



1 Getting to Know Your Woods: *A Landowner's Primer*

Have you ever wondered why trees do what they do? For example:

- ✿ Why does the stately sugar maple out in the yard have a white shelf mushroom growing out of the lower trunk? Will it kill the tree? Is it safe to hang a swing from one of its branches?
- ✿ Why did many of your large balsam fir trees die in the last ten years?
- ✿ Is there anything you should know before planting a weeping willow in the front yard?
- ✿ Fallen trees and dead branches look so messy. Do they have any value?

Not all woodlands are alike, but a basic understanding of how the woods grow will give you an idea what activities you can realistically pursue on your own property. Many terms introduced and defined here will come up again in other publications about trees and forests. These terms are also defined in the glossary for easy reference.

Your Woods are a Little Piece of the Forest of Maine

People played a significant role in shaping the forests of the state from its southern border to its northern tip. In fact, the history of Maine is intertwined with the history of its forest, of which your woods are a small but vital piece.

This is a landscape that, with a few exceptions, wants to be forested. Farmers who cleared the forest to make room for

fields worked constantly to keep trees from growing back. Next time you walk through an unmowed field, part the grasses to see if any small tree seedlings grow in the shade. You'll probably see some sprouting up. Today, 90% of the state is once again covered in trees — but the forests of Maine in general, and your woods in particular, show the effects of natural catastrophes and past and current land use.

The woods you see out your back door are shaped by human hands and decision making as much as by natural processes. New subdivisions in wooded areas, even local fire management decisions, effect the trees, tree frogs, salamanders, and chickadees on your property, as well as the water, fresh air, and soil that supports them.

Soil: The Foundation that the Woods are Built On

Just like a foundation of a house is not very noticeable once a house is built, soil is mostly hidden out of sight beneath grasses, shrubs and trees. But the soil beneath your feet is the most important part of the woods in your backyard. It is full of hidden life, from tiny creatures invisible to the eye to burrowing animals such as moles and earthworms. These billions of tiny excavators are at work churning old leaves and dead wood into nutrients. All that miniature excavating also mixes the soil, allowing oxygen to penetrate and water to soak into the ground through millions of tiny holes. Both water and nutrients are then sucked up through the roots of trees and plants which need both to be able to grow. Soil is what makes

lady slippers and trilliums, bluebirds and butterflies, deer and apple trees possible. Soil is even responsible for a favorite breakfast. Sugar maple trees (that make the sap that turns into maple syrup that we pour on our pancakes) need soil to grow.

Those sugar maple trees won't grow just anywhere, though. Soil varies from one location to another. Specific soil types and conditions determine what kinds of tree and plant species will grow well in a certain location. See *The Woods in Your Backyard: Being a Friend to Your Woods* for more in-depth information about soil.

How an Old Field Grows into a Woodland

The state of Maine is unique in that it is home to two distinct types of forests that overlap in the middle of the state. Maine straddles the warmer growing conditions found to the south in Massachusetts and the colder conditions found to the north in Canada. As a result, a mix of northern hardwoods, or **deciduous** trees that lose their leaves in the fall, are common in the southern and central parts of the state where temperatures are somewhat milder. It's common to find birch, beech, maple and white pine growing with a variety of other trees in this region.

A mix of spruce and balsam fir trees are common in the northern and eastern parts of the state. These evergreen trees are suited to the shorter growing season to the north.

If you live in South Windham, for example, your property may tend toward the northern hardwoods and even include species like shagbark hickory that are not found farther north. If you live in Greenville, spruce and fir are more likely to be the dominant tree species on your property. Other factors besides climate also play a role in deciding which trees grow in certain locations. Soil types, soil moisture, and whether your property has north or south

facing slopes also determine which tree species grow well in certain locations.

Have you ever found an old stone wall in the middle of the woods and wondered where it came from? It probably marked the boundaries between two farm fields cleared by hard working farmers over a century ago. Where there once was a field, now there are tall trees. Change occurs all the time. Trees blow over in winter storms. Young trees grow up to replace them. Over time, the trees, plants, and animals that live in a young forest are slowly replaced by those that live in a mature one.

