The Woods in Your Backyard

A Homeowner's Guide

A Department of Conservation, Maine Forest Service Publication

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The Woods in Your Backyard

A Homeowner's Guide

Introduction 5

1. Getting to Know Your Woods: ***A Landowner's Primer*** 7
Family Project: Scouting Your Land: A Woodland Expedition

2. Home Improvement for Wildlife: ***Making Your Woods Attractive to Wildlife*** 18
Family Project: A Wildlife Safari in Your Woods

3. Beauty and Adventure Out Your Backdoor: ***A Place for Fun and Reflection*** 28
Family Project: Planning a Woodland Wildflower Garden

4. From Mushrooms to Maple Syrup: ***Specialty Products from Your Woods*** 37
Family Project: You Can Grow Mushrooms!

5. Safe, Safer, Safest: ***Be Aware of Woodland Hazards*** 45
Family Project: How to Find Your Way in the Woods; Basic Map and Compass Skills

6. Being a Friend to Your Woods: ***Protecting Your Land from Damage*** 54
Family Project: Getting Down and Dirty with Your Kids: The Soil Beneath Your Feet

7. Neighborly and Family Relations: ***Benefits of Working Together*** 64
Family Project: How About a Community Trail?

8. Turning Great Ideas into Action: ***Planning is the Key!*** 72
Family Project: Creating a Plan for Work and Fun

Glossary 88

The Woods in Your Backyard

If you were lucky enough to grow up near a patch of woods, you probably remember being so eager to get outside to play that you could barely sit still long enough to finish your breakfast. There were snow forts to build in winter, tree forts to build in summer, and frogs and salamanders to catch in ponds and streams. Whether it was a hundred acres or a vacant lot down the block, the woods were a special place where things changed daily. If you were there often enough, it's likely you saw ferns uncurling in the spring, fallen trees after a windstorm, squirrel tracks in the snow, and the first song birds back from their winter away.

Maybe you missed out on living near the woods as a kid. Don't worry. The woods in your backyard still offer all that and more. They offer the mystery and adventure children love and the privacy and quiet so often lacking from our busy lives.

Depending on your interests and the size of your property, you can create a tranquil woodland flower garden, earn a little income, teach conservation practices to your children, or work with your neighbors to create a community hiking trail. And not only can you have fun doing it, but you don't have to go anywhere. The woods are right out your back door.

Your Woods are a Good Neighbor

The woods may seem quiet and restful except for the birds singing and the wind rustling through the trees, but they are quietly working away behind the scenes. When they are working well they can:

- provide homes for a variety of wildlife
- purify the air we breathe
- clean the water that filters through them
- reduce heating costs in winter by buffering wind
- cool homes in summer by providing shade
- muffle traffic noise
- provide a sense of privacy and peace
- provide some income or tax relief
- increase property values

You Decide How Much Time and Money to Spend

There are many reasons for spending some time and effort in your woods, but how much time and money you want to spend is up to you. You may decide all you want to do is walk around and get to know your woods a little better. Or you may decide you have some safety hazards near your house that you need to take care of. There are a lot of possibilities. Here are a few ideas:

- plant trees and shrubs that attract birds and wildlife
- create cross country skiing and hiking trails
- put up bird nesting boxes
- grow herbs, ginseng, and mushrooms for sale
- cut firewood while improving homes for birds and wildlife
- turn trees into furniture or house lumber for your own use
- grow a woodland wildflower garden or a fern garden
- plan a nature trail with a local youth group
- create a scenic picnic spot

The Homeowner's Guidebook, Resource Lists, and Glossary

This resource guide will help you understand the woods in your backyard and give you some ideas about how to work

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 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 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

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.

Paper Birch

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.

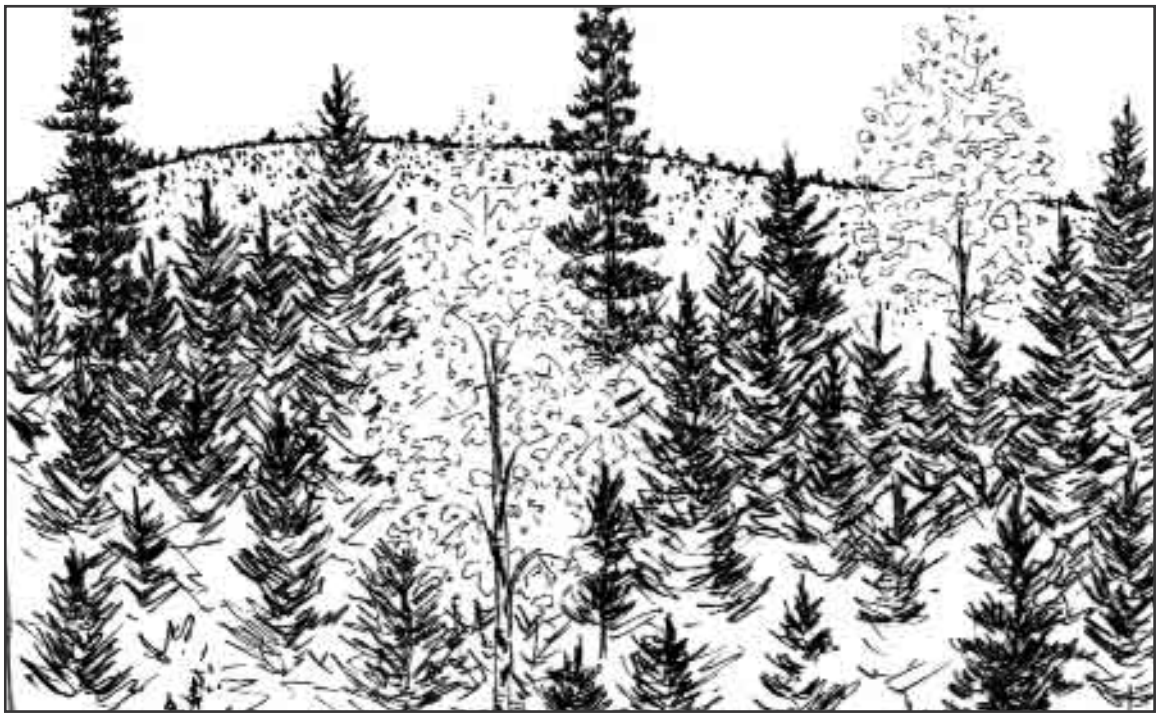
The uneven aged woodland tends to resist disease and insect infestation and attract more kinds of wildlife then an even aged woodland. They also tend to have a variety of different colors and patterns, and are more likely to be filled with the songs of many birds.

