Why YardScape?

YardScaping helps build healthy soil to grow all kinds of landscapes from lawns to rain gardens and minimizes your reliance on pesticides, fertilizers, and watering.

Benefits of YardScaping

- Creates a low-maintenance yard that saves you money, time, and effort.
- Makes your yard more functional for how you want to use it.
- Makes your yard more resistant to pests and prepared for drought.
- Puts native and native-friendly plants where they want to grow.
- Attracts more birds, butterflies, and other wildlife.
- Uses less water.
- Builds up organic matter in your soil to retain nutrients and moisture.
- Prevents erosion and drainage issues.
- Protects our water! Yard care products like fertilizers and pesticides can be carried by stormwater runoff to our local streams, rivers, ponds, lakes, and bays and make them unsafe to drink, fish, and swim in.

Quick Tips

- **Test your soil.** Check your soil's ability to drain water with a percolation test and check its chemistry (pH, organic matter, heavy metal levels, and nutrient amounts) with a University of Maine soil test.
- **Make a site design.** Plan your landscaping based on use, infrastructure, sun exposure, soil drainage, and soil chemistry. Consider adding improvements for pollinators and other wildlife too!
- **Build your soil.** Based on your soil chemistry results, add any needed organic matter and nutrients through materials like compost and compost tea.
- **Water wisely.** Use a rain gauge to determine if you need to provide additional water to your gardens and lawn. Most plants like about an inch of water a week. Water deeply and infrequently to help your plants grow wide and deep roots.

Just look for the duck!

We partner with local nurseries, hardware stores, and Home Depots to mark products and plants that align with YardScaping practices to help streamline your choices.

CUMBERLAND COUNTY SOIL & WATER CONSERVATION DISTRICT

www.cumberlandswcd.org | 207.892.4700 | EOE

Site Design

Before you start:

- Call DigSafe at 811 for your underground utilities.
- Confirm plans with municipal Code Enforcement (possibly DEP and ACOE).

1. Map Your Property

Make a copy of your property map and pull some aerial pictures to determine your boundary lines and general layout.

2. Identify Property Details

Mark the following:

- Underground infrastructure like utility lines, irrigation systems, and septic
- Buildings, driveways, and other existing structures
- Setbacks or right of ways
- Waterbodies, wetlands, or areas with significant slopes
- Areas with invasive plants, erosion, poor soil conditions, and less than 6 hours of sunlight
- Your high use areas and where to keep lawn

3. Identify Water Movement

Where does water flow on your property? Does it collect somewhere during a storm?

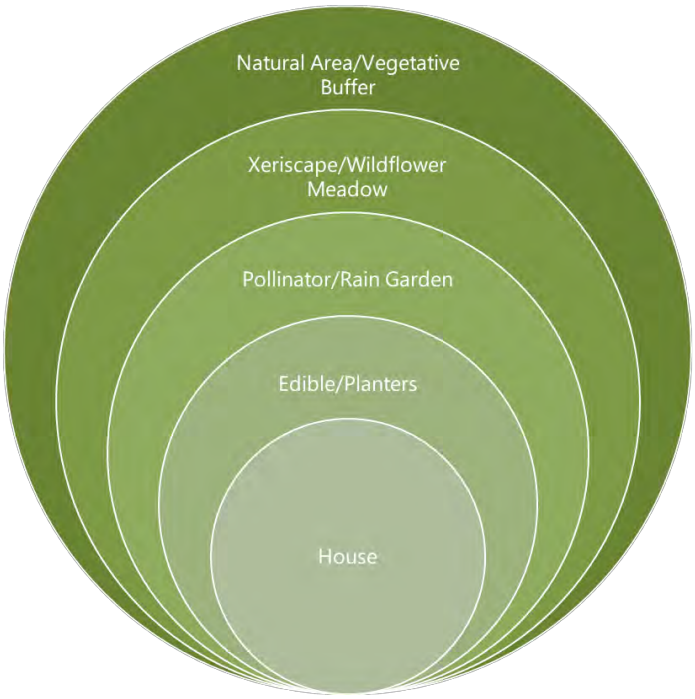
If your roof has gutters, measure your roof's square footage and multiply by 1/12 to install enough rain barrels at the downspouts to capture a 1" rainstorm for later watering use.

4. Test the Site

Take a soil test and do a percolation test at the site to confirm your planned garden or landscape will succeed there.

5. Design for Maintenance Zones

Plan your design based off the concept of having landscapes that need daily attention for watering or harvesting closest to you and water sources. Place your lower maintenance landscapes further out. Your yard might not have all of these zones due to its size, shape, or location, and that's okay!



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Ticks & Mosquitos

Personal Protection is Key

Wear light colored clothing, long-sleeved shirts, long pants tucked into socks, and mosquito netting around your head when spending lots of time outside. Use insect repellants. Find one that works for you at: https://www.epa.gov/insect-repellents.

Examine gear and pets before returning indoors. Conduct a full body tick check and carefully remove any found. Dry clothing on high heat for one hour to kill any ticks.

Walk in the center of cleared trails and avoid brushing up against vegetation.

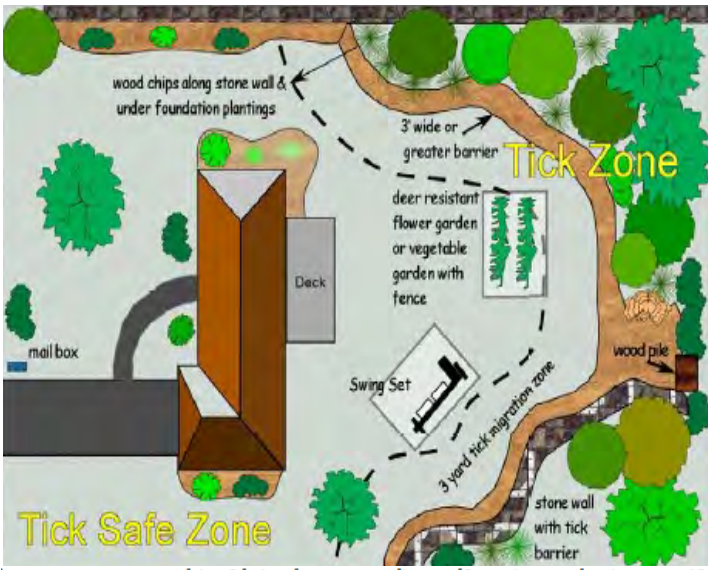
Discouraging Mosquitos in Your Yard

- Prevent water from gathering in rain gutters, buckets, toys, and other containers.
- Put a screen over your rain barrels.
- Refresh water in wading pools, birdbaths, and animal water dishes weekly to eliminate larvae.
- Remove or trim dense vegetation around doors and windows where adult mosquitos like to rest.
- Use fans to create breezes.
- Provide housing or habitat for predators such as dragonflies, bats, birds, and frogs that eat mosquitos.
- Install and maintain tight-fitting screens on windows and doors.
- Use outdoor lights with motion sensors to reduce insects hanging out by entry doors and outdoor spaces.
- Use pyrethrum or citronella candles to reduce mosquito bites in limited areas.
- Use properly placed carbon dioxide traps to deter mosquitos.

Landscaping Changes for Tick Reduction

In your high use yard areas, like around patios, gardens, and playsets, use the following maintenance tips:

- Create open space in your yard by trimming or removing trees to let in more sunlight. Sunny areas are less likely to harbor deer ticks.
- Mow lawns to 3" and clear leaf litter and brush from your high use areas.
- Discourage close proximity of tick hosts (deer and small animals) by moving woodpiles and birdfeeders away from your home and plant native deer resistant plants.
- Create a combined 12' wide zone of fencing or woodchips and lawn between the woods and your yard high use areas.



www.maine.gov/dacf/php/gotpests/bugs/factsheets/ticks-ct.pdf

Find a Comfortable Balance

Ticks and mosquitos are part of Maine's outdoors. Completely eliminating these pests can cause more harm to our environment than personal benefits.

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Soil Test

What's a soil test?

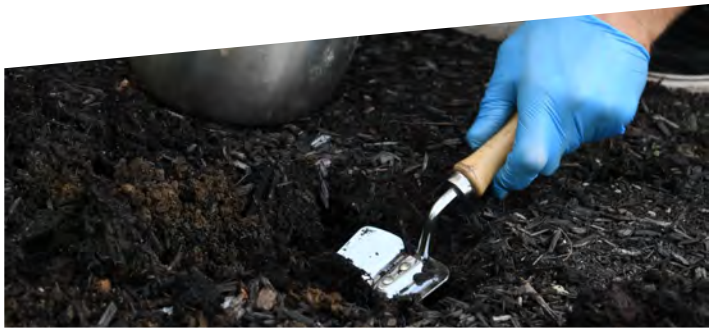
A soil test is an easy and inexpensive way to determine your soil's level of nutrients, pH, and organic matter, all of which impact plant growth. A soil test will save you time and money by telling you to **add only what your soil needs**.

When to Test

A soil test should be done at least every three years and before you decide to add any fertilizer or lime to your lawn. The ideal time of year to test your soil is mid to late spring or early fall.

Collect a Sample

1. **Take several samples** 3" (lawn), 6" (most herbaceous plants), or 12" (trees and shrubs) deep in different locations of a garden or section of yard with a clean trowel. Remove any large leaves, roots, and sticks from your sample.
2. **Mix the samples** in a clean container. If soil is wet, allow it to dry.
3. **Label the sample box** with your name, address, and sample identification (e.g. front lawn) and fill with soil. If you are sending samples from discrete areas, each must be placed in a separate sample box.
4. **Complete the accompanying form**. The form will accommodate up to 10 samples.
5. **Place the sample box(es), top form, and payment in a mailing container** and send it to the soil testing service at the address on the form.



Test Results

Your results should arrive in two to three weeks. Request your results be emailed to you for faster results and so you can forward them to your local District or Cooperative Extension if you have questions. Results will include information on:

- Amount of organic matter
- Soil pH
- Levels of the nutrients: phosphorus (P), potassium (K), calcium (Ca), magnesium (Mg), and sulfur (S)
- If there is lead contamination
- Fertilizer and lime needs

Free soil test kits are available from Cooperative Extension offices, USDA-Natural Resources Conservation Service offices, or your local Soil and Water Conservation District.

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04/30/2010	3458	Lawn-Exisiting	CUMBERLAND	298 sq. ft
PRINT DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

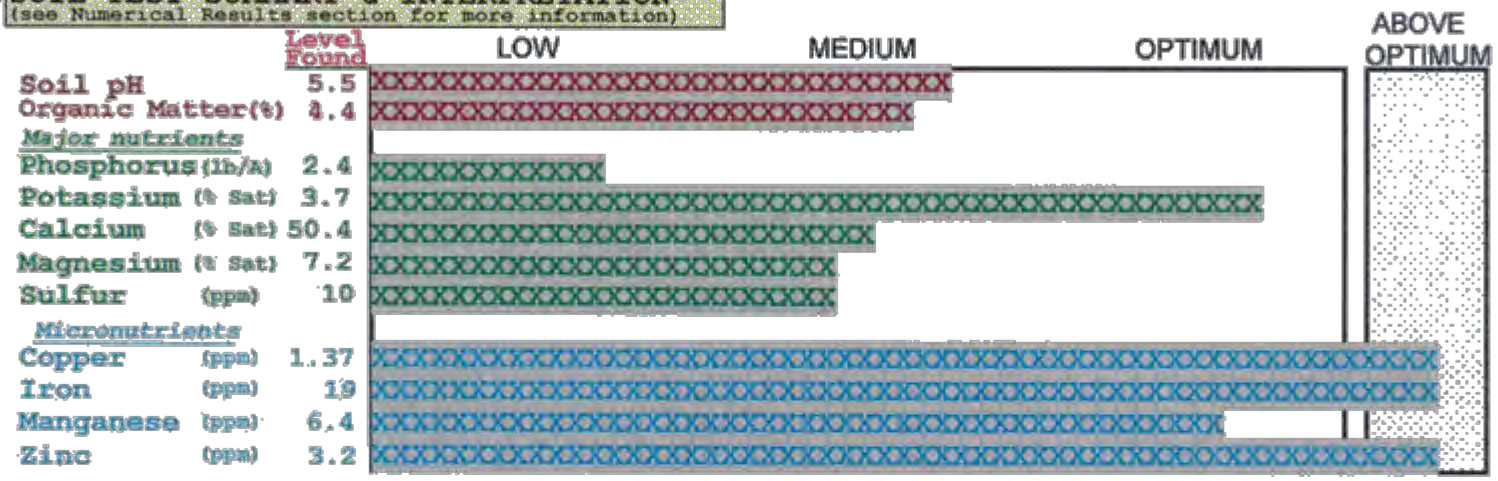
•SOIL TEST REPORT FOR:

EXAMPLE

Exisiting Lawn

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE 1865
5722 DEERING HALL
ORONO,MAINE 04469-5722

•SOIL TEST SUMMARY & INTERPRETATION
(see Numerical Results section for more information)



•RECOMMENDED ADDITIONS FOR EXISTING LAWN - Crop Code # 201

To raise soil pH to 6.0, apply 60 pounds of lime per 1000 sq. ft.