Let's look at an old field being overgrown to get an idea how a woodland grows.

Tree species that love sunshine, like alders, pin cherries, gray birch, white birch



and poplar, will grow first because they need full sunlight to grow and produce seeds. These sun worshipping trees are **shade intolerant** since they only grow well in full sun. As they grow, they provide shade for species like red oak and white pine to get a start in partial shade. Sun loving, or **pioneer** species, grow fast and live short lives. When their growth spurt starts to slow down after a few years, the more **shade tolerant** secondary species begin to replace them.

Many shade tolerant trees grow fine in full sun, but they don't grow as fast as intol-

erant species, so they have to wait for the pioneers to slow down before they get their chance. If you have intolerant species like poplar and gray birch growing vigorously on your property, take a look for tolerant seedlings growing underneath. It's likely you'll see some **conifers**, or cone bearing evergreen trees like spruce, sprouting up in the semi-shade.

As the secondary species begin to take over, tree species that are extremely shade tolerant, like hemlock, grow up in their shadow. These species tend to grow slowly and live a long time. Over time, shade tolerant species may dominate the woodland where an old field used to stand.

The process of a forest growing up and growing older is called **succession**. The cycle

fierce wind storm blows over several shallow rooted spruces, or a beaver comes out of the creek and chops several poplars down, sunlight suddenly reaches through the **canopy**, or the ceiling of the woods created by the foliage, to the forest floor. Small trees and seedlings that are moderately shade tolerant and have grown slowly in the shade due to a lack of sunlight, suddenly grow to fill the opening or **gap**.

The woods are a complex place, but when it comes right down to it, trees are even more competitive than people. Each individual tree in the woods is out for itself. Each competes for sunlight, water, nutrients, and growing space. Some will do better than others. Not surprisingly, this phenomenon is called **competition**.



*Forest Succession:
An old field grows into a woodland*

of succession begins on overgrown fields and areas burned by wildfire, where woodlands have been cut down, and on bogs that fill in and are overtaken by trees. Other areas **disturbed** by natural and human forces will also start the process of succession. The actual species of trees and plants that grow on a disturbed area are influenced by many factors, so the old field succession summarized here is only a basic model.

Now, the woods out your back door may be at one of the stages of succession outlined above, but things are not quite so neat and tidy out in the real woods. After a

Trees crowded together in a woodland tend to be smaller and less healthy than trees with the room and resources to grow. An overcrowded woodland may deceive you into thinking the smaller trees are young, when in fact they are older trees stunted by poor growing conditions. Overcrowding can be eliminated by taking out some trees to make more room for the rest.

If your woods used to be an old field, most of the trees will tend to grow older at more or less the same rate, creating a sort of Baby Boom generation known as an **even aged** woodland. Examples of even aged

woodlands are the mature spruce and fir forests that grew up after sheep farming and agriculture was abandoned around the turn of the century on the Downeast coastal islands. Mature spruce and fir woodlands tend to have old trees with deep shade beneath the canopy where moss tends to grow, but there is very little underbrush or small trees due to lack of sunlight. An even aged forest can occur in any forest type.

Mature even aged woodlands also tend to appeal to many people since they create a “park-like” look. Unfortunately, even aged woodlands are susceptible to disease and insect epidemics as they grow older. The result is that many trees die and blow over within the short span of a few years, replacing the park-like look with a tangle of snags and blow downs.

This is particularly true in spruce and fir forests along the coast.

Your woods may have different sizes, ages, and species of trees as a

result of wind and ice storms, patchy woodland fires, thinning of trees by property

owners, or small clearings created by cutting down trees. The trees in these **uneven aged** woods are a lot like people in an extended family. As each season passes and turns into years, children grow up and have children of their own. Parents grow older. Over time, new faces at family reunions replace old ones as the community of family members slowly changes with each birth and death. The trees of an uneven aged woodland are also of various ages and have variable growth rates.