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.

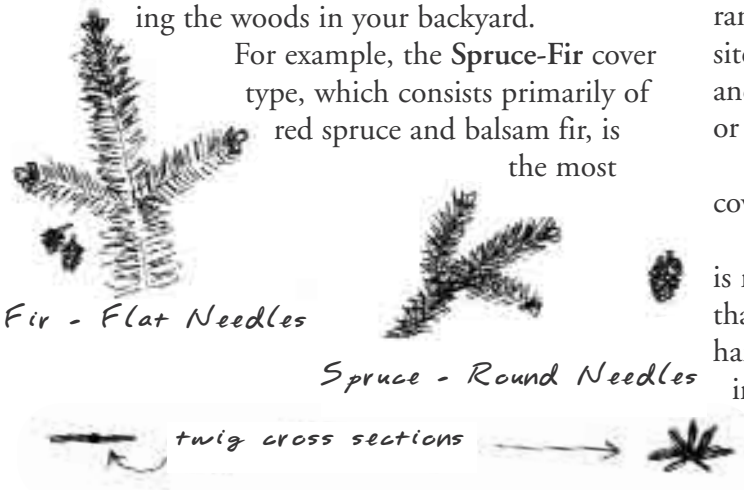


Spruce-Fir Forest: Spruce, Balsam Fir, Isolated Birch

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.

Acadian Mix

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

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.

Resources

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.

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.

Woodland Expedition Check List

- ☐☐☐ 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

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 back-yard is another way for children to make a lasting connection to nature and also encourages a sense of respon-sibility 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.

with your property, whether you own a 1/10 acre house lot or ten acres on the edge of town.

Each chapter gives an overview of the topic, then points you to a *Resource List* of people, organizations, publications, and Web sites that will give you more detailed information on your particular interests. Addresses, telephone numbers and Internet Web site addresses are provided when known. Any listed publication without ordering information can be borrowed through interlibrary loan from your local library or ordered through a bookstore.

Family Projects are included at the end of each chapter. The Family Projects show you how get to know your property as a family and have fun doing it. The activities are most suitable for older children and teens, and all require adult supervision. They can also be adapted by teachers or youth group leaders for instructional use with older students. When completed, the family projects also provide a planning framework for work in your woods.

Unfamiliar terms that you are likely to see again in other forestry publications are in **bold face type** in the text and are defined in the *Glossary* at the back of the guide.

RESOURCES

The following agencies and organizations often collaborate to provide a wide range of information, services, and training for small landowners. They are good initial contacts for landowners seeking information. They can also direct you to local contacts in your area.

Maine Forest Service

Provides information and assistance to landowners on sustainable forestry practices, logging, insects and diseases of forest trees, forest fire prevention and control. Call for the number of the Forest Service field forester in your area.

Forest Information Center:
800-367-0223 (In-state only)
or 207-287-2791
Forest Fire Information:
800-750-9777 (General Information)
888-900-FIRE (Fire Emergency Only)
Insect and Disease Management: 207-287-2431
Internet site at **http://www.state.me.us/doc/mfs**

University of Maine Cooperative Extension

Provides practical, well-researched information on topics ranging from gardening and forestry to family projects and nutrition. Call for a catalog of publications or the number of your local Cooperative Extension Agent.
General Information Number:
800-287-0274 (In-state) or 207-581-3188
Internet site at **http://www.umext.maine.edu**

Natural Resources Conservation Service (NRCS) / Soil and Water Conservation Districts (SWCD)

Provides information and assistance to farmers and non-agricultural landowners (including homeowners on house lots) on how to protect soil, water, and the plants, trees, and animals that rely on them. Call for the number of your local office.
General Information Number: 207-866-7241
Internet site at **http://nrcs.usda.gov**

Small Woodland Owner's Association of Maine (SWOAM)

A non-profit membership organization that encourages sound forest management practices on small properties. Offers informative workshops on a variety of topics including: chainsaw safety techniques, tree identification, managing woodlands for wildlife, and others. Membership not required for attendance. Nine local chapters around the state.
General Information Number: 207-626-7992

2 Home Improvement for Wildlife: *Making Your Woods Attractive to Wildlife*

There are many things you can do to attract wildlife to your property. How much time and effort you want to spend is entirely up to you.

On a small scale, you can put up a bird feeder and a bird bath in places most suitable to attract a variety of birds. On a larger scale, you can improve living conditions for many types of wildlife. In fact, small landowners like yourself are essential to wildlife. You have many options. Here are a few:

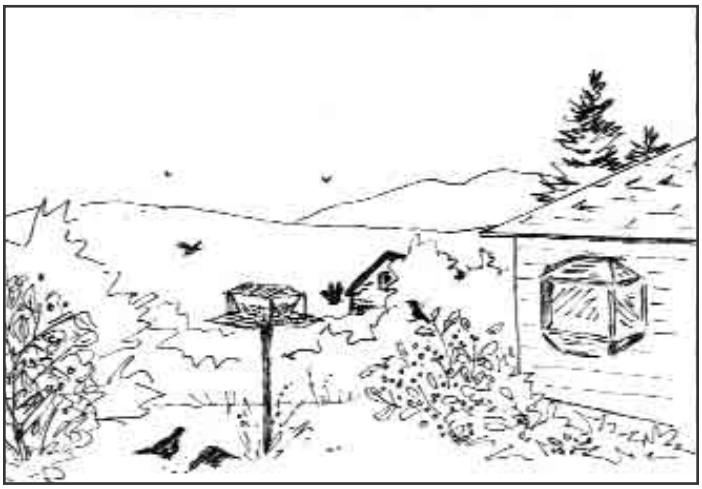
- Plant flowering dogwoods and shadbush to provide food for over twenty species of songbirds.
- Encourage the growth of white pines, hemlocks and other conifers that provide important food for wintering birds like chickadees, pine siskins, and small mammals like red squirrels and voles.
- Clear a patch in your woodland for migratory songbirds, deer, ruffed grouse, woodcock and other species that benefit from the vigorous tree growth that occurs after space is opened up.
- Create a snag, or a standing dead tree, for the many species of wildlife that use them.
- Create brush piles that wild turkeys, rabbits, hare, and small mammals use for nesting and hiding.
- Dig a small pond or pool so wildlife have an accessible water source.