To meet crop magnesium requirement, use a magnesium lime.
Calculated major nutrient requirements as follows:
2.0 pounds nitrogen per 1000 sq. ft.
0.9 pounds phosphate per 1000 sq. ft.
0.7 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:
Apply 10 lb 20-4-8 or 22-6-8 (or similar ratio) fertilizer/1000 sq ft.
Apply 1/2 in early spring and 1/2 in late August.
If clippings are left on, apply only 1/2 rate in late August.
Apply fertilizer when grass is dry and water in immediately to prevent burn.
For organic fertilizers: adjust the rate to provide 1 lb nitrogen/1000 sq. ft.
To supply sulfur, alternate the recommended fertilizer with 5 lb 21-0-0/1000 sq ft, once every other year. Organic fertilizers will also supply sulfur.

For information on micronutrient management and recommendations, see enclosed form.

•NUMERICAL RESULTS

(Test methodology: pH in water and Mehlich buffer, available nutrients by modified Morgan extract)
(Organic matter measured by LOI, P determined colorimetrically, all others measured by ICP-OES)

CEC and nutrient balance calculations assume the pH will be raised to 6.0

	Soil pH	Lime Index 2	Phosphorus (lb/A)	Potassium (lb/A)	Magnesium (lb/A)	Calcium (lb/A)	CEC (me/100 g)	K	Mg (% Saturation)	Ca	Acidity
Level Found	5.5	5.76	2.4	203	122	1408	6.9	3.7	7.2	50.4	38.7
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-20	60-80	< 10

	Organic Matter (%)	Sulfur (ppm)	Copper (ppm)	Iron (ppm)	Manganese (ppm)	Zinc (ppm)
Level Found	4.4	10	1.37	19.0	6.4	3.2
Normal Range	5 - 8	> 15	0.8-1.2	6 - 10	4 - 8	1 - 2

(Extras)	Boron (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)	Ammonium-N (ppm)
Level Found	N/A	N/A	N/A	N/A	N/A
Normal Range					

Additional Results or Comments:

Lead scan: NORMAL BACKGROUND LEVEL - no health risk.

Full payment received for this sample. Thank you

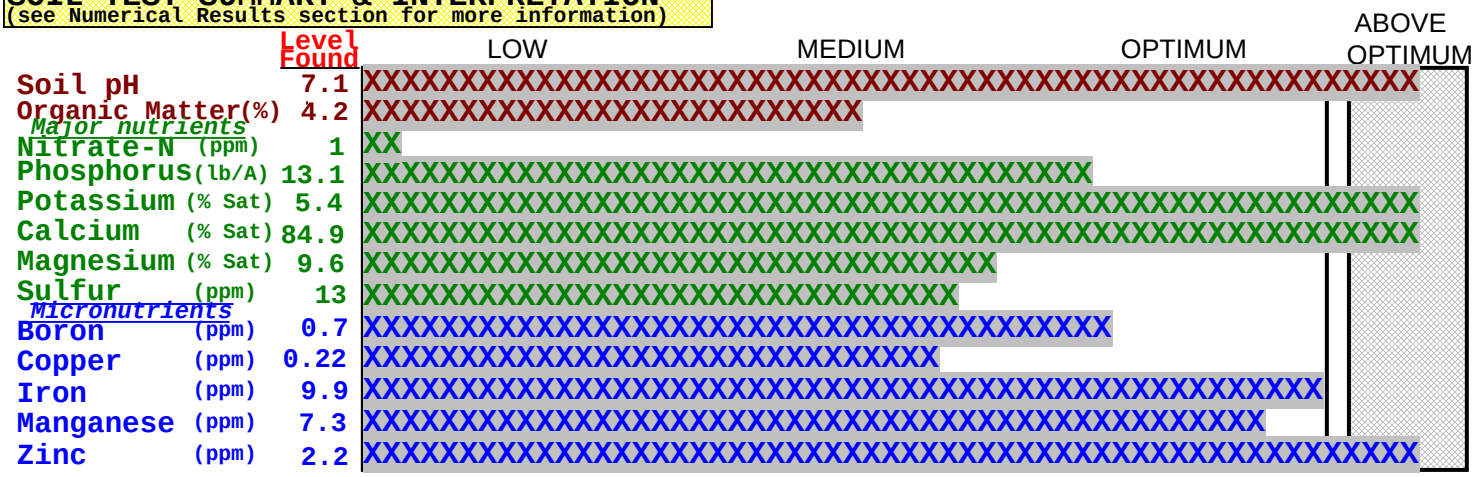
06/24/2019		Lawn-NEW	CUMBERLAND	100 Acres
PRINT DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

SOIL TEST REPORT FOR:

EXAMPLE
New Lawn

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO,MAINE 04469-5722

SOIL TEST SUMMARY & INTERPRETATION
(see Numerical Results section for more information)



RECOMMENDED ADDITIONS FOR ALL TURF-NEW SEEDING - Crop Code # 211

No lime recommended. Soil pH is at or above the optimum level for this crop.

To meet crop magnesium requirement, use a fertilizer containing magnesium if possible.
Calculated major nutrient requirements as follows:
2.0 pounds nitrogen per 1000 sq. ft.
1.1 pounds phosphate per 1000 sq. ft.
0.0 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:
Apply 20 lb 10-10-10 fertilizer/1000 sq. ft.

Other fertilizers of similar N-P-K ratio may be substituted.
Till in lime (if needed) and fertilizer to a 4-6 inch depth.
Till in an inch of compost or peat, with lime & fertilizer, to a 4-6 inch depth before seeding to improve soil nutrient & water holding capacity.

For information on micronutrient management and recommendations, see enclosed form.

NUMERICAL RESULTS

(Test methodology: pH in water and Mehlich buffer, available nutrients by modified Morgan extract)
(Organic matter measured by LOI, P determined colorimetrically, all others measured by ICP-OES)

CEC and nutrient balance calculations are based on present pH of 7.1

	Soil pH	Lime Index 2	Phosphorus (lb/A)	Potassium (lb/A)	Magnesium (lb/A)	Calcium (lb/A)	CEC (me/100 g)	K	Mg (% Saturation)	Ca (% Saturation)	Acidity
Level Found	7.1	0.00	13.1	421	233	3884	9.9(A)	5.4	9.6	84.9	0.0
Optimum Range	5.5-6.5	N/A	10-20	see % Saturation levels			> 5	2.1-3.0	10-20	60-80	< 10

	Organic Matter(%)	Sulfur (ppm)	Copper (ppm)	Iron (ppm)	Manganese (ppm)	Zinc (ppm)
Level Found	4.2	13	0.22	9.9	7.3	2.2
Normal Range	5 - 8	> 15	.25-.60	6 - 10	4 - 8	1 - 2

(Extras)	Boron (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)	Ammonium-N (ppm)
Level Found	0.7	N/A	N/A	1	2
Normal Range	0.5-1.2			20-30	< 10

Additional Results or Comments:

Lead scan: NORMAL BACKGROUND LEVEL - no health risk.

Full payment received for this sample. Thank you.

Soil Lead

Start with a soil test!

Lead can be in your soil from lead paint, gasoline emissions, contaminated fill, or other sources. If lead is above normal background levels in your soil, use these methods for growing plants you want to eat.

Ask for Help

If you have lead in your soil, **contact the Cumberland County Soil & Water Conservation District at (207) 892-4700** for assistance.

How to Garden

- **Grow plants you want to eat in planters.** Buy new soil to put in your planters.
- **Add a barrier to your raised beds.** Use clean, untreated, rot-resistant wood like cedar or pine to add a bottom to your raised bed. Make your plants easier to reach by also adding legs to really separate your plants from the contaminated soil. Buy new soil to put in your raised beds.

Areas to Avoid

Don't plant edible plants or place edible planters and raised beds **next to roads, driveways, and buildings** as these areas are likely to have soil lead and other harmful chemicals.

Limit Contact

Wash your hands after gardening, even if you wore gloves.

Cover any bare soil in the area with mulch or ground cover plants to prevent contaminated dust blowing around and landing on your crops.

Wash

Wash produce and give extra attention to cleaning berries, leafy greens, and other produce with rough surfaces that trap soil.

Peel

If possible, peel fruits and vegetables.

Enjoy

CUMBERLAND COUNTY SOIL & WATER CONSERVATION DISTRICT

Soil Drainage

What's a Percolation Test?

It helps you measure drainage in your lawn or garden soil to keep your plants properly hydrated.

Testing Your Soil Drainage

1. **Dig** a hole with straight sides at least 12" in diameter by 12" deep.
2. **Fill** the hole with water and let it sit overnight.
3. **Refill** the hole with water the next day.
4. **Measure** the water level every hour. Lay a straight edge across the top of the hole and then use a yardstick or measuring tape to read the water level until the hole is empty.

Ideal soil drainage is about 2" per hour.

If your soil **drains less than 1" per hour**, you'll need to add sand and organic matter to create space between soil particles.

If your soil **drains more than 4" per hour**, you'll need to add organic matter to help retain moisture.

Working with Poor Drainage

If you know your soil's drainage type but can't fix your soil across large areas, pick plants suited to your soil type (wet or dry) or use raised beds and planters to provide proper soil to designated plants.

Types of Soil

- **Clay** is the finest type of soil and drains the slowest.
- **Silt** is the intermediate size between clay and sand. It holds moisture well but is easily eroded.
- **Sand** is the largest type of soil and drains the fastest. Sand also increases soil aeration.
- **Loam** is a mixture of sand, silt, and clay.
- **Humus** is organic material that forms in soil as plant and animal matter decomposes. Humus helps soil retain moisture, improve aeration, and holds nutrients. This is what builds our topsoil.

Fixing Soil Drainage

Most drainage problems can be addressed by aerating and topdressing with compost. Instructions for both are on the back of this handout.

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What's aeration?

Over time all soil becomes compacted, especially with lots of walking, snow piles, or vehicle traffic. Aeration loosens the soil so that air, water, and nutrients can reach plant roots. Aeration also reduces thatch, reduces the need for fertilizer, improves root growth, and improves drought resistance.

How to Aerate

1. **Call DigSafe at 811** to check for any underground utility lines. Also check the depth of any irrigation systems to avoid puncturing.
2. **Rent a core aerator** for a few hours or an entire day. Consider splitting the cost with a neighbor or two. Some landscaping companies will also perform this service.
3. **Check the soil plugs.** If they crumble, you can leave them where they lie. If they hold their shape, rake them up and compost them.

When to Aerate

- When the soil is moist, but not wet.
- Twice a year (in the spring and fall) in heavy clay soils, high use areas, or where thatch is over one inch thick.
- Every few years as maintenance.