The uneven aged woodland tends to resist disease and insect infestation and attract more kinds of wildlife than an even aged woodland. They also tend to have a

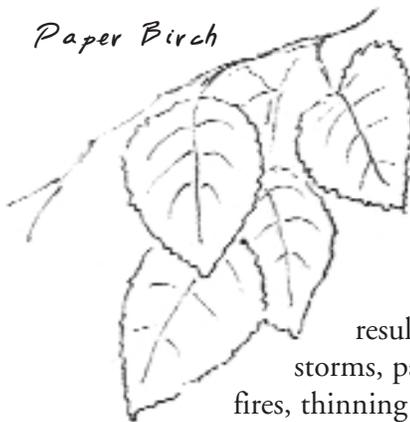
variety of different colors and patterns, and are more likely to be filled with the songs of many birds.

Plants and trees from the woods and the fields meet and mix at the **edge** of the woods where it meets your lawn. This creates a variety of food and **cover**, or hiding and living spaces, for many kinds of birds and wildlife.

The **forest floor** is home to small woodland flowers and bushes, tree seedlings, small mammals, ground nesting birds, insects, amphibians, and many other kinds of life. Small mammals like voles use rotting logs on the forest floor for hiding places and escape routes. Ruffed grouse use them as “drumming” logs during the spring courtship season. One of the most important and most overlooked pieces of the woodland puzzle is decaying wood and leaves, known as **leaf litter**, that are home to earthworms, beetles, and microscopic organisms that recycle rotting material back into nutrient rich soil. Once recycled, tree and plant roots suck these nutrients up out of the soil.

The overall **structure** of a woodland is made up of gaps, edges, creeks, bogs, ponds that dry up in late summer, as well as the different heights of trees found in the woods. The structure can be very simple if one species of tree is planted at the same time to cover an area, or it can be a complex woodland with small, medium, and large trees combined with a variety of geographic components like rock outcroppings, wetlands, and streams. Structure is important when considering improving the woods for wildlife.

Put all these pieces together — the trees, shrubs, and plants that grow in the woods, the soil and water that supports them, and the animals, birds, frogs, insects, and microorganisms that live there — and you have much of what makes up a busy woodland community.



Paper Birch



Spruce-Fir Forest: Spruce, Balsam Fir, Isolated Birch

More About the Forest and the Trees

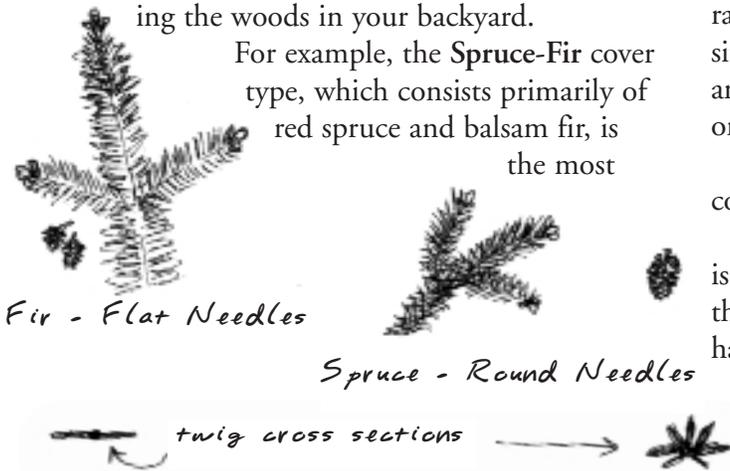
Even though the forest of Maine is generally dominated by either spruce-fir or northern hardwoods, there are also other **forest cover types** in the state. Cover types are groupings of tree species that tend to grow together under the same conditions. Many tree species may grow together in a cover type, but usually two or three species are most common. There is no need to memorize the cover types, but being aware of them can help guide you in understanding the woods in your backyard.

For example, the **Spruce-Fir** cover type, which consists primarily of red spruce and balsam fir, is the most

common type in northern and eastern Maine. Other sun-loving tree species may grow thickly in some places where the successional cycle is starting over, but eventually they will be replaced by the spruce and fir that dominates the area. This is the forest of the moose, lynx, spruce grouse, and gray jay. The interior of a spruce-fir woodland is often so dark that little underbrush grows on the forest floor, even though there may be a lot of fallen dead trees. Balsam fir is a short lived tree species; its life span typically ranges from 50 to 80 years, depending on site conditions. Red spruce is longer lived, and on a good site can easily live 120 years or more.