Habitat: Where Wildlife Live and Work

Wildlife need the same basic things we do. Just like we need food and water, a house to live in, and space to stretch out and move around in, wildlife need (1) food, (2) water, (3) cover, and (4) space. These four components make up the **habitat**, or living requirements, of each species.

Some background in what wildlife need

Habitat Components



Food

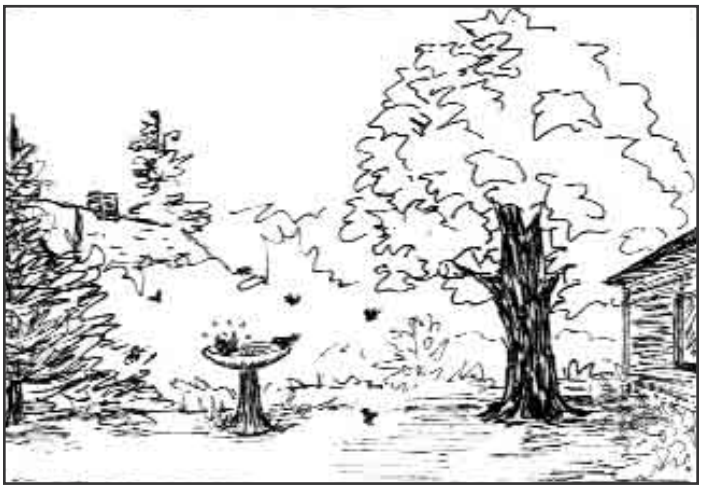
Space

will help you plan habitat home improvements that really work on your property.

Food needs vary from one species of wildlife to another. Some birds eat only certain types of seeds, for example, while others eat only insects.

Water availability is crucial. A water source as simple as a birdbath or a large bowl can attract a variety of animals.

Cover is the place where animals can rest safely in much the same way we do when we lock the door to our house and go to bed. Cover may be a den in a rocky hillside for a red fox, whereas snowshoe hares hide beneath the sheltering branches of evergreen trees and wood frogs find shelter beneath dead leaves on the forest floor.



Water

Cover

Space is the entire area, or territory, that each animal needs to find food, water, and cover. It's easy for us; food is in the refrigerator, water comes out of the tap, and our bedroom is down the hall. But just imagine how large our habitat would need to be if we were settlers to a wild country and had to haul our water from a stream, hunt for meat, and gather berries and nuts. We would need to roam a bit to make our living — how far would depend on the seasonal availability of food and shelter.

This is exactly what wildlife do. How much they roam depends on what they eat, how much water they need, how much cover is available, and how much room they need to do their daily jobs of avoiding predators, eating, courting, and raising a family. A gray squirrel needs a couple of acres of mixed hardwoods. A ruffed grouse needs forty acres. Neither can live in a mature spruce and balsam fir forest. Some songbirds need only a small space right around their nest during breeding season if food and water are nearby. Others defend 200 acres of woods during the breeding season and will not raise a family without it.

During breeding season, wildlife may also have special nesting or denning habitats that provide extra protection for their young. This may be a nest in a tree, thick brush in a damp area, or many other places they don't use at other times of the year.

Some Woodland Features That Are Important to a Variety of Wildlife

Your lawn is a clearing in the forest. If you quit mowing, trees will probably grow back in and create or increase the shrubby edge between your woods and your lawn. An **edge** is any place where two different natural areas meet. Whether it is a high tide zone and the adjacent shore, a field edge where it meets the woods, or a stream and

A Wildlife Safari - Can you find signs of wildlife habitat in this scene? Hint - use your safari checklist

stream bank, edges are usually home to many species of plants and animals. Brushy edges between woods and fields tend to have excellent cover and food for birds, small mammals, deer and other medium sized mammals.

The damp edges of pools, marshes, and creeks are home to plants and animals that cannot live elsewhere. In fact, the **riparian** area, typically a 300 foot wide zone where woods meet streams and lakes, is important to more kinds of wildlife than any other habitat type in the state. Many breeding and nesting song birds, marsh birds, and ducks rely on riparian areas, while other wildlife use the cover provided by riparian areas to travel across otherwise open fields from one set of woods to another. With a little planning, it is easy to increase or protect the edge area on your property.

Mast trees and shrubs are those that produce fruit, nuts, or seeds eaten by wildlife. Oak, beech, pin cherry, wild apple, shad bush, winter berry, hawthorn, and dogwood are examples of valuable mast species. Some wildlife, like wild turkeys and black bears, rely on mast for a large part of their diets. It's possible to encourage mast species to produce more food with proper pruning and by thinning out adjacent trees and shrubs. The edge border is often a good place to concentrate your efforts.

Snags, or dead standing trees, provide homes for 58 species of wildlife in Maine. Woodpeckers, chickadees, and other birds pick insects off the decaying bark and some birds and owls use the same snag as a nesting site year after year. Hawks use them for hunting viewpoints and moles burrow beneath their roots. As snags decay, they

add nutrients to the soil and encourage new plants and trees to grow. Considering leaving snags in your woods if they aren't a safety hazard, or creating some away from trails if you don't already have standing dead trees on the property.

Do you have dead, downed logs in your woods? Are new seedlings growing out of the nutrient rich decaying wood? These logs provide hiding and denning places for small mammals and drumming stations for courting ruffed grouse. Over time, they also break down and add nutrients to the soil.