What's topdressing?

Topdressing is spreading a thin layer of compost to the top of your soil. This adds nutrients and organic matter to your soil to reduce the need for fertilizer, reduces compaction, and helps retain water.

How to Topdress

1. **Dump wheel barrow loads** of compost 3'-4' apart.
2. **Lightly fan out** the compost with the rake so the grass blades poke through. If aerating, compost will lightly fill in the holes created to help build quality topsoil faster.
3. (Optional) Overseed the bare spots with grass or clover to thicken your lawn and prevent weeds from growing.

How Much Compost Do I Need

You want a **1/4" to 3/8" thick layer**, so to cover 1,000 sq. ft., you need 0.75 cubic yards of compost.

What Type of Compost

Food waste and shellfish-based compost has higher amounts of nitrogen; manure-based composts has higher amounts of phosphorous. Check your soil test results to see which will help your soil more.

When to Topdress

After aerating in late spring or late summer, when you have several days of dry weather in a row.

Topdressing is **not recommended** if you live next to a waterbody or on a steep slope.

Amending Soil

Start with a soil test!

You don't know what your lawn *needs* without one! Test kits are available from your local Cooperative Extensions, USDA-NRCS, Soil and Water Conservation Districts, and online at umaine.edu/soiltestinglab/home/kit-request/.

Fertilize Smarter

- **Only use what your soil needs:** Follow your soil test recommendations to build healthy soil and save time and money! Use phosphorus-free fertilizer unless establishing seed. **See the back page for instructions on how to calculate your fertilizer.**
    - If your soil needs **nitrogen**, add blood meal, corn gluten, cottonseed meal, or soybean meal.
    - If your soil needs **phosphorus**, add bone meal or aged/composted manure.
    - If your soil needs **potassium**, add greensand, kelp meal, or wood ash.
- If using conventional fertilizer, use a 60% to 70% slow release/water insoluble nitrogen source.
- **Time it right:** The best time to add nutrients is between August 15th and September 15th.

Fertilizer Alternatives

- **Leave your grass clippings:** Clippings are free and return important nutrients back to the soil.
- **Plant white clover:** Clover takes nitrogen from the air and adds it into the soil!

Change your pH

- Grass needs a pH **between 5.5 and 7** to thrive (slightly acidic).
- If your pH is **greater than 7**, add sulfur in the spring to lower it, and if it is **less than 5.5**, add lime in the fall before the first frost to raise it.

Mix It In

Soil amendments work best when they're mixed into the top two to three inches of soil. Try to time your pH and/or fertilizer applications between aerating and topdressing.

Ordinance Check

Check your municipal ordinances for fertilizer use restrictions and setbacks that are in place to protect water quality.

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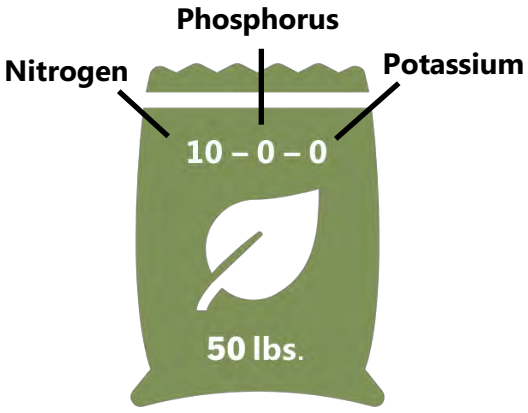

Applying Fertilizer

If your soil test indicates your soil needs fertilizer, here's how to match the recommend ratio.

As an example, let's say you're looking at an 18 lbs. bag of fertilizer with 22-4-8 on the front. This means the bag is 22% nitrogen (3.96 lbs.), 4% phosphorus (0.72 lbs.), 8% potassium (1.44 lbs.), and the rest of the bag (66% or 11.88 lbs.) is filler.

If your **soil test** says you need 2 lbs. of nitrogen per 1,000 sq. ft, use the following equation to determine how much fertilizer to spread:

2 lbs. nitrogen based on soil test ÷ 0.22 (% nitrogen in bag) = Apply 9 lbs. of the 22-4-8 fertilizer* per 1,000 sq. ft. to achieve desired nitrogen levels.

*If you leave grass clippings, only apply half the calculated amount of fertilizer and apply it in the fall.

Sometimes it may be difficult to find bagged fertilizer that has the right ratio to meet your soil nutrient needs. In these situations, consider buying fertilizer with only one nutrient to ensure you aren't over or under applying another nutrient.

Know the Ratio

Fertilizer bags list the **percentage of the bag weight** for nitrogen, phosphorus, and potassium.

Spread Better

Calibrating your spreader properly and applying at the right time will ensure you're applying the correct rate and reduces the risk of fertilizer ending up in local water bodies.

- Use a drop spreader that spreads much more precisely than a broadcast spreader.
- Fill the spreader on a hard surface.
- **All spills should be swept up immediately.**
- Reduce spreader settings by half and apply north to south, then east to west to evenly cover lawn.
- Walk at a steady pace to ensure even distribution.
- When turning with the spreader, make sure it is closed and on the yard.
- Avoid fertilizing before rainstorms or on already-saturated soils. However, fertilizer should be gently watered in after application to prevent grass burning.

Contact Cumberland County Soil & Water Conservation District for assistance understanding your soil test results and fertilizer recommendations.

Yard Waste

Proper disposal helps:

- Keep our storm drains clear, preventing flooding.
- Prevent decomposing material from leaching nutrients into stormwater and growing algae.
- Generate new soil for growing plants.

Yard waste shouldn't be wasted!

Mulch it. Mowing will create grass clippings and shredded leaves which will quickly decompose, adding nutrients and organic material back to the soil. Leave clippings on the lawn or use in your garden to prevent weeds.

Compost it. Making a compost pile from grass clippings, leaves, and food waste will create soil high in nutrients and organic material. This compost can be used for your gardens and lawn! Don't compost invasives or diseased plants.

Leave it. Rake up any large piles of leaves and then leave a thin, even layer of leaves behind to benefit your lawn and create helpful winter habitat for wildlife.

What the Duff?

In the more forested areas of your yard, leave the pine needles and leaves where they lie to make a **natural duff mulch layer** that helps prevent against erosion, creates important habitat, and adds organic matter to your topsoil.

Bag it. If you can't do the options above, most municipalities offer free yard waste and leaf disposal and some even offer curbside pickup in the fall!

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Keep in Mind

Grass clippings, leaves, and other yard waste should be kept off storm drains and out of ditches and culverts to allow rain and snowmelt to flow and prevent flooding.

Keep yard waste and compost piles away from waterbodies and wetlands as they'll leach highly concentrated nutrients into the water, increasing algal growth.

Invasive plants have to be completely dried out before being added to your compost pile, otherwise they might start growing there!

Sticks and Stones

Create habitat for fish, turtles, birds, and other wildlife by **leaving branches and fallen trees where they lie in streams and wetlands**.

Use fallen branches in other areas of your yard to create habitat for birds and bunnies or use them to build fences, arches, trellises, or other natural infrastructure in your gardens and yard.

Incorporate any existing large stones and rocks into your design instead of trying to move them.

How to Compost

What's composting?

Composting makes organic matter which improves the soil's ability to hold air and water and adds nutrients.

Where to Use Compost

Everywhere! Work compost into your **garden** soil in the spring or fall. Topdress your **lawn** with compost around Labor Day to build your topsoil. Thinly spread compost up to an inch from the **base of trees or shrubs**. When using your compost regularly, send a sample to the UMaine Soil Lab or Woods End for nutrient testing.

Location, Location, Location

Place it in a **convenient location** as you'll be adding material several times each week, even in the winter.

What to Compost

Build a healthy compost pile with a mix of green and brown materials. Never compost diseased plant materials.

From the Kitchen: Fruit and vegetable scraps, eggshells, houseplant cuttings, coffee grounds and filters, bread, rice, pasta, tea bags, and paper napkins.

From the Yard: Flowers, vegetables, plant trimmings, small amounts of grass clippings, leaves, straw and hay, small twigs, and dried weeds.

Cautions

Keep your compost away from waterbodies and wetland as it will leach nutrients into the water and grow algae.

Completely dry out any invasive plants before composting them so they don't regrow.

How to Compost

Speed up the process with these 4 tips:

1. **Chop:** Cut up larger items like watermelon rinds before putting them in the compost.
2. **Stir:** Mix the new material into the pile to add oxygen.
3. **Cover:** Cover your food waste with leaves to add carbon and reduce the chance of odors or fruit flies.
4. **Moisture:** Keep the material in your composter moist by adding water to your kitchen transport container. This also helps remove the scraps easily from your container when you empty it.

Harvesting Your Compost

Once you can't identify the materials you added and it looks like soil, your compost is ready to use!

1. **Using a compost bin:** Open the door and dig the finished material out of the bottom for small amounts or set aside any unfinished compost before emptying the bin.
2. **Using a compost pile:** Have two or more sections to allow you to rotate the piles. You'll actively add new material to one section while the other section matures for harvesting. Once you've used the mature compost, you'll switch section sides and begin adding new material to the empty section while allowing the other pile to mature for use.

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Sheet Mulching

What's sheet mulching?

Sheet mulching is a way to convert lawn to another type of landscaping without using pesticides or digging up the whole area. It smothers the existing plants, adds organic matter to the soil, and makes the site ready for other uses.

Installation

1. **Prepare the site.** Mow the area at your mower's lowest setting. Soak the area before starting to begin decomposition.
2. **Prevent erosion.** If the lawn is against pavement, use a flat-edged shovel to dig the lawn 8"-12" back from pavement and about 3" below pavement. Soil and turf can be left on other portions of the sheet mulched area.
3. **Add large plants.** Any 5-gallon or larger plants, such as shrubs and fruit trees, are planted with compost.
4. **Add a weed barrier.** Wet brown cardboard and remove any staples, tape, and labels. Lay the cardboard over the entire area to prevent grass or weed growth. Keep cardboard 1" from the based of the larger plants to prevent rot. Overlap the edges by several inches so the weeds don't get through.
5. **Add small plants.** Cut holes in the cardboard just large enough to add the plants. Surround the base of the plants with compost.
6. **Mulch.** Add a 2" layer of mulch on top of the cardboard. This helps optimizing water retention.
7. **Maintain.** Check plants often and water when necessary. Ensure materials such as mulch are not piling up around the base of new plants. If needed, consider adding temporary netting or fencing so plants can establish without animal grazing.

Variations

Borders: To gradually reduce the size of your lawn, sheet mulch your lawn at the edge of your gardens to increase their size. Repeat as many years as desired to build out your gardens.

Weed Killing: Have a large weed patch? Instead of pulling them by hand or spraying with pesticides, smother the area with several layers of overlapping cardboard and then cover with compost and revegetate the area with your desired plant, whether it's grass seed, vegetable seeds, or flower seeds.

Garden Beds: In late fall, lay wet cardboard down on garden beds with annual plants (like vegetable gardens) and layer compost with leaves or straw on top to kill any weeds and help build up your soil and have it ready for spring!

Walkways: Lay down multiple layers of wet carboard and cover with 3-4" of wood chips around raised beds and similar structures to stabilize bare soil.

Invasive Plants: To manage invasive plants like Japanese Knotweed, a more intensive method of sheet mulching can be used. First, cut the invasive plant down to the ground. Pile 3"-4" of wood chips on top of the site and go at least 1' beyond the patch of invasive plant stems. Cover the chips with 7 mm nonwoven geotextile fabric. Overlap any fabric edges by several inches. Pile 3"-4" of wood chips on top of the fabric. Monitor the site for any regrowth and cut regrowth as it appears.

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Edible Landscaping

What's edible landscaping?

Edible landscaping is incorporating plants you can eat into your yard and gardens. Any landscaping can be edible if you add in fruits, vegetables, and herbs! They can function as groundcovers, shrubs, trees, annuals, and perennials.