There are four other common forest cover types in Maine.

The **Northern Mixed Hardwoods** type is made up mostly of deciduous tree species that are also known as broad leaf trees or hardwoods. Colorful fall foliage usually indicates that a woodland is made up of mixed hardwoods. Yellow birch, sugar maple, and American beech are the





Northern Mixed Hardwoods: Oak, Maple, Beech, Yellow Birch, White Birch, Sugar Maple

most common species in this cover type. Other deciduous species like white ash, paper birch, red oak, and conifers like white pine and eastern hemlock, are often also found in this type. The white-tailed deer and black-capped chickadee are common here. Ferns, spring flowers, small trees and bushes tend to grow in the filtered light beneath the canopy.

Northern mixed hardwoods are common in southern, central and western

Maine. The spruce-fir and the northern mixed hardwoods overlap in the middle of the state and in parts of eastern Maine. This overlap is referred to by many as the **Acadian** type.

Pine-Oak woodlands, which are found in the southern part of Maine, include white pine and red oak and may include red pine and a variety of other oaks that are not usually found in other parts of the state, as well as a variety of other hardwood species.

Gray squirrels, wild turkey, and white-tailed deer tend to live in this cover type.

Aspen-Birch types are usually composed of quaking aspen (which is also known as poplar or popple) and paper birch. Both are pioneer species that invade disturbed areas, but don't grow well in the shade. Other species, like pin cherry and red maple, often grow with aspen and birch. Trees



Acadian Mix

in this cover type are usually not very big and a lot of light is available for shrubs to grow. Ruffed grouse, or partridge as they are commonly known, prefer this cover type.

Pure stands of one species can be found in any of the cover types. Sometimes this is a result of planting or thinning; sometimes one tree species naturally dominates the site. Pure stands of red pine, white pine, hemlock, and beech are common in some parts of the state.

Not all woodlands fit neatly into one type. So how do you figure out what you have? Do you have mostly evergreens on your property with a few hardwoods in gaps and edges? Or do you have mostly hardwoods with a few tall pines? Determining whether you have hardwoods or evergreens is a good place to start. From there, you can identify some of the most common trees in your backyard.

The Resiliency of the Maine Forest

Succession, competition, and forest types are influenced by past land use — both planned and unplanned. The woods across the state have been both well used and abused by humans. Fire, insects, disease, severe wind and ice storms have also played a large role in shaping the forest of Maine. Fortunately, the soils and tree species that grow in the state are remarkably resilient compared to other parts of the country and the world. Still, we can't take the woods out back for granted. They have become more important in every way as time goes by, not less. And as much as they invite our attention, they also deserve our respect for giving so much back.

R E S O U R C E S

Woodland Ecology

Forest Nutrient Cycle. University of Maine Cooperative Extension. 2 pp. Bulletin #7029. Free. To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

Hunken. *Ecology for All Ages, Discovering Nature through Activities for Adults and Children.*

Provides teachers, parents and naturalists with games and experiments for many environments. \$16.95. (#EE-3011). Available from Acorn Naturalists. To order: 800-422-8886 or the Internet at <http://www.acorn-group.com>

Krasny, Marianne E. 1992. *Trees: Dead or Alive.*

This guide encourages youth to learn all about trees. Includes educational information/activities on plants and animals that rely on trees to survive. Cornell Cooperative Extension. 44 pp. 4-H Leader's Guide #147-L-22. \$6.00. To order: 607-255-2080 or the Internet at <http://www.cce.cornell.edu/publications>

Raindrops Keep Falling: How Woodlands Affect Our Water Supply. University of Maine

Cooperative Extension. 4 pp. Bulletin #7070. Free. To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

Why Leaves Change Color. University of Maine

Cooperative Extension. 2 pp. Bulletin #7078. Free. To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>.

Tree Identification

Conifers of Maine. University of Maine Cooperative Extension. 28 pp. Bulletin #7015. \$0.75. To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

Forest Trees of Maine. Twelfth Edition. 1995.