Different soil types are also important to wildlife habitat because they influence what kinds of trees and plants will grow in your woods. If your woods are on a dry south facing slope, it may be hard to encourage thick, lush vegetation to grow. If the soils are wet throughout the summer, the area will favor tree species that are tolerant of wetter soils such as black spruce, tamarack and red maple. This, in turn, affects what kinds of wildlife will live there.

A unique feature in New England woodlands are small, temporary wet areas known as **vernal pools.** Woodland vernal pools are created by melting snow and rain in the spring and often dry up by late summer and fall. They are important breeding and living habitats for spotted salamanders, blue spotted salamanders, wood frogs, and fairy shrimp. Considered living laboratories by wetlands ecologists, they are also studied for their significance to woodlands as a whole.

Woodland vernal pools are created by melting snow and rain in the spring.

Improving Wildlife Habitat on Your Property

Don't confuse feeding wildlife with wildlife habitat improvement. Artificially feeding wildlife can cause more harm than good since animals easily become dependent on concentrated and artificial food sources. Diseases can also spread rapidly at feeding stations — sometimes to humans. Even bird feeders help most if they supplement, rather than replace, naturally grown food.

Improving wildlife habitat allows wildlife to get what they need when they need it. Even if you still feed birds, for instance, a widespread variety of mast trees and plants reduce the stiff competition at the feeder where less aggressive birds often lose out in the fight for food.

There is no single recipe for improving wildlife habitat. If, for instance, you own a few acres of mixed hardwoods with a closed canopy that doesn't allow much sunlight through to the forest floor, and your property is adjacent to 20 acres of the same kind of woodland, then your woods would provide excellent habitat for the scarlet tanager and hermit thrush, song birds whose world populations are declining due to habitat loss. Since these species need large areas of closed canopy hardwood forest during the breeding season, the choices you make could provide crucial habitat. In another woodland, however, cutting some trees to increase edge habitat would be much more useful than leaving the woods alone.

You probably won't be able to provide all the habitat needs for a wide variety of wildlife on less than ten acres, but you will probably be able to provide one or more essential habitat requirements.

Perhaps your neighbors can fill the gap if they have a water source and you don't. You can still develop essential cover for

Whitetail deer like a combination of woods, fields and edge areas.

many species that visit your neighbors for a drink. Better yet, let your neighbors in on your plans and see if they are interested in a joint effort. If you get them interested in improving wildlife habitat, your combined efforts will likely have an even bigger impact — particularly for species that need more than ten acres to survive. Be sure to request permission from your neighbors to go beyond your own property boundaries into their backyards and woods.

Many resources and publications are available to help guide you in identifying and improving wildlife habitat. If you keep notes of what you see in the woods, you'll have a good starting point for planning wildlife home improvements.

Family Pets and Wildlife

Habitat improvements will be much more successful if household pets are kept under control. Even the sweetest and laziest family pets have devastating impacts on wildlife, especially during the nesting season. Millions of nesting birds are killed by household pets each year. Ground nesting birds are particularly vulnerable. Keeping your dogs from roaming in the woods and your cats inside from May through late July is the single best thing you can do for wildlife in your area. Attaching bells to your pet's collar doesn't help at all.

Cats, small dogs, and other small pets are just also just another link in the food chain when they step outside the door. Larger animals like hawks, owls, coyotes, and bobcats see them as prey. Smaller animals like baby birds, rabbits, flying squirrels, and chipmunks see them as predators.

A Wildlife Sanctuary in Your Yard

Just think, a year or two from now you could have orioles in your backyard and migratory songbirds singing in the shrubby edge of the woods. Perhaps you'll be able to entice a large Piliated woodpecker to a newly created snag, and rabbits or snowshoe hare to brushy woodpiles. The actions you take may even provide crucial habitat for wildlife species that are having harder and harder times finding places to live and work.

Before long, your neighbors will be turning to you to ask how they can attract wildlife to their own backyards and woods. Make sure you give them some tips! Wildlife need property owners with less than ten acres.

Wild turkeys need open understory beneath hardwood trees.

Resources

Birds

Action in Your Yard for Migratory Bird Conservation. Cornell Laboratory. To order: Cornell Lab of Ornithology, 159 Sapsucker Woods Rd., Ithaca, NY 14850 or 607-254-2440.

Coleman, John S., et al. 1997. *Cats and Wildlife, A Conservation Dilemma.* University of Wisconsin Cooperative Extension. Contact: Cooperative Extension Publications, Room 170, 630 W. Mifflin St., Madison, WI 53703 or 608-262-3346. Internet site at **http://www.wisc.edu/wildlife/e-pubs.html**

Coverstone, Nancy. 1998. *Keeping Your Yard Safe for Birds.* University of Maine Cooperative Extension. Facts on bird diseases and how to prevent them through maintenance of bird baths and feeders. Free. University of Maine Cooperative Extension. Bulletin Series # 7146. To order: 800-287-0274.

Elliott, Catherine A. 1996. *Bird Feeding Basics.* University of Maine Cooperative Extension. Information Bulletin #7124. Describes types of feeders, food and favorites. To order: 800-287-0274.

Elliott, Catherine A. 1997. *Birdhouse Basics.* University of Maine Cooperative Extension. Information Bulletin #7117. Gives general guidelines for birdhouses, including dimensions and species. To order: 800-287-0274.

Massachusetts Audubon Society. *A Guide to Backyard Birds of Eastern North America.* All weather laminated fold-out guide to 50 birds most often seen in backyards and towns. Convenient introduction to the birds for all ages. Waterproof. $3.95. Available from Acorn Naturalists (#BIRD-5233). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Identifying Wildlife and Wildlife Habitat

Allan, David N. 1996. *Knowing Your Woods: Wildlife Habitat and Tree Species.* Acquaints landowners with their woodlands, the wildlife that is on them and benefits offered. Includes a list of tree species and their uses. University of New Hampshire Cooperative Extension. Forest Fact Sheet 18. For a catalog, contact: Information Services and Publications, UNH Cooperative Extension, Taylor Hall-University of New Hampshire, Durham, NH 03824.