Ways to Incorporate Edible Landscaping

In Planters: Ideal for small yards, large paved areas, or poor soil quality. Make sure you use planter-friendly varieties of your plants.

In Designated Gardens: Use sheet mulching to section off a portion of your yard to transition into gardens or raised beds. Build paths into larger gardens so you can reach all your plants for easy harvesting!

Throughout the Yard: Include edible plants as part of your landscape beds, as shrubs along the edge of your yard, or in a vegetative buffer to add an aesthetic while providing additional benefits such as erosion control and habitat. As trees or shrubs need replacing, swap them for edible ones.

Site Considerations

Edible landscaping can be incorporated into most landscapes but consider the following before planting:

- **Planting Site Conditions:** Consider conditions needed for planted edibles to thrive such as hardiness zone, soil, and sunlight.
- **Pests:** Some plants, like fruit trees, need a lot of research to learn about common pest issues and how to manage them.
- **Location for Planting:** Edible plants are more accessible when planted closer to you. However, avoid planting next to roads, sidewalks, and old buildings that may introduce harmful chemicals to the soil and plants. Take a soil test through the University of Maine Soil Lab to check for lead and other heavy metals and wash your produce before eating. Also avoid planting shrubs or trees over your septic tank and leach field or sewer line as their roots can damage your system and lead to a costly replacement.
- **Available Space and Use of Yard:** Consider how much yard space to use to determine types and quantity of edible plants. Use sheet mulching as a safe way to convert areas of yard from lawn to edible plants.
- **Edible Plant Selection:** Plants vary in how quickly they grow and produce edible fruit, with some requiring multiple plants for cross pollination and years of growing before edible fruit is available. Planting a variety of edible plants may be the most rewarding.

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Vegetative Buffer

What's a vegetative buffer?

Vegetated buffers are trees, shrubs, and ground cover plants that catch sediment and other pollutants before they reach a body of water.

The most effective buffers are as wide and deep as possible and include a mix of trees, shrubs, ground cover plants, and organic ground cover.

Benefits of Buffers

Tree and shrub leaves slow down raindrops while ground cover plants, decomposing leaves, pine needles, and branches filter stormwater runoff on the ground. Plant roots hold soil in place, help to slow down stormwater runoff, and absorb water and nutrients. Vegetative buffers can also enhance privacy, filter noise and wind, and attract birds, butterflies, and other wildlife.

Natural Buffers

If you have a natural buffer already, try to minimize impacts to that area. Prevent raking the natural ground cover which is important in protecting underlying soils and in the filtering and slowing down of stormwater runoff. Plant in areas with thin vegetation and prune or replace plants that are sick or dead to keep your buffer healthy.

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Installation

1. Check with Code Enforcement for a permit to work in the shoreland zone.
2. If your buffer is narrow or nonexistent, select a mix of native trees, shrubs, and ground cover plants that are suitable to the growing zone, light, and soil conditions of the area.
3. Design the buffer to include a narrow access path (less than 4' wide) to the water and place your plants to accommodate your favorite views.

Maintenance

Year One: Water deeply each week, allowing water to reach the root ball. Planted areas can be weeded but should not be raked.

After One Year: Only water if there's a lack of normal rainfall. Once the plants are well established, you can let the planted area naturalize so that you do not need to replenish mulch or weed. The organic "duff" layer or groundcover of leaves and pine needles will serve as natural mulch.

Pruning: Depending on plants chosen, you may wish to prune certain plants so they don't become overgrown and block your view.

Build Your Buffer

Choose from the plant species listed below to build a successful buffer tailored to this unique region in Maine.

Vines and Groundcovers

- ☐ Bearberry
- ☐ Creeping Juniper
- ☐ Lowbush Blueberry
- ☐ Moss Phlox/ Creeping Phlox
- ☐ Bunchberry
- ☐ Virginia Creeper
- ☐ Laborador Violet
- ☐ Wild Ginger
- ☐ Wintergreen
- ☐ Marsh Blue Violet

Small Shrubs

- ☐ Bush Honeysuckle
- ☐ Buttonbush
- ☐ Common Juniper
- ☐ Fragrant Sumac
- ☐ Sheep Laurel
- ☐ Shrubby Cinquefoil
- ☐ Snowberry
- ☐ Sweet Fern
- ☐ Sweetgale

Ferns

- ☐ Cinnamon Fern
- ☐ Hayscented Fern
- ☐ Interrupted Fern
- ☐ Lady Fern
- ☐ Ostrich Fern

Grasses

- ☐ Big Bluestem
- ☐ Indian Grass
- ☐ Little Bluestem
- ☐ Switchgrass

Perennials

- ☐ Foxglove
- ☐ Beardtongue
- ☐ Bee Balm
- ☐ Black Eyed Susan
- ☐ Bloodroot
- ☐ Bugbane, Black Cohosh
- ☐ Butterfly Weed
- ☐ Cardinal Flower
- ☐ Columbine Foamflower
- ☐ Large Gayfeather/Large Blazing Star
- ☐ Joe Pye Weed
- ☐ Marsh Marigold
- ☐ New England Aster
- ☐ Northern Blue Flag Iris
- ☐ Turtlehead
- ☐ Purple Coneflower
- ☐ Solomon's Seal
- ☐ Wild Geranium

Tall Shrubs

- ☐ Beach Plumb
- ☐ Black Chokeberry
- ☐ Coastal Sweet Pepperbush
- ☐ Common Witch Hazel
- ☐ Gray Dogwood
- ☐ Highbush Blueberry
- ☐ Inkberry
- ☐ Northern Bayberry
- ☐ Northern Spicebush
- ☐ Red-twig Dogwood
- ☐ Staghorn Sumac
- ☐ Winterberry
- ☐ Witherod

Trees

- ☐ American Hornbeam
- ☐ Balsam Fir
- ☐ Black Spruce
- ☐ Black Tupelo
- ☐ Eastern Hop-hornbeam
- ☐ Eastern Red Cedar
- ☐ Northern Red Oak
- ☐ Northern White Cedar
- ☐ Red Maple
- ☐ Red Pine
- ☐ Sugar Maple
- ☐ Swamp White Oak
- ☐ Tamarack/Larch
- ☐ White Spruce
- ☐ Yellow Birch

Yard Notes

- ☐ Full Sun
- ☐ Partial Sun
- ☐ Full Shade
- ☐ Well-Draining Soil
- ☐ Moist Soil

Live Stakes

What are live stakes?

Live stakes are woody shrub cuttings planted in moist soils. This technique is effective for creating living fences and as bank stabilization along streams, lakes, and wetlands at a low cost. Live staking is most suitable for areas with low to moderate slopes. Not all woody shrubs will grow using this method.

Collecting

Live stakes can be collected from established native plants but make sure you have landowner permission before gathering cuttings off a healthy parent plant.

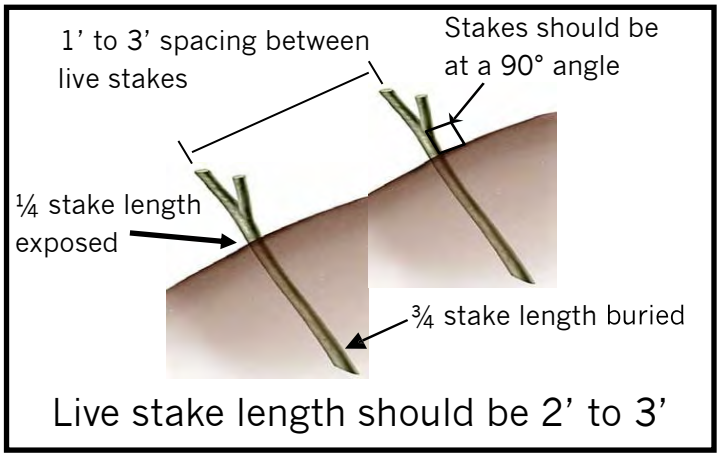
- Live stakes should be harvested and planted between late October and the ground freezing or in the spring prior to leaf-out.
- Cut branches between ½" and 1" in diameter, 2' to 3' in length.
- At the thicker end of the branches, make an angled cut to drive stakes into the ground.
- Remove all side branches and leaves from stake to encourage root growth.
- Plant within 24 hours of cutting or keep in a cool, dark, and moist location.

Bank Slope

If a bank is severely eroded or steep, contact your local Soil and Water Conservation District or the Maine DEP for guidance before planting.

Installation

1. **Contact code enforcement and Maine DEP** to determine if you need permitting.
2. **Remove invasive and competing vegetation.**
3. **Cover bare soil with erosion control mix** or annual grasses and straw to hold the soil in place and prevent weeds until the stakes are established.
4. **Carefully push the pointed end** of each live stake at a **90° angle** into the soil. The side branches that were snipped off will grow well planted at the edges of streams, lakes, and wetlands.
5. **Keep ¼ of the stake above ground,** including a few buds. If the stake will be shaded, use longer stakes and leave one foot sticking above the ground.
6. **Leave 1' to 3' of space** between the individual stakes.



Live stake length should be 2' to 3'

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Maintenance

Year One: Water live stakes during their first growing season. If live stakes are planted while dormant, shoots should emerge in spring. If planted during the growing season, it may take a year or two to see shoots.

After Year One: If two to three growing seasons pass without signs of growth, remove the dead stakes and replace with live stakes. Be prepared to replant if the area is affected by high water, drought, or ice damage before the stakes are fully established.

Did You Know?

Cane fruits, like raspberries, blackberries, and elderberries, can also be grown from live stakes. You can also use live stakes to grow vegetative fences, hedges, and other structures.

Recommended Live Stake Plants

Red-twig Dogwood (*Cornus sericea)*

Grows 9' tall with similar spread. Young branches are red. Late spring small white flowers with fall fruit. Flood tolerant. Zones 2-7. ○◐●

Grey Dogwood (*Cornus racemose)*

Grows 10' tall with 10'-15' spread. Can form thickets. Tolerant of city air pollution. Small white clusters of flowers bloom in late spring. Zones 3-8. ○◐●

Pussy Willow (*Salix discolor)*

Grows 15'-25' tall with similar spread. Produces soft purple-white catkins February through March. Important for early-emergent insects. Flood tolerant. Zones 4-6. ○◐●

Pollinator Garden

What's a Pollinator Garden?

Pollinator gardens provide nectar and pollen to insects, birds, small mammals, and other pollinators. These gardens feed pollinators who in turn help plants reproduce. There are over 350,000 known pollinator species in the world contributing billions to the global economy. Pollinator gardens also help prevent erosion, filter water, increase home values, and improve crop yields!

Installation

1. **Prepare the area** by clearing an area that receives partial to full sun. Determine if the soil is more sandy and well-draining or more clay-like and wet (use the soil drainage factsheet if you aren't sure).
2. **Choose native perennials, shrubs, and trees** that grow well in full or partial sun, the garden's soil type, and have flowers that are diverse in shape, size, color, and blooming season to benefit a wider variety of pollinators. Buy seedlings that haven't been treated with pesticides from a local nursery or sow organic heirloom seeds in the fall.
3. **Group plants of the same species together** when planting to help pollinators find them. Place plants close together to reduce weeds and the need for lots of mulch. Some pollinator plants take a few years before they begin to flower.

Maintenance

Year One: Water deeply each week, allowing water to reach the root ball. Deadhead flowers and rake leaves in late spring to provide overwintering habitat and food.

After One Year: Only water if there's a lack of normal rainfall. Replenish mulch periodically to stunt weed growth. Replace and/or divide plants if needed. Deadhead flowers and rake leaves in late spring to provide overwintering habitat and food.

Additional Features

- Support monarch and spicebush swallowtail butterflies by growing caterpillar food sources such as milkweed, spicebush, and sassafras. Caterpillars will eat the leaves of these plants so place them in your gardens where the holes in the leaves won't bother you.
- Provide access to water by adding a dripline hose, bird bath, or other water feature.
- Create pollinator habitat by adding logs, branches, and leaves.