Department of Conservation, Maine Forest Service. 115 pp. Illustrated identification guide to the native trees of the state. \$1.00. To order: 800-367-0223 or call your local field forester.

Forest Trees of the Northeast. 1997. Descriptions

and line drawings of 27 trees. Also describes distribution in the U. S., life histories, common diseases, insects, and injuries. Includes uses of the wood, history and folklore about many species. Cornell Cooperative Extension. 227 pp. #147IB235. \$17.95. To order: 607-255-2080 or the Internet at <http://www.cce.cornell.edu/publications/natural-resources.html>

Scouting Your Land: *A Woodland Expedition*

With paper, pencil, a rough sketch map of your woods, and the Woodland Expedition Checklist provided here, you can get to know your woods pretty well. Scout your woods with your family, scout group, or neighbors competing as teams to try to find the most items on the Expedition Checklist. If the teams also sketch the location of the items they find on a rough map as they go, they will be able to record locations of items on the checklist.

If this activity is used by teams, create a Master Map so each team can sketch what they find when they finish. After the project is complete, it's a good idea to make a dozen photocopies of the finished Master Map and add the other backyard family projects to the map as you do it. Before you know it, you'll have a good picture of your land that you can read in just one glance at a Master Map.

The directions below assume you will work in teams, rather than alone.

GETTING READY

1. You'll need to draw a map of your property. This can either be a rough sketch from memory or a detailed map you make by using your property deed descriptions, property boundary markers on the ground, and by measuring directions and distances with a compass. (*See the resource list for references on how to map your property*). For now, a rough map will serve. If you have several acres, it's a good idea to flag your property lines before you start scouting your land. This will help orient you as you go.
2. Your scouting teams should be familiar with *The Woods in Your Backyard: Getting to Know Your Woods*, or you'll have to explain the concepts to them. A lot of middle school-aged children have already learned some of these concepts in school.
3. Decide how many stops you will make based on the size of your woods. If your property is 300 feet long, you may want to stop every ten steps to do a quick inventory. If your property is ten acres, you may want to stop every 100 steps so you can finish the activity in an hour or so.
4. If you have more than one group, you'll need to space out the teams on parallel paths that don't cross each other. All teams should start their expedition on the same boundary line and end up on the same finish line. (*Using a compass bearing for each team will keep them in a straight line and will be quite useful if you plan to do any other activities in this booklet, but it is not essential for a first time reconnaissance. If you are interested in basic compass skills, check out Backyard Family Project #5: How to Find Your Way in the Woods and do that activity before this one. You may be glad you did*).
5. Read *The Woods in Your Backyard: Safe, Safer, Safest!* before you venture out into the woods. It's easier than it seems to get lost in a few acres, especially if your property is part of a bigger woodland. Before you go, be sure everyone knows how to find their way back to a common meeting place in a certain time frame, and set a plan for what to do if your or your team becomes disoriented. For larger groups, it's a good idea for everyone to wear an inexpensive whistle on a string around their necks with instructions to use them only if really lost. Recent winter storms can also create hazard trees or widow maker branches that can be dangerous. Knowing what to look for will

TOOLS

make your scouting safer. If you plan to go alone, be sure to tell someone where you are headed and when you plan to be back.

You will need:

- ✿ Copies of the Checklist for all expedition members.
- ✿ Copies of the property boundary map for each team, if you are working in teams. (*This can be either a rough sketch map or a precise map.*)
- ✿ Pencils with erasers.

Optional:

- ✿ Colored flagging tape to mark property boundaries. (*Flagging is available at hardware stores.*)
- ✿ Whistles on strings.
- ✿ Clipboards. This makes drawing on the map much easier.