Borns, Boring, and Dendy. *Fun With Nature: Take Along Guide.* Helps children identify over 150 plants and animals, including caterpillars, insects, butterflies, frogs, toads, turtles and salamanders and the clues (tracks and scat) that they leave behind. Perfect to take outside as a field guide. $12.70. Available from Acorn Naturalists (#PRE-741). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

National Geographic. *The Curious Naturalist: A Guide to Understanding and Exploring Nature.* Tours nine ecosystems including backyards and woodlands. Features habitat descriptions, species identification, and unique field projects. Lavishly illustrated with photographs. For ages 10-adult. $23.95. Available from Acorn Naturalists (#EE-7080). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Nail. *Whose Tracks are These? A Clue Book of Familiar Forest Animals*. A look at the woodland community for ages 4-8. $11.95. Available from Acorn Naturalists (#PRE-1818). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Backyard Habitat Management

Backyard Conservation: Bringing Conservation From the Countryside to Your Backyard. April, 1998. Lists activities for improving and conserving your backyard for the environment and wildlife. Lists organizations, landscapers and garden clubs in the back. Natural Resources

Conservation Service. USDA. Internet site at **http://nrcs.usda.gov**

Beneficial Insects in Your Backyard. Describes common insects used to manage garden pests and how to get them. Free. University of Maine Cooperative Extension. Bulletin # 2490. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Coverstone, Nancy. 1998. *Habitats: A Fact Sheet Series on Managing Lands for Wildlife.* Essential material for those who want to create, enhance or manage backyard wildlife habitat in Maine. Includes Information on planning wildlife habitat improvements on your own property. Free. University of Maine Cooperative Extension. Bulletin Series # 7146. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Elliott, Catherine A. *Plantings for Wildlife in Maine.* University of Maine Cooperative Extension. To order: 800-287-0274.

Enhancing Wildlife Habitats: A Practical Guide for Forest Landowners. University of Maine Cooperative Extension. Includes chapters on basic forest wildlife ecology, understanding wildlife habitats, woodcock, grouse, deer, wild turkey, upland forest animals and wetlands. Illustrated. 172 pp. Bulletin #7120. $24.00. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

A Forester's Guide to Managing Wildlife Habitats in Maine. A useful guide for landowners and foresters interested in managing for wildlife habitat on larger properties also managed for timber. University of Maine Cooperative Extension. 46 pp. Bulletin #7000. $14.00. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Gardening to Conserve Maine's Native Landscape: Plants to Use and Plants to Avoid. A comprehensive list of native flowering plants, trees, shrubs, vines, and ferns recommended for landscaping, along with their requirements for moisture and shade. University of Maine Cooperative Extension. Bulletin # 2500. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Landscaping For Wildlife. Maine Audubon Society. Contact: Maine Audubon Society, 118 U.S. Route One, Falmouth, ME 04105 or 207-781-2330.

Managing Woodlands For Wildlife: A Suggested Reading List. 1997. Maine Department of Inland Fisheries and Wildlife. Free. Contact: 207-287-8000.

Wild Apple Trees for Wildlife. University of Maine Cooperative Extension. Bulletin #7126. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Wyzaga, Marilyn. *Homes for Wildlife, A Planning Guide for Habitat Enhancement on School Grounds.* A resource for improving wildlife habitats with student plans, activities and worksheets. $9.95. #B-5668. To order: 800-422-8886 or the Internet at **http://www.acorngroup.com**

Problems with Wildlife

Beavers and Their Control. University of New Hampshire Cooperative Extension. Wildlife Fact Sheet 10. Contact: Information Services and Publications, UNH Cooperative Extension, Taylor Hall- University of New Hampshire, Durham, NH 03824.

Rabies. 1996. University of Maine Cooperative Extension. Free. To order: 800-287-0274. For more information on human and animal exposure questions call 207-287-2727.

A Wildlife Safari In Your Woods

It's easy to go on safari out your back door. You have a head start if you already did a basic inventory of your property in *Backyard Family Project #1: Scouting Your Land*. If you haven't scouted your land, take a walk out in your woods to see what you can find. Look for tracks and droppings. Are you in hardwoods or conifers when you find them? Do you see possible denning sites or faint game trails nearby? Is there brushy vegetation on your property or a snag tree? How much edge habitat do you have? Do you have a water source on your property? In winter, look to see where birds nested the previous year. Where do you find the nests? Might the birds come back next spring?

If you take the safari checklist and a map of your property in the woods and mark what you find on the map as you go, you'll end up with a useful planning document for wildlife habitat improvement later on.

GETTING READY

1. Your safari team will need to read in *The Woods In Your Backyard: Home Improvement for Wildlife*, or you will need to explain the concepts to them. Also review *Backyard Family Project #1: Scouting Your Land* for safety guidelines.

2. If there is more than one team, decide where teams will begin and end in advance. Before you go, be sure everyone knows how to find their way back to a common meeting place in a certain time frame, and that there is a set plan for what to do if you or your group becomes disoriented.

TOOLS

You will need:

- Copies of the Safari Checklist for all group members.
- Copies of the map you created in *Backyard Family Project #1: Scouting Your Land. (This activity can be done without a map, but it's more fun and effective if you have one).*
- Pencils with erasers.

Optional:

- Colored flagging tape. *(If you used colored flagging to mark your property boundaries, be sure you use a different color so you don't get confused next time you're in the woods. The tape is useful for flagging mast trees, snags, a tree near a water source, or other habitat features. These markers can be used for planning a nature trail or planning to improve or save wildlife habitat features that are already there. Flagging is available at hardware stores).*
- Whistles on strings. *(This is an excellent way to keep team members from getting lost. See Backyard Family Project #1: Scouting Your Land on how to effectively use this simple safety device).*
- Clipboards make 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 are made. Count an extra half hour for different teams to put their information on a Master Map.

1. You'll probably need an activity leader for this to work as a group effort. Choose an activity leader who will go through the following steps with everybody else.

2. Verbally review terms on the Safari Checklist and their definitions. Definitions can be found in the glossary of *The Woods In Your Backyard*.