Threats to Pollinators

Pollinator populations are on the decline due to habitat loss, climate change, invasive species and pesticide use. Avoid using pesticides in your yard to protect visiting pollinators.

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Groundcovers

What's a groundcover?

Groundcovers are great lawn alternatives and some will grow in poor soil and light conditions. When flowering and bearing fruit, they add important food sources to the landscape.

Moss Varieties *(Bryophyta)*

Many varieties of moss, identify what is already in your yard and add more of the same. Grow in low and gentle traffic areas. ○◐●≡◆

Wintergreen (*Gaultheria procumbens*)

Also knows as teaberry. Grows 6" tall and spreads 4"-6" annually. Prefers acidic soils. Evergreen leaves and red berries all winter. Zones 3-5. ◐●≡

Bunchberry (*Cornus canadesis*)

Grows 6" tall and spreads easily. Prefers rich, acidic soils. White bracts surround small green flowers. Red berries in the fall attract birds. Zones 2 -6. ○◐◆

Marsh Blue Violet (*Viola cucullata*)

Grows 5"-10" tall with 1' spread. Foliage attracts butterfly larvae. Blue violet flowers from late spring to mid summer. Zones 4-8. ○◐●◆

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Wild Strawberry *(Fragaria virginiana)*

Grows 4"-7" tall and spreads through runners. White flowers April to May form edible red berries. Zones 4-9. ○◐≡

Lowbush Blueberry *(Vaccinium angustifolium)*

Grows from 2"-24". Prefers untilled, acidic soil. Edible fruit are attractive to wildlife and humans. Red fall foliage. Zones 2-6. ○◐≡

Cranberry (*Vaccinium macrocarpon*)

Grows 9" tall and spreads easily. Small pink flowers bloom in the spring and produce edible red berries. Zones 2-6. ○◆

Ostrich Fern *(Matteuccia struthiopteris)*

Grows 2'-3' tall and forms dense colonies. Fiddleheads are edible. Fronds have feathery appearance. Zones 3-7. ◐●◆

Plant Identification Key

○ More than 5 hours of direct sun per day

◐ 2 to 5 hours of direct sun per day or full day of dappled sun

● Less than 2 hours of direct sun per day

◆ Poorly drained soils and/or wet

≡ Well draining soil and/or dry year round

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Bearberry (*Arctostaphylos uva-ursi*)

Grows 6” tall with 3’ spread. Prefers rich, acidic soil. Light pink, cup-shaped flowers turn to red berries in the fall. Can be used to prevent erosion along banks. Zones 2-6. ○◐≡

Creeping Juniper (*Juniperus horizontalis*)

Evergreen shrub grows 2’ tall with 8’ spread. Foliage is often a silvery blue color. Small, blue, berry-like fruit. Zones 3-9. ○≡

Virgin’s Bower (*Clematis virginiana*)

A climbing vine up to 20’ tall. Grows best on a trellis or fence. Clusters of silky seeds follow white flowers. Zones 2-10. ○◐≡⬮

Hay-scented Fern (*Dennstaedtia punctiloba*)

Grows 1’ tall. Foliage light green with finely-divided fronds that are sweet-scented when crushed. Zones 3-8. ◐●≡

Virginia Creeper (*Parthenocissus quinquefolia*)

A climbing vine up to 40’ tall. Small white flowers in spring and small purple berries. Foliage turns red in the fall. Zones 3-9. ○◐●≡

Marsh Marigold (*Caltha palustris*)

Grows 1’-2’ tall with 1’ spread. Bright yellow flowers bloom in late spring to early summer. Prefers organic, acidic soils. Zones 1-8. ◐●⬮

Lingonberry (*Vaccinium vitis-idaea*)

Also called Crowberry or Mountain Cranberry. Grows 7” tall and spreads. Small, glossy-green, leaves and small pink or white flowers, followed by small, red fruit. Zones 2-6. ○◐●≡

Appalachian Barren Strawberry (*Waldsteinia fragarioides*)

Grows 8” tall with 1’ spread. Mats of evergreen leaves with yellow flowers . No edible fruit. Prefers acidic soil. Zones 3-9. ○◐●≡⬮

Bloodroot (*Sanguinaria candensis*)

Grows 6”-12” tall and is usually found in colonies. Leaves and root contain an orange/red juice that is poisonous. Flowers in early spring. Zones 3-8. ◐●⬮

Creeping Phlox (*Phlox stolonifera*)

Grows 6”-10” tall and spreads easily. Small flowers in spring, ranging from white to purple with evergreen foliage. Zones 2-9. ◐●≡

Round-leaved Violet (*Viola rotundifolia*)

Grows 2”-5” tall. Yellow flowers bloom in late spring. Leaves are large and glossy. Zones 3-9. ◐●⬮

Foamflower (*Tiarella cordifolia*)

Grows 10” tall with 1’ spread. Masses of tiny white or pink flowers remain up to 6 weeks. Zones 3-8. ◐●≡

Planters

What are planters?

Planters are containers, from pots to raised beds, that help grow plants on pavement, decks, or other impervious surfaces; where soil contamination or poor soil conditions exist; or to improve the aesthetics of outdoor spaces.

Considerations

- **Planter Size:** Choose planters that are about half the height of your plant to give their roots plenty of space to grow and to help them from blowing over. Most seed packets and seedlings will have information on ideal planter diameter.
- **Drainage Holes:** Whether using clay, plastic, wood, metal, or recycled containers, water needs to drain through the soil. Holes (~¼") can easily be drilled into many containers if needed.
- **Plant Selection:** Look for edible or decorative varieties that specify they do well in planters. Check perennial plant hardiness zones to determine how to overwinter the plant.
- **Soil Type:** Add coconut fiber or select a soil with high organic content to help maintain air and moisture within the soil.
- **Height:** Use a variety of planter heights to add variation and depth to your plantings by mixing and matching plant heights within planters or between planters.

Raised Beds

Raised beds are large planter boxes particularly used in places with poor or contaminated ground soils and/or as a more accessible and ergonomic method for growing gardens. When used in places with contaminated ground soils, prevent roots from accessing the contaminated soils by placing raised beds on legs or using a barrier at the bottom of the bed such as wood.

Maintenance

- Compost your annual plants once they've died and clean the planter for storage.
- Based on plant hardiness zones, perennials in smaller planters should be brought inside for the winter or buried in the ground for extra insulation.
- Larger planters like raised beds can provide enough insulation for perennials to overwinter in place. Add straw, leaves, wood chips, seaweed, or other types of mulch in the fall to help insulate the raised bed and add new organic matter to the raised bed.
- In the spring, check if your plant needs to be transplanted to a larger planter or refresh your soil with compost to add nutrients.

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Water Wisely

Should I water my yard?

You should water your lawn and gardens only when they need it! This saves you time and money, conserves water for other uses, and grows stronger plants with wider and deeper root systems.

How to Water

- **Depending on rain, water deeply and infrequently once a week,** allowing water to seep into the ground.
- Use a rain gauge to track how much rain your lawn and gardens received. Supplement any additional water needs through watering.
- Lawns use 1" to 1.5" of water per week during the growing season (May to October).
- Determine your sprinkler output by placing cans on the lawn and timing how long it takes for them to fill with an inch of water.
- When possible, use drip irrigation in gardens. Otherwise focus water to soil rather than foliage.

When to Water

- Between 6:00 AM and 10:00 AM to ensure the water soaks into the ground and doesn't evaporate.

Ways to Reduce Watering

- Add more organic matter to your soil to help it retain moisture.
- Add three inches of mulch to garden beds.
- Capture rainwater in rain barrels for future use.
- Use native and regional plants well suited for your yard conditions.

When in Drought

For fescue and ryegrass lawns:

- Allow the grass to go dormant (change from green to brown). If the grass feels fleshy but is brown in color, it will come back with cooler and wetter weather.
- Lightly water grass (about $^1/_2$") every two weeks to keep moisture in the soil without breaking the dormancy.
- Keep grass tall to shade out the soil and help keep moisture. Don't mow during a drought, it will stress out and damage your lawn.
- Don't fertilizer or apply compost tea, this will break the dormancy too early!
- Healthy lawns can survive in a dormant state for four to six weeks without rainfall or irrigation.

For gardens:

- Water deeply (1") once a week in the early morning.
- Increase weeding to reduce water competition with desired plants.
- Don't fertilize or apply compost tea.
- Dead head flowering plants early to prevent it from using valuable energy and water forming seeds.

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Addressing Roof Runoff

Did you know?

850 gallons of water come off a 1,500 sq. ft. roof during a 1" rainstorm. Rain barrels, dry wells, dripline trenches, and rain gardens are all ways to address roof runoff.

Rain Garden

Rain gardens are bowl-shaped gardens that collect and absorb rain water. They can be used at gutter downspouts and other places where large quantities of concentrated water flows off rooftops.

Materials List

- Possible soil amendments
- Native plants that can tolerate fluctuations in soil moisture
- Erosion control mix

Installation

1. **Select a location** at least 10' downslope from existing structures yet above the seasonal high groundwater table. Direct rainwater into garden using a grassy swale, stone trench, or gutter extension.
2. **Size the garden** to be a third of the area being treated. Calculate square feet of treatment area and multiply by 0.3. For example, a 1,000 sq. ft. roof will require a 300 sq. ft. garden.
3. **Call DigSafe** at 811 to avoid underground utilities.
4. **Do a percolation test** (see soil drainage factsheet for instructions). Amend soil if needed to improve drainage.
5. **Dig a bowl-shaped, shallow, flat-bottomed hole** with gradually sloping sides between 4" to 6" deep. Create a berm on the downhill side of the garden using excavated material.
6. **Plant and cover any bare soil** with erosion control mix.

Maintenance

- **First Year:** Water deeply each week, allowing plant roots to establish deep into the soil.
- **After First Year:** Only water during extended periods of drought. Weed and divide plants as needed. Replace mulch as needed.

Your rain garden doesn't need fertilizer! Using fertilizer adds unnecessary nutrients and reduces the ability for the garden to effectively remove pollution from stormwater runoff.

Plant Recommendations

Select native plants that can tolerate fluctuations in soil moisture with water-tolerant plants planted in the center of the garden and drought-tolerant plants planted around the outer edge.

If you have gutters consider using rain barrels and/or rain gardens.

If you don't have gutters, use dripline trenches.

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Rain Barrels

Gutters and downspouts direct rainwater into rain barrels to capture and store rainwater from your roof that would otherwise run off your property and pick up pollutants along the way.

Materials List

- Gutters and downspout or rain chain
- Barrels with screen and spigot (can be purchased from the Cumberland County Soil & Water Conservation District)
- Blocks or lumber
- Connector hose to chain multiple barrels together

Installation

1. Use crushed stone or mulch to **level the ground** where the rain barrel(s) will go. Multiple rain barrels can be connected together to hold more water.
2. **Place the barrel on blocks or lumber** to allow room for a faucet or spigot on the lower drain.
3. **Connect the hose to slowly release the water** into a garden or allow it to soak into the ground; the higher the barrel is, the more flow and pressure through the hose.
4. **Install a screen cover** to prevent debris clogging the spigot and insects from breeding in the water.

Maintenance

- Use your rainwater between rain events so the barrel doesn't overflow.
- After each storm, remove leaves or other debris that may plug the screen.
- Clear gutters and downspouts of debris on a regular basis.
- To prepare for winter, drain and store the rain barrel indoors or turn it upside down and anchor it with something heavy if storing outside. Detach or cover the faucet/spigot so it isn't broken off.

Dripline Trench

A dripline trench, also called a infiltration trench, collects runoff from a roof **without gutters** and prevents erosion along your foundation. Dripline trenches work best in sand and gravel soils and should not be used next to structures with improperly sealed foundations, as flooding may occur.