DOING THE ACTIVITY

Time Frame: 1 to 2 hours. *Time varies depending on the size of the woods and how many stops you make. Count an extra half hour for different teams to put their information on a Master Map that everyone can see at the end of the activity.*

1. Look at the Expedition Checklist and review terms in *The Woods in Your Backyard: Getting to Know Your Woods* aloud, so everyone understands the terms used.
2. Review safety.
3. Review how to recognize property lines (*Look for certain colored flagging, stakes, blazes, or a combination of markers, depending on what you have already found on your boundaries or put up yourself.*)
4. Decide how far apart each stop should be. (*For example, it could be every ten steps on a small property or every hundred steps on a larger one.*)
5. At each stop, mark approximately where you are on the map.
6. Look at the Expedition Checklist, then look around. Check off what you see on the list. Also write what you see next to the spot you marked on the map. (*Be sure to write small, or come up with your own shorthand, so it will all fit on the map.*)
7. All the teams can meet to create the Master Map at the end of the activity. If only one person or one team scouts the land, make several parallel lines through your property and mark up the map as you go. When you finish your expedition, you will also have completed your Master Map.

At each stop, look around and write down the answers to the following questions on the map.

- ☛ Do you see hard woods, soft woods, or both?
- ☛ Are the hardwoods big, medium, or small in size?
- ☛ Are the softwoods big, medium, or small?
- ☛ How close together do the trees grow?

Are they hard to walk through? If so, they are crowded.

Are they ten feet apart or more? If so, they are well spaced.

**W O O D L A N D
E X P E D I T I O N
C H E C K L I S T**

- Boundary Marker
or Boundary Tree
- Oak Tree
- Maple Tree
- Pine Tree
- Spruce Tree or Fir Tree
- Stream
- Wet Area
- Rocky Outcropping
- Old Stone Wall
- Sloped Area
- Depression in the Land
- Rotting Log
- Gap
- Shade Tolerant Tree
- Shade Intolerant Tree
- Ferns
- A Woodland/Field Edge
- Even Aged Woods
- Uneven Aged Woods

Is there a lot of downed trees to climb over? If so, note that there is deadfall.

Now, go through the checklist below and check off what you see.

Every time you see the item again, put a tally mark next to it on the checklist. For example, if you see three maple trees at one stopping point, make three tally marks beside "maple tree" on the checklist. If you see two more at another point, mark those numbers beside the first three. This way you'll have a running tally of comparative numbers that will allow you to see which trees you have in greater quantity. *(Of course, what types of trees grow on your property probably varies from site to site, so the more lines you walk through your woods, the better picture you'll have of what grows on your property).*

Don't forget to mark what you find on the map, too, so you also know where certain species grow.

RELATED ACTIVITIES

Mapping Your Land

Learning how to read a deed, read topographic maps, use a compass, and create a map for your own land is a lot like a treasure hunt based on a few clues. This can be a lot of fun to learn and map and compass skills are useful for a life time.

The town office can provide a photocopy of the town tax map where your property is located. Contact your town office to also find out if

this information is on the Internet. Topographical maps that show streams, elevation changes, and other features can be very helpful, too. A good outdoor store will help you find the topo map you need. Your property deed will have some ideas about how to locate your boundaries, including locations of iron posts or trees with markings made by an ax on the trunks. It's a good idea to have a copy of your deed in a safe place. Copies are available at your county Registry of Deeds office.



Resources:

University of Maine Cooperative Extension/*Yankee Woodlot Bulletins*, \$0.75 individually, or \$5.00 for the complete set of ten bulletins (#7068).

To order: 800-287-0274 or the Internet at <http://www.umext.maine.edu>

Bulletin #7508 *Getting Started*

Bulletin #7127 *Using a Map and Compass*

Bulletin #7077 *Where is it? Deeds and Boundaries*

All About Trees

Learn how to identify trees, more about how trees work, and what roles they play in the woodland community. Tree identification games are easy to make up. See how many the family can identify from the car next time you are on a long driving trip. In the woods, each family member can pick a tree of their own and keep track of it to see how it changes over the seasons and the years. Planting and tending to “family member” trees in the backyard is another way for children to make a lasting connection to nature and also encourages a sense of responsibility towards the world around us.

Resources:

Forest Trees of Maine. Maine Forest Service. To order: 800-367-0223 or call your local field forester.

Maine Forest Service Stewardship Information Sheets

#4: *Trees and Tree Rings*

#5: *The Simple Life of a Complicated Tree*

#6: *A Double Lifespan: A Tree Dies, A Forest Flourishes*

To order: 800-367-0223 or call your local field forester.