3. Review safety aloud.

4. It is best to leave all items in the woods where you find them for now. Later, you may want to collect leaves, twigs, or other signs for identification.

5. Check off each item on the Safari Check List as you find it. You may not find them all. If you find something that isn't on the list, write it in.

6. If a map is used, mark the location of the item on the appropriate place on the map.

7. Draw in trails, streams, wet areas, thick vegetation, and any other wildlife habitat features on the map.

Note: If you or your team follow the same compass lines and numbered checkpoints that you walked in *Backyard Family Project #1: Scouting Your Land*, you have an advantage. Any wildlife sign that you cross can be drawn onto the map and easily found again, since you are following a compass bearing.

For example:

If you already scouted a line through the woods, re-walk that line with a photocopy of the map you created. When you see wildlife signs or habitat features, draw them in and make notes on the map.

If you notice a small trail that crosses the line between checkpoints 3 and 4 on the map, for instance, draw it on the map between the two points.

Since it is hard to see everything on one walk through the woods, add more details to the map as you find them on future walks. The more time you spend in the woods in your backyard, the more you'll see. The result will be a map full of information that will help you figure out the best way to do some home improvement for wildlife later on.

Safari Check List

- ☐ Seed Mast Tree
- ☐ Fruit Mast Tree
- ☐ Snag
- ☐ Browse *(where animals have bitten the buds off the ends of twigs)*
- ☐ Game Trail
- ☐ Scat, or Animal Droppings
- ☐ Den Site
- ☐ Nest
- ☐ Field/Woodland Edge
- ☐ Woodland Edge
- ☐ Riparian Area
- ☐ Running Water
- ☐ Stagnant Water
- ☐ Brush Pile
- ☐ Wildlife "Voices" *(birds singing, frogs croaking)*
- ☐ Small Mammals like Squirrels, Chipmunks, and Voles
- ☐ Midden *(pile of spruce cone scales left by red squirrels)*
- ☐ Salamander
- ☐ Frog
- ☐ Vernal Pool *(area that is wet part of the year)*
- ☐ Burrows for Small Mammals
- ☐ Aquatic Insects
- ☐ Flying Insects
- ☐ Terrestrial Insects
- ☐ Wildlife Tracks in the Mud or Snow
- ☐
- ☐
- ☐

Related Activities

Wildlife Journal

Keep a small notebook near your favorite window so you can jot down sightings of birds and other animals. It's a fun way to learn your wildlife neighbors. Do they come from the edge of the woods or from your neighbor's property? Are they eating berries from a bush or knocking on a tree? Are they around for a few days and then gone? Their behavior will give you some idea of their habitat needs even if you don't know specifically what they are eating or where they go for cover.

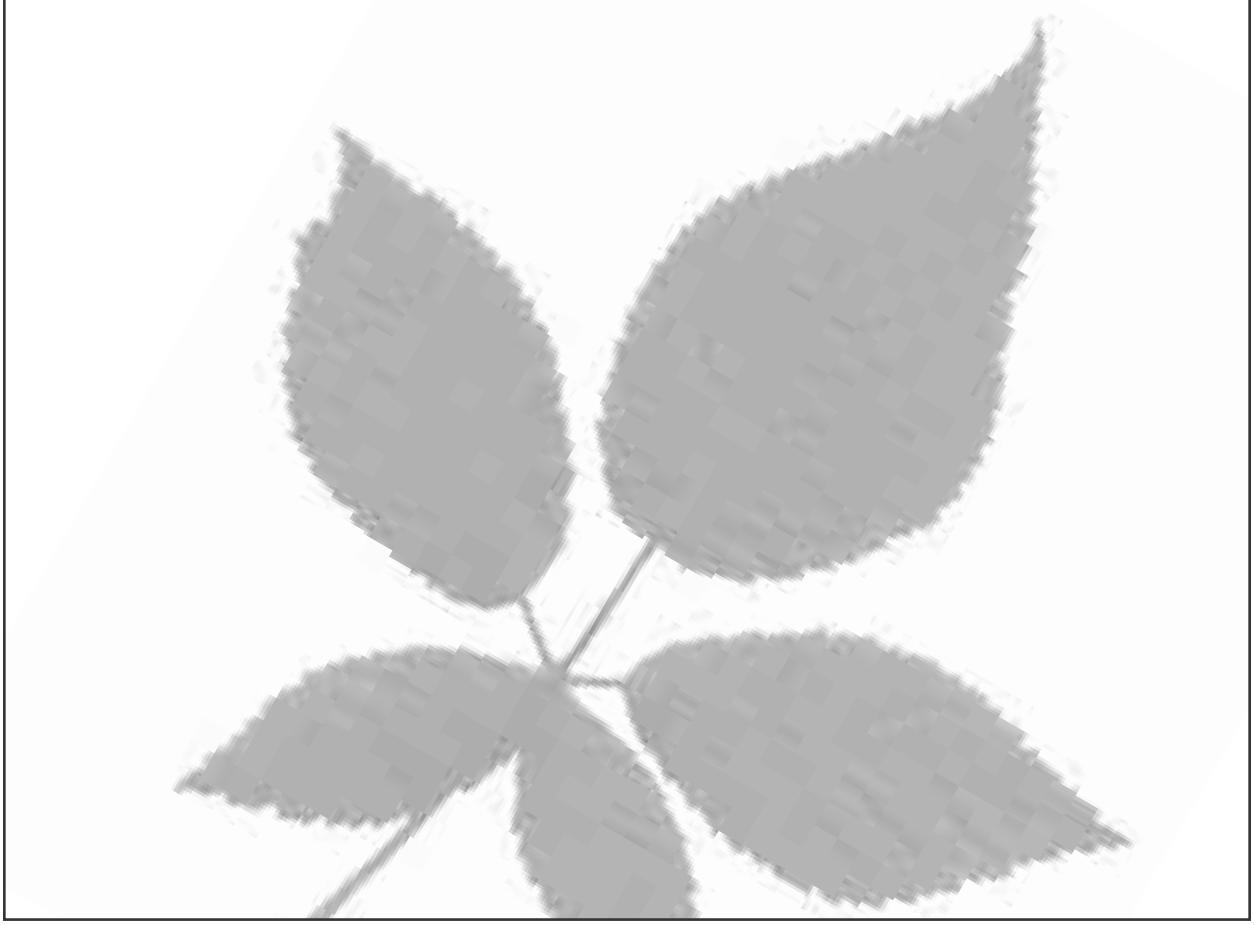
Another option is to hang a month-to-month wall calendar and scribble in your daily observations in the block for that day. This is an easy way to compare what you see as the seasons change.

