED PEST MANAGEMENT PRACTICES

This content will be added in spring and summer of 2022.

CORE CRITERIA 6: MISC. OPTIONAL PRACTICES

This content will be added in spring and summer of 2022.