Materials List

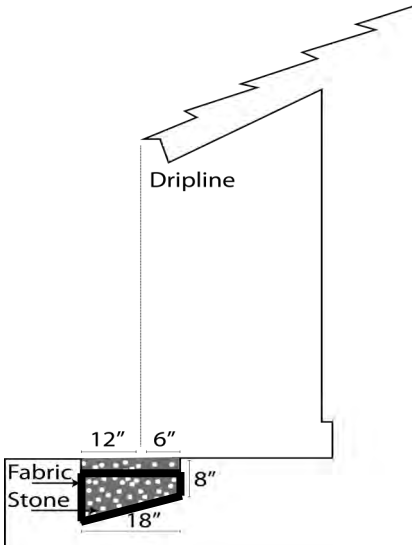
- ½" to 1½" washed crushed stone
- Non-woven geotextile fabric

Installation

1. **Dig a trench** 18" wide and at least 8" deep along the drip line. Slope the bottom away from the house so that water will drain away from the foundation. Dispose of the soil in a flat area where it will not wash away.
2. Line the sides of the trench with **non-woven geotextile** fabric and fill to within 3" of the ground level with **crushed stone.**
3. Fold a flap of the fabric over the stone, then fill the trench with the remaining stone.

Maintenance

- Periodically remove accumulated debris and weeds from the stone.
- Every few years, or when the trench is draining slowly, remove the stone to clean and dispose of accumulated debris and sediment.



Xeriscaping

What's Xeriscaping?

Landscaping to reduce or eliminate the need to water plants outside of what is provided in rainstorms.

Ways to Reduce Watering

1. **Water-Wise Planning.** Consider where water is available in your yard and establish zones based on how easily water needs can be fulfilled. Runoff from hard surfaces can be directed to garden beds to support plants in the 'Oasis Zone'.
2. **Plant Choice.** Look for plants that are drought tolerant and do well in well draining or dry soils.
3. **Less Lawn.** Grass requires a lot of water, especially sun loving varieties.
4. **Save Your Rain for Later.** Use a rain barrel to capture stormwater runoff from your house to use when it's dry.
5. **Efficient Irrigation.** Establish swales and channels for stormwater to flow away from areas that need less water and towards areas that need more. Set up drip irrigation with rain barrels.
6. **Mulch.** Cover areas of bare soil will slow how quickly water evaporates from the soil as well as hold your soil in place.
7. **Maintain.** Use weed blocking layers or hand pull unwanted plants to allow water resources to be used where they are needed most.

Plant Recommendations

Pick plants that like dry or well-draining soils. Some of these plants can also add to your edible landscaping, pollinator gardens, groundcovers, and other lawn alternative efforts.

Some examples include lowbush blueberry, wild strawberry, and beach plum for edibles; echinacea, black-eyed Susan, and milkweed for pollinators; and creeping juniper for groundcovers.

Know Your Zones

- **Oasis Zone:** Usually closer to your house and water sources. This is an ideal area to capture water from hard surfaces like your roof. Keep plants with high water needs in this zone.
- **Transition Zone:** Add in plants or pathways that require less water here. Use swales or other irrigation to direct excess runoff to this zone.
- **Xeric Zone:** This is your driest zone which is typically on the outer edges of your property where it can be difficult to provide water. Use plants tolerant of dry soils in this area.

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Wildflower Meadow

What's a wildflower meadow?

Wildflower meadows are a low maintenance and colorful alternative to a traditional lawn. They attract pollinators and the plants' longer roots hold soil in place to prevent erosion and reduce water pollution.

Installation

1. **Select a location** that gets at least six hours of sunlight each day and is not wet. If planting in the spring, waiting until after the threat of frost. If planting in the fall, wait until after a killing frost.
2. **Cut back existing vegetation** with a mower. Bag the clippings to eliminate unwanted seeds from your meadow.
3. **Loosen the soil** to prepare it for seeding. Use a rake for small areas and shallow rototilling for larger areas.
4. **Divide your seed mixture equally** into two buckets. Mix 10 parts sand or vermiculite to 1 part seed in each bucket. A quarter pound of seed will cover approximately 1,000 sq. ft. More seed can be used for a denser stand of flowers.
5. **Sow the seed** by spreading one bucket east to west and the second bucket north to south to prevent bare spots.
6. **Press the seed into the soil** with a lawn roller or walking to ensure good seed to soil contact.
7. **Keep the soil moist** but not wet until seedlings are 4"-6" tall. Once the plants reach this height they should be able to survive with normal rainfall.

Maintenance

Mow 6' paths through your meadow to reduce picking up ticks while walking in the area.

Mow your meadow every two to three years, typically in the late fall after the flowers have dropped their seeds. This will allow for biennial flowers to grow. It will also prevent trees and woody shrubs from establishing in your meadow.

Eastern Red Columbine

Blazing Star

Recommended Plants

Mix in sedges, grasses, and legumes with your perennial flowers like asters, figworts, milkweeds, butterfly weed, echinacea, blazing star, columbine, and black-eyed Susan.

New England Aster

Red Milkweed

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Planting

Proper planting increases plant survival and saves time and money.

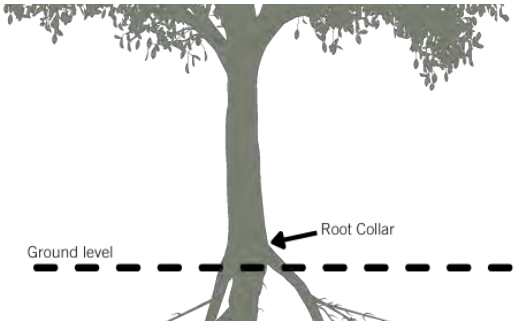
Planting From a Container

1. **Keep plant watered** until ready to plant.
2. **Dig a hole** 2 times the width of the container and as deep as container soil level.
3. **Remove root ball** and loosen the outside layer of the root system by scoring with a knife or pulling by hand.
4. **Set the plant in the middle of the hole.** The top of the root collar should be 1" to 3" above ground level. If not, remove the plant and adjust the hole as planting too deeply can kill the plant.
5. **Backfill two thirds of the hole with soil.** If the plant needs better soil, mix in 25% loam and/or compost with the original soil.
6. **Fill the hole with water** to form a "moat" around the soil ball. Once the hole drains, refill with water and allow it to drain again.
7. **Backfill the hole to ground level** and gently press the soil down to remove air pockets.
8. **Form a circular mound of soil around the hole.** This small mound of soil helps direct future water and rain towards the newly planted roots.
9. **Water again** to remove any remaining air pockets.
10. **Cover bare soil with 4" of mulch** so it won't erode. Thin the mulch towards the base of the plants to prevent a "volcano" look which harms the plant.

Starting From Seeds

One of the cheapest ways to add specific plants to your garden is by growing them from seeds. Depending on their germination period, you can start them in containers and transplant them as seedlings or plant the seeds directly into the ground. Some things to keep in mind:

- Some seeds need the cold weather before starting to grow. Sow these in the fall.
- Some seeds benefit from soaking before being planted.
- Start early as some plants need several months to grow before they can be moved outside or transplanted.
- Follow seed spacing and depth recommendations by plant.
- Keep soil moist by covering your seed containers with clear plastic and watering often until they germinate.
- Some seeds germinate best in darkness, others need indirect sunlight. Once germinated, move to direct sunlight or a grow light and rotate the containers a quarter turn each day.



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Dividing Perennials

Dividing perennials not only increases the number of plants you have, it also helps the plants grow and manages the size of the plants.

1. **Check the weather** for multiple overcast days and water the plants the day before dividing.
2. **Dig up the plant** and remove loose dirt around the roots.
3. **Separate the plant** so each division has at least three healthy shoots and many roots. You can divide the plants by gently pulling the roots apart by hand; using a sharp, clean knife; or by using two forks back to back to pull the plant apart.
4. **Keep the divisions moist and in the shade** until replanted.

Note

Divide fall blooming perennials in the spring and divide spring and summer blooming perennials in the fall four to six weeks before the ground freezes so the plants can prioritize regrowing roots and leaves.

Transplanting

You can save money by transplanting native plants but mortality rates of transplants is relatively high. Be ready to replant areas if needed.

- Make sure to ask for landowner permission before harvesting and do not take too many plants from any one area.
- Do not remove plants next to lakes, rivers or streams.
- Transplant in the early spring or late fall when the plants are dormant. This reduces trauma to their root systems.
- Choose sturdy-looking plants. Dig up the root ball as much as possible (extend your digging area at least to the width of the plant's branches).
- Once your transplant has been replanted, water frequently until well established.

Trees

Why plant natives?

Native and native-friendly plants help beautify your property, create habitat, prevent erosion, filter pollutants, and protect our waterbodies. They're also more resilient to pests and climate change.

Eastern White Pine *(Pinus strobus)*

Grows 100' tall with 40' spread. Long, soft, blue-green needles. Can be pruned to hedges or windbreaks. Zones 3-7. ○◐≡

Red Pine *(Pinus resinosa)*

Also called Norway Pine. Grows 80' tall. Rapid growth. Long, dark green, stiff needles. Reddish bark. Makes an excellent windbreak. First discovered near Norway, Maine. Zones 2-5. ○≡

Pitch Pine *(Pinus rigida)*

Grows 40' tall with similar spread. Cones have sharp prickles on each scale end. Tree may grow into irregular shapes. Prefers acidic soil. Zones 4-7. ○◐≡

Larch *(Larix laricina)*

Also called Tamarack. Grows 65' tall. Narrow and upright with horizontal branches. Fine, light-green needles turn yellow in fall and drop. Zones 2-4. ○◆

Balsam Fir *(Abies balsamea)*

Grows 50' tall with 20' spread. Needles are short, dark green, aromatic, and blunt. Small, light brown cones. Zones 3-5. ○◐●◆

White Spruce *(Picea glauca)*

Grows 60' tall with 15' spread. Needles are stiff, sharp, square, and pale green. Small, light brown cones. Zones 2-6. ○≡

White Cedar *(Thuja occidentalis)*

Also called Arborvitae. Grows 60' tall with 25' spread. A dense tree with flat, green aromatic foliage. Can be shaped for landscaping. A popular food for deer. Zone 3. ○◐◆

Eastern Red Cedar *(Juniperus virginiana)*

Grows 30' tall. Aromatic, scale-like foliage. Pale blue fruit on female plants. Resistant to drought. Zone 2-9. ○◐●≡

Plant Identification Key

○ More than 5 hours of direct sun per day

◐ 2 to 5 hours of direct sun per day or full day of dappled sun

● Less than 2 hours of direct sun per day

◆ Poorly drained soils and/or wet

≡ Well draining soil and/or dry year round

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Red Maple *(Acer rubrum)*

Grows 60’ tall with 40’ spread. Red and orange fall foliage. Dark long raised platy bark. Produces winged seeds. Zones 3-9. ○≡⬮

Sugar Maple *(Acer saccharum)*

Grows 75’ tall with 40’ spread. Orange -red fall foliage. Does not tolerate compacted soil. Used for maple syrup. Zones 3-8. ○◐≡

Striped Maple *(Acer pensylvanicum)*

Grows 35’ tall with 10’ spread. Vertical white stripes on bark. Large leaves with lemon-yellow fall foliage. Browsed by deer and moose. Zone 3-7. ◐●⬮

Red Oak *(Quercus rubra)*

Grows 75’ tall with 45’ spread. Rapid growth. Reddish-brown bark and dark green leaves. Red fall foliage. Zones 3-7. ○≡

White Oak *(Quercus alba)*

Grows 80’ tall with similar spread. Produces many acorns. Red fall foliage. Does not tolerate soil compaction. Zones 3-9. ○◐≡

American Chestnut *(Castanea dentata)*

Grows 70’ tall. Purchase hybridized varieties resistant to Chestnut Blight. Produces edible chestnuts and attracts wildlife. Prefers acidic soil. Zones 4-9. ○≡

Eastern Hop-hornbeam *(Ostrya virginiana)*

Grows 30’ tall. Fruits look similar to hops clusters. Yellow fall foliage. Sensitive to salt. Zones 5-9. ○◐●≡

American Hornbeam *(Carpinus caroliniana)*

Grows 30’ tall. Thin, smooth, gray to bluish gray bark. Dark red fall foliage. Zones 3-9. ●≡⬮

Black Tupelo *(Nyssa sylvatica)*

Grows 50’ tall with 30’ spread. High gloss dark green leaves. Multiple fall foliage colors. Prefers acidic soil. Zones 4-9. ○◐≡

Yellow Birch (*Betula alleghaniensis*)

Grows 80’ tall with 50’ spread. Attractive golden, peeling bark on older specimens. Yellow fall foliage. Zones 3-7. ◐●⬮

American Beech *(Fagus grandifolia)*

Grows 70’ tall and in an oval shape. Grows slow. Smooth bark and golden fall foliage. Produces edible beechnuts and attracts wildlife. Attacked by beech leaf disease. Zones 4-9. ○≡

Quaking Aspen *(Populus tremuloides)*

Grows 50’ tall with 30’ spread. Smooth, light colored bark. Yellow fall foliage. Zones 1-7. ○≡

Tall Shrubs

Why plant natives?