Adopt a Special Place

Adopt a special place on the property and check on it from season to season and year to year to see how it changes. This could be a mossy stone with ferns, a snag, a seedling, a vernal pool, or any number of woodland features.

Class Adaptation

Adapt the Wildlife Safari for use by classes or youth groups. After the Safari, assign students to research one item on the list and contribute an entry to a written and illustrated nature guide to the woods.



3 Beauty and Adventure Out Your Backdoor: *A Place for Fun and Reflection*

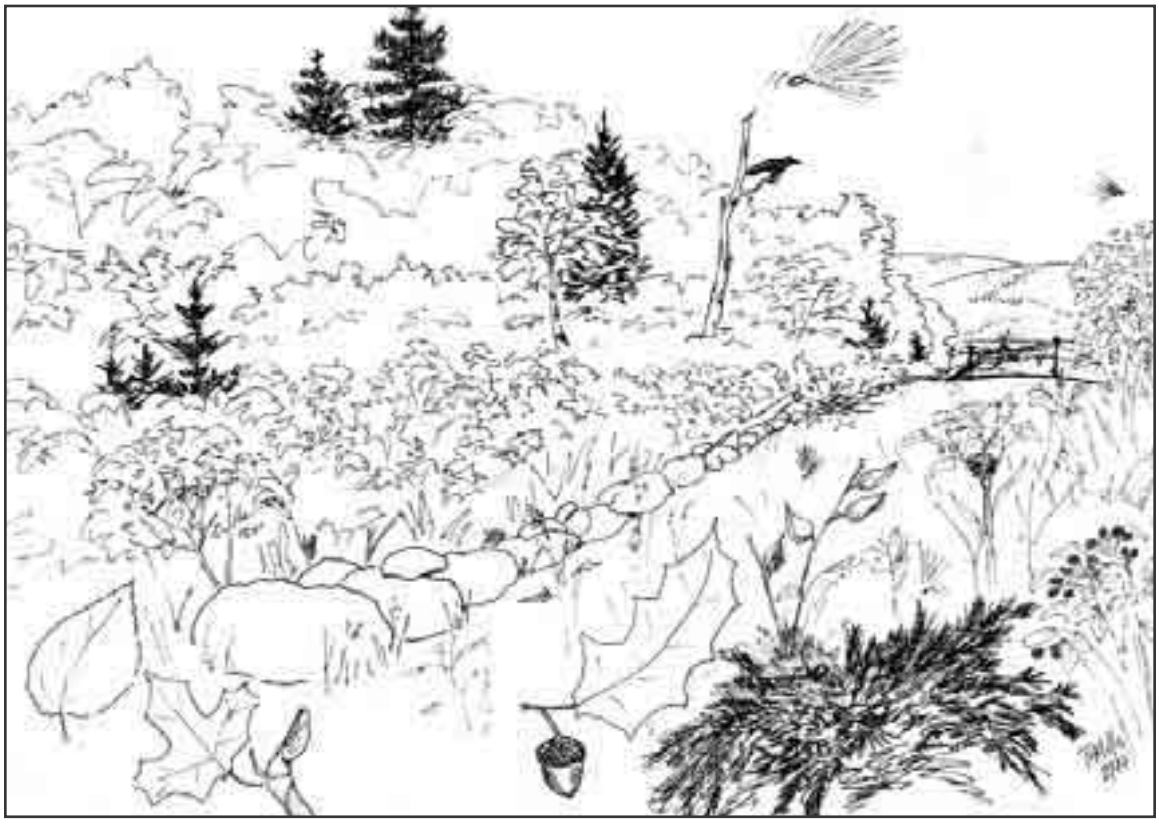
Have you ever been pleasantly surprised when you wandered into the woods and found trilliums and woodland lilies growing in the understory? Or felt tensions fade as you cross-country skied through an evergreen forest during the winter?

There is increasing scientific evidence that frequent visits to natural areas makes us happier and healthier, even when those visits are brief. A walking trail, woodland flower gardens, or a wildlife viewing point can be developed on less than an acre, so whether quiet beauty or vigorous exercise is your preference, you can create a stress free zone right outside your back door.

Creating a Colorful Edge Between the Backyard and the Woods

A colorful woodland edge area between your yard and the woods beyond can do double duty by attracting wildlife and providing year-round beauty. The red fruit of winterberry bushes in January and the white blooms of shadbush in June, for example, are attractive native species that also provide food for many birds.

To increase color in fall and winter, consider planting some evergreens if you have mostly hardwoods on your property. If you