Native and native-friendly plants help beautify your property, create habitat, prevent erosion, filter pollutants, and protect our waterbodies. They're also more resilient to pests and climate change.

Common Elderberry *(Sambucus canadensis)*

Grows 12' tall with similar spread. Showy white flowers in June turn into black edible berries. Zones 3-8. ○◐⬮

Black Chokeberry *(Aronia melanocarpa)*

Grows 8' tall with similar spread. Prefers acidic soils. Good for soil stabilization. Spring white flowers with fall black berries that last through winter. Zones 3-8. ○◐≡⬮

Chokecherry *(Prunus virginiana)*

Grows 25' tall with equal spread. Spring white flowers with a strong, sweet fragrance. Bright red berries have astringent taste but attract birds. Zones 2-6. ○◐≡⬮

Staghorn Sumac *(Rhus typhina)*

Grows 10'-25' tall with equal spread. Clusters of fuzzy berry-like fruits are produced in the fall. Showy fall foliage. Zones 3-8. ○◐≡

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Gray Dogwood *(Cornus racemosa)*

Grows 10' tall with 10'-15' spread. Can form thickets. Tolerant of city air pollution. Small white clusters of flowers bloom in late spring. Zones 3-8. ○◐⬮

Pagoda Dogwood *(Cornus alternifolia)*

Grows 18' tall with similar spread. Spring white flowers with late summer purple berries. Showy fall foliage. Zones 3-7. ◐●≡

Red-twig Dogwood *(Cornus sericea)*

Grows 9' tall with similar spread. Young branches are red. Late spring small white flowers with fall fruit. Zones 2-7. ○◐⬮

Pussy Willow *(Salix discolor)*

Grows 15'-25' tall with similar spread. Produces soft purple-white catkins February through March. Important for early-emergent insects. Zones 4-6. ○◐⬮

Plant Identification Key

○ More than 5 hours of direct sun per day

◐ 2 to 5 hours of direct sun per day or full day of dappled sun

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Arrowwood *(Viburnum dentatum)*

Grows 6’-15’ with equal spread. Late spring white flowers produce blue-black fruit in fall. Showy fall foliage. Zones 3-8. ○◐●≡◆

Highbush Blueberry (*Vaccinium corymbosum*)

Grows 6’-8’ tall with 8’-12’ spread. Prefers acidic soil. White bell-shaped flowers followed by edible blueberries. Red fall foliage. Zones 5-7. ○◐≡◆

Witherod *(Viburnum cassinoides)*

Also called wild raisin. Grows 6’-10’ tall with lesser spread. Spring clusters of white to pink flowers. Whitish fruit turns blue-black in the fall for birds. Red fall foliage. Zones 3-8. ○◐●≡◆

Downy Serviceberry *(Amelanchier arborea)*

Grows 10’-25’ tall with 12’ spread. Prefers rich soil. Spring white flowers become dark red to purple edible berries. Zones 4-9. ○◐◆

Shadblow Serviceberry *(Amelanchier canadensis)*

Grows 30’ tall with half the spread. Clusters of white flowers become edible red/purple berries in late summer. Zones 4-8. ○◐≡◆

Allegheny Serviceberry *(Amelancheir laevis)*

Grows 25’ tall with equal spread. White flowers and purple/black edible berries. Zones 4-8. ◐●◆

Common Witchhazel (*Hamamelis virginiana*)

Grows 15’ tall with equal spread. Prefers acidic soil. Small, fragrant clumps of yellow flowers in early fall. Zones 3-8. ○◐◆

Winterberry *(Ilex verticillata)*

Grows 6’-10’ tall with similar spread. Bright red fruits last into winter. Male and female plants are needed to produce berries. Zones 3-9. ○◐≡◆

Beach Plum *(Prunus maritima)*

Grows 6’-8’ tall with equal spread. Spring white flowers are followed by edible purple fruits. Tolerant of salt. Zones 3-7. ○≡◆

American Hazelnut *(Corylus americana)*

Grows 18’ tall with 12’ spread. Requires multiple plants to produce edible nuts in fall. Zones 4-9. ○◐●≡

Highbush Cranberry *(Viburnum opulus)*

Grows 6’-10’ tall. White flower clusters. Red fall foliage and edible fruit ripen in winter. Zones 2-7. ○◐≡

Northern Spicebush *(Lindera benzoin)*

Grows 6’-12’ tall. Aromatic leaves. Requires male and female plants to produce edible red fruit. Yellow fall foliage. Zones 4-9. ○◐●≡

Small Shrubs

Why plant natives?

Native and native-friendly plants help beautify your property, create habitat, prevent erosion, filter pollutants, and protect our waterbodies. They're also more resilient to pests and climate change.

Bush Honeysuckle (*Diervilla lonicera*)

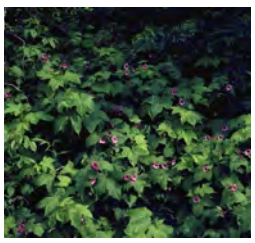
Also called American Fly Honeysuckle (do not confuse with the invasive European Fly Honeysuckle). Grows 2'-5' tall. Produces seed capsules. Drought tolerant. Zones 3-7. ○◐●≡

Fragrant Sumac (*Rhus aromatica*)

Dwarf variety grows 2'-3' tall with 6'-8' spread. Small, fragrant, yellow flowers in spring followed by red fruit. Crushed leaves are aromatic and orange to red fall foliage. Zones 3-9. ○◐≡

Sheep Laurel/Lambkill (*Kalmia angustifolia*)

Grows 1'-3' tall with a greater spread. Prefers organic, acidic soils. Pink flowers in early summer. Poisonous to livestock. Zones 1-6. ○◐≡💧



Purple-flowering Raspberry (*Rubus odoratus*)

Grows 3'-6' tall with 6'-12' spread. Maple-shaped leaves and large purple-pink flowers. Canes are thornless. Zones 3-8. ○◐●≡💧

Snowberry (*Symphoricarpos alba*)

Grows 3'-6' tall. Spreads by suckering to form thickets. Good for erosion control. Blue-green foliage, pink spring flowers, and white berries in the fall for birds. Zones 3-7. ○◐≡💧

Mapleleaf Viburnum (*Viburnum acerifolium*)

Grows 4'-6' tall with equal spread. Prefers mildly acidic soil. Clusters of small white flowers produce dark blue/black fruit for wildlife. Attacked by viburnum leaf beetle. Zones 4-8. ◐●≡💧

Shrubby Cinquefoil (*Dasiphora fruticosa*)

Grows 3'-4' tall with similar spread. Long-blooming yellow flowers with deciduous leaves. Good for erosion control. Zones 3-7. ○◐≡

Plant Identification Key

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◐ 2 to 5 hours of direct sun per day or full day of dappled sun

● Less than 2 hours of direct sun per day

💧 Poorly drained soils and/or wet

≡ Well draining soil and/or dry year round

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Bog Rosemary *(Andromeda polifolia)*

Grows 6”-30” tall with 3’ spread. Narrow, evergreen, leathery leaves with blue-green color. Small, pink, bell -shaped flowers. Prefers acidic soil. Zones 2-6. ◐●◆

Buttonbush *(Cephalanthus occidentalis)*

Grows 6’-10’ tall with similar spread. Large, showy, spherical flowers in summer, followed by fruits that persist into winter. Flood tolerant. Zones 4-11. ○◐◆

Summersweet *(Clethra alnifolia)*

Also called Hummingbird Clethra or Sweet Pepperbush. Grows 3’-8’ tall with 4’-6’ spread. Deep-green foliage and fragrant, white or pink flowers in summer. Zones 4-8. ○◐●◆

Labrador Tea *(Ledum groenlandicum)*

Grows 3’ tall with 3’ spread. Leaves are evergreen with a silvery underside. Clusters of white flowers bloom in the spring. Prefers acid soil. Zones 2-5. ○◐◆

Sweetfern *(Comptonia peregrina)*

Grows 2’-4’ tall with similar spread. Foliage has a strong spicy smell. Brown catkins in early spring and a bur-like nut in the fall. Grows well on poor, sandy, rocky soil like road banks and steep, dry areas. Zones 2-6. ○≡

Canadian Yew *(Taxus canadensis)*

Grows 1’-6’ tall with 6’ spread. Prefers alkaline soils. A popular food for moose and deer. Zones 2-6. ◐●◆

Rhodora *(Rhododendron canadense)*

Grows 1’-3’ tall with similar spread. Prefers acidic soils. Bright pink/purple spring flowers bloom. Zones 2-6. ○◐◆

Meadow Rose *(Rosa blanda)*

Grows 3’-4’ tall and spreads easily. Prefers rich soil. Pink flowers give way to red berries. Stems have very small prickles at base. Zones 3-7. ○◐≡

Virginia Rose *(Rosa virginiana)*

Grows 1’-6’ tall and spreads easily. Prefers poor soils, tolerates road salt. Pink flowers give way to red berries. Zones 3-8. ○≡

Northern Bayberry *(Myrica pennsylvanica)*

Grows 5’-6’ tall and spreads easily to form colonies. Foliage is semi-evergreen aromatic. Prefers acidic soils. Zones 2-6. ○◐≡

Sweetgale *(Myrica gale)*

Grows 2’-4’ tall with 8’ spread. Foliage is dark green and aromatic. Produces fruit similar to small pine cones. Zones 2-4. ○◆

Common Juniper *(Juniperus communis)*

Grows 3’-10’ tall with variable form from low and spreading to an erect shrub. Berry-like cones. Evergreen needles. Zones 2-6. ○≡◆

Perennials

Why plant natives?

Native and native-friendly plants help beautify your property, create habitat, prevent erosion, filter pollutants, and protect our waterbodies. They're also more resilient to pests and climate change.

Harebell *(Campanula rotundifolia)*

Grows 2' tall with 6" spread. Flowers are deep blue and bell shaped and bloom from June to September. Zones 3-8. ○◐≡

Black-eyed Susan *(Rudbeckia hirta)*

Grows 3' tall with 1'-2' spread. Leaves are rough, hairy, and lance shaped. Flowers are yellow to orange-yellow with a dark brown center. Zones 3-9. ○◐≡

Tall Meadow Rue *(Thalictrum polygamum)*

Grows 3'-8' tall. Small white inflorescences bloom in mid summer. Zones 3-8. ○◐≡⬮

Columbine *(Aquilegia canadensis)*

Grows 2'-3' tall with 12"-18" spread. Flowers are bell-shaped light pink, yellow, or red and attractive to hummingbirds. Zones 3-8. ○◐≡⬮

Goats Beard *(Aruncus dioicus)*

Grows 4'-6' tall with 2'-4' spread. Typically bushy and form clumps. Small white flowers grow in clusters and bloom early to mid-summer. Zones 4-8. ○◐⬮

Turtlehead *(Chelone glabra)*

Grows 2'-3' tall with similar spread. Flowers are white with a pinkish tinge and are similar to snapdragons. Prefers organic soil. Zones 3 to 9. ◐⬮

Bowman's Root *(Gillenia trifoliata)*

Grows 3' with 2' spread. Bushy plant with white star-like flowers in late spring and summer. Dark red stems. Good fall color. Zone 4. ◐●≡

Solomon's Seal *(Polygonatum pubescens)*

Grows 1'-3' tall. Pale green flowers bloom late spring to early summer. Blue berries in the fall. Zone 3-9. ◐●⬮

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Joe Pye Weed *(Eupatorium maculatum)*

Grows 4’-5’ tall with 18”-24” spread. Light pink flowers bloom from mid summer to early fall and are attractive to butterflies. Zones 4-8. ○◆

Boneset *(Eupatorium perfoliatum)*

Grows 4’-6’ tall with 3’-4’ spread. Clusters of small, white flowers bloom in late summer. Zones 4-8. ○◐◆

Blue Flag Iris *(Iris versicolor)*

Grows 1’-3’ tall with 6’-12’ spread. Leaves are sword shaped and flowers are blue-violet. Prefers organic, slightly acidic soils. Zones 3-9. ○◐◆

Cardinal Flower *(Lobelia cardinalis)*

Grows 2’-4’ tall with 1’-2’ spread. Bright red flowers are tubular, attract hummingbirds, and bloom in late summer. Zones 3-9. ○◐◆

Bee Balm *(Monarda didyma)*

Grows 2’-3’ tall with 1’-2’ spread. Blooms can be purple, red, or pink. Attractive to hummingbirds, butterflies, and bees. Zones 4-9. ○◐◆

Coneflower *(Echinacea purpurea)*

Grows 1’-3’ tall with 1’-2’ spread. Flowers can be red, white, or light purple. Prefers neutral to slightly alkaline soil. Attracts birds and butterflies. Zones 3-10. ○≡

Milkweed *(Asclepias syriaca)*

Grows 2’-3’ tall with 1’ spread. Clusters of pink flowers bloom late spring to summer and are attractive to butterflies. Zones 3-9. ○≡

Butterfly Weed *(Asclepias tuberosa)*

Grows 18”-24” tall. Clusters of orange flowers mid to late summer and are attractive to pollinators. Zones 3-9. ○≡

New England Aster *(Aster nova-angliae)*

Grows 18”-24” tall with 2’-3’ spread. Dark purple flowers are attractive to butterflies August to October . Zones 3 -9. ○≡◆

New York Aster *(Aster novi-belgii)*

Grows 1’-3’ tall. Light purple flowers bloom August to October and are attractive to butterflies. Zones 3-9. ○◐●≡◆

Obedient Plant *(Physostegia virginiana)*

Grows 3’-4’ tall with 2’-3’ spread. Pink or white flowers bloom late in the season. Divide every 2-3 years. Zones 3-9. ○≡◆

Jack-in-the-Pulpit *(Arisaema triphyllum)*

Grows 1’-2’ tall with 12”-18” spread. Striped “flower” in mid-spring and clusters of red berries in fall. Roots are poisonous. Zones 3-9. ◐●◆

Invasive Plants

What's an invasive plant?

There are many non-native plants that coexist with native plants. Invasive plants, however, are non-native plants that cause harm to Maine's economy and environment.

Addressing Invasive Plants

Caution: If not removed properly, they can spread!

1. **Positively identify** the plant. Measure the invaded area and decide whether you can DIY or need a professional.
2. **Each species has specific recommendations for proper removal or management**. Companies that offer pesticide-alternative invasive control can be found here: https://tinyurl.com/NoPesticidesRemoval. Animals (like goats) eat certain invasive plants and can clear larger areas.
3. **Sometimes it is better to prevent the invasive plant from spreading** instead of trying to completely remove it.
4. **Contain all removed plant material** (leaves, branches, berries, vines, stems, roots) in containers or tarps and allow it to dry out and die (preferably where you just removed it to reduce risk of spreading while moving).
5. **Check with your municipality** for allowed methods of disposal after the plant is dead (burning, transfer station, etc.).

Contact your local Soil & Water Conservation District or UMaine Cooperative Extension or the Maine Natural Areas Program office for help.

Common Invasive Plants

There are over 60 invasive plants that are illegal to import, export, buy, sell, or intentionally transplant in Maine. An additional 30 plants are being monitored and discouraged from spreading. Common invasive plants in yards include:

Asiatic Bittersweet *(Celastrus orbiculatus)*

Spreads by seeds and through roots. Woody vine with pointed leaves and red berries in fall. Manually remove with persistent cutting.

Japanese Barberry *(Berberis thunbergii)*

Spreads by seeds found in red berries. Branches can grow roots. Shrub grows to 6 feet tall, small rounded leaves. Remove manually, continue to cut new growth.

Japanese Knotweed *(Fallopia japonica)*

Spreads through its roots. Tall hollow stalks with wide leaves, late summer blooms. Remove manually, cover with thick material to prevent new growth.

Multiflora Rose *(Rosa multiflora)*

Spreads through seeds and rooting branch tips. Serrated leaflets, pale flowers in spring. Manually remove, with persistent cutting.

Maine's Full List of Invasive Plants:
https://www.maine.gov/dacf/php/horticulture/invasiveplants.shtml

Pictures from Maine Department of Agriculture, Conservation & Forestry

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Erosion Control Mix

What's Erosion Control Mix?

Erosion Control Mix (ECM) is made of partially decomposed bark, sand, gravel, stone, and wood fragments. The mixture locks together to become a heavy protective layer to prevent the underlying soil from eroding while retaining moisture, controlling weeds, and improving the soil.

Purchasing

ECM can be obtained from a local contractor, gravel pit, or sometimes your local transfer station. It can also be called Stump Grindings, Slope Stabilizer, Erosion Control Mulch, Superhumus, Forest Flume, or Wood Waste. ECM can come in a fine grade for landscaping and a standard "chunky" grade for slopes and paths. Be sure to check out the product prior to purchasing.

Installation

Permitting may be required if the project is nearby a waterbody.

Use ECM on paths, slopes, or between plantings **where bare soil is present**.

1. If using for landscaping, lay down wet newspaper or brown cardboard to act as a weed barrier.
2. Apply 3" to 4" thick and completely cover the weed barrier or bare soil.
3. Allow 1" to 2" of space around the base of plants.

Maintenance

- Inspect after heavy rain and replace as needed.
- Replenish every few years due to decomposition.

Other Covers

In places where native vegetation and ECM are unable to be used, consider these cover options:

- **Pine Needles:** Work best when left where they fall to build up the soil duff layer.
- **Bark Mulch & Wood Chips:** Lighter than ECM and erodes easier. Use products without dyes or chemicals as they can leach into the water.
- **Crushed Stone or Pea Stone:** Depending on the distance to the water, stone may not be allowed by the Maine Department of Environmental Protection or municipality.

Recommended Uses

It is not recommended to apply ECM on slopes greater than 2:1 (50%) or places with concentrated water flow.

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Pervious Paths

What's a pervious surface?

A surface that lets water flow through gaps and soak into the ground. Having pervious paths help direct foot traffic on a stable surface to prevent erosion, soil compaction, and other issues in the surrounding area.

Pervious Types of Paths

Grass $

Suitable for light foot traffic on flat to gentle slopes. May require watering, overseeding, and aerating. Will require frequent mowing.

Wood Chips/Bark Mulch $$

Suitable for moderate foot traffic on flat to gentle slopes. May require occasional raking, weeding, and mulch replacement as it decomposes.

Crushed Stone $$

Suitable for heavy foot traffic on flat to moderate slopes. May require occasional raking, weeding, and stone replacement.

Infiltration Steps $$

Suitable for heavy foot traffic on moderate slopes. May require occasional stone cleaning and replacement.

Stepping Stones $$$

Suitable for moderate foot traffic on flat to moderate slopes. Can use grass or crushed stone around stepping stones.

Pervious Pavers $$$$

Suitable for heavy foot traffic on flat to moderate slopes. Comes in variety of styles.

Pervious Path Design

- Pervious paths should be designed to slow down and absorb rain water and snowmelt into the ground or allow runoff to gently flow into nearby vegetation. This will help keep the path dry, prevent icing in the winter, and protect your property from erosion.
- Paths should be less than 6' wide.
- Paths should avoid being constructed on steep slopes and should meander to prevent erosion during storms. In areas where moderate to steep slopes are unavoidable, use water bars, infiltration steps, or wooden stairs with gaps between the boards.
- Contact your local Code Enforcement Officer if establishing a new path or revamping an existing path within the shoreland zone to determine if you need a permit.

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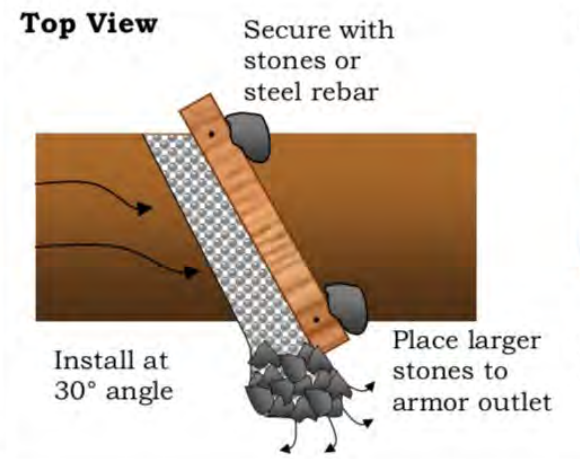
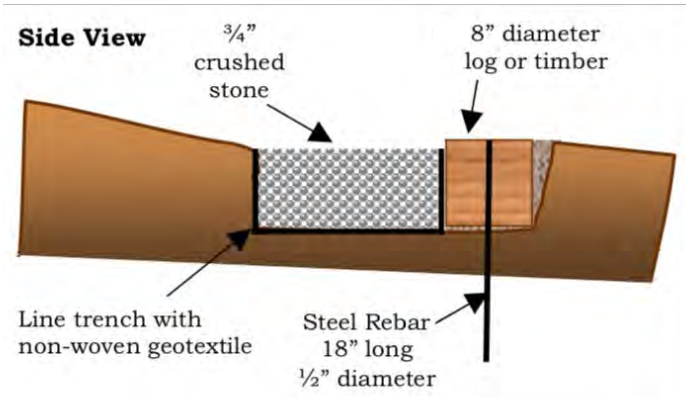
What's a water bar?

Water bars are logs or timber placed diagonally across a sloping path to divert water to a stable, vegetated area. Steeper slopes require more frequent water bars.





Materials List

- 8" diameter rot-resistant lumber or log
- 18" rebar at each edge of the log or lumber
- $^3/_4$" crushed stone to backfill around the water bar
- Non-woven geotextile fabric

Installation

1. **Dig the trench** at a 30° angle across the path. It should be deep enough for the lumber to be almost flush with the trail. The water bar should extend off both sides of the path.
2. **Place the log or lumber** snugly in the trench and secure on the downhill side with large stones or rebar pins. Rebar should be pounded into $^1/_2$" holes in the wood 6" from the edge. Soil and gravel should be packed on the downhill side.
3. **Fill a 12" wide and 6" deep trench along the uphill side of the bar with crushed stone**, leaving a few inches of the wood exposed.
4. **Cover all disturbed soil** with seed and mulch or leaf litter.

Maintenance

- Inspect and remove any leaves, sediment, and other debris built up behind the water bar after storms.
- Replace crushed stone as needed.
- Replace log or lumber if showing signs of rot.

Diagrams and image courtesy of Acton Wakefield Watersheds Alliance