Woodland Structures - edge features

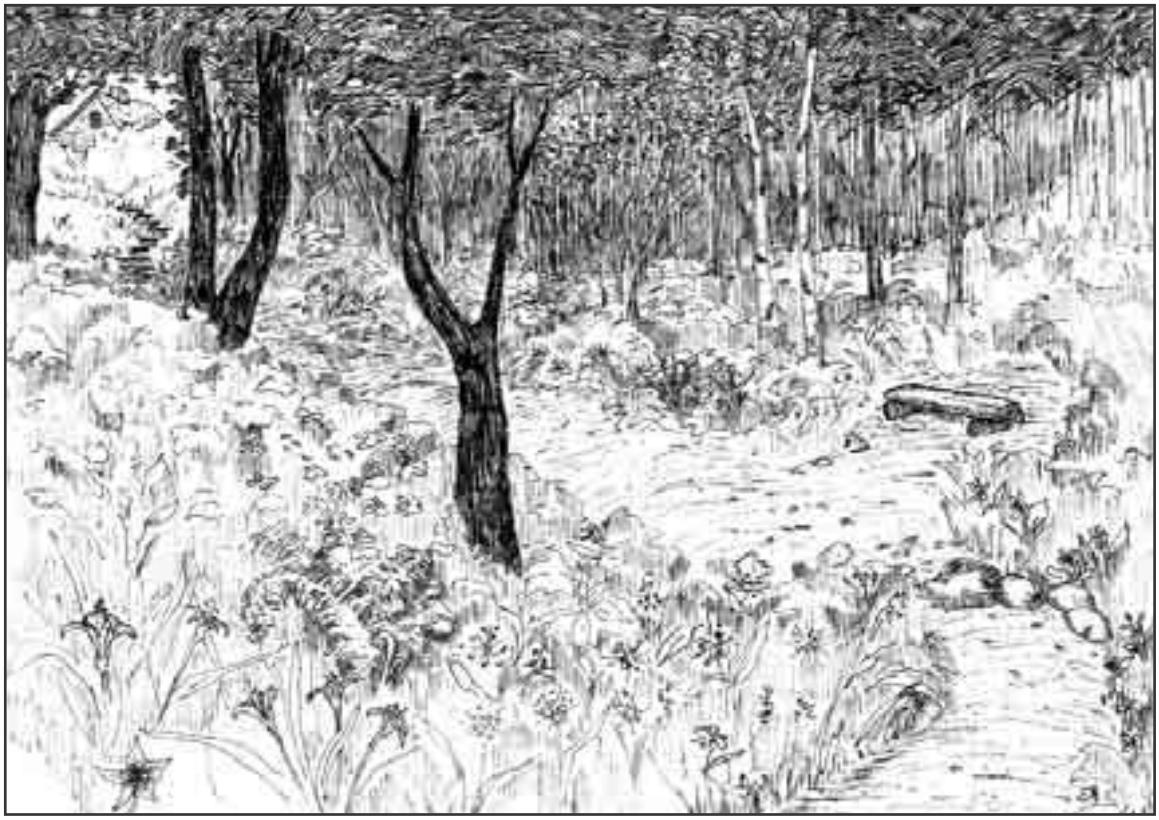
have mostly evergreens, consider planting hardwood trees like maple, beech, and paper birch in sunny areas. Yellow beech leaves in autumn contrasted against purple asters and red maples will provide a display of late season color that rivals the floral displays of spring. The red berries of winterberry add color to the midwinter landscape. Not all species grow well in every location, however, so consider the soil type and other features on your property before you decide what to plant. Soil information is available free from your county Natural Resources Conservation Service office. Guides to landscaping, wildlife habitat improvement, and shade gardening will help in planning. Local garden centers and specialty seed companies are also helpful resources.

Your Backyard: A Clearing in the Woods

Your lawn is really a clearing in the forest that will eventually fill in with trees if you quit mowing. You probably want to keep your lawn, but you might consider the value of planting select trees, shrubs, and flowering plants to add color and structural and seasonal variety to your property.

Planting trees and shrubs in your yard has many benefits, including reducing noise and dust from traffic, blocking harsh winds and drifting winter snow, providing a cooling effect in summer, reducing soil erosion and increasing water quality. If you decide to sell your property, your landscaping efforts will probably pay off in higher real estate values even though your real estate taxes probably won't be affected by the improvement.

Use native species in designing a backyard landscape that showcases plants, bushes, and small trees that flower in succession from early spring until fall. Culinary herbs like thyme and mint also work easily into landscape designs, but avoid planting



Woodland Shade Garden

species like purple loosestrife and barberry, which are not native to the state and can easily out-compete native plants that provide food for many types of wildlife.

Many flowering plants that attract butterflies and hummingbirds also add to the beauty in your backyard. These fragile wildlife species are very sensitive to environmental change created by the use of pesticides and herbicides; it is best to avoid using them. See the resource list for publications on backyard conservation and backyard habitat for more information.

A Wild Garden in the Woods

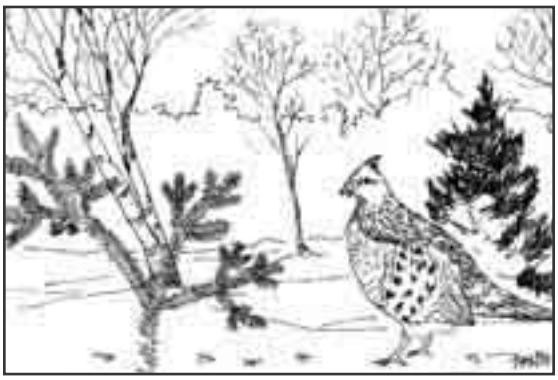
Whether you own 1/10 of an acre or ten acres, a woodland wildflower garden is within your reach.

Wildflowers have a reputation for being fussy. Some wildflowers are difficult to grow, while others can tolerate a wide range of conditions. Many can be grown successfully by anyone willing to spend a little time in planning. The same considerations apply to wild plants that apply to cultivated varieties: it is important to know the sunlight, soil requirements, and the length of the growing season for each species.

It is best to buy wildflower seeds or seedlings from a nursery. If you decide to collect wildflower seeds and cultivate your own seedlings, be sure to collect only a few seeds from each area so existing plants can continue to propagate. Avoid transplanting wild plants altogether. Many wildflowers do not transplant well and up to 80% of transplants die the first year. There is also the chance you may plunder wild growing plants of singular ecological importance to a specific area. In fact, some wild flowering herbs are fast becoming rare due to unrestrained harvesting.

Semi-shade tolerant flowering trees like mountain laurel and witch hazel can help vary the vertical structure of your woodland garden by creating an eye level attraction between the ground level view on the forest floor and the overhead view. Clumps of ferns and clusters of semi-shade tolerant bushes or evergreens in the understory also create pleasing structural variety.

Once established, woodland shade gardens become a source of pleasure year after year without requiring much maintenance. Carpets of colorful wildflowers like hepatica bloom in the understory of hardwood trees in the early spring, then give way to small flowering trees like mountain laurel and the variegated leaves of different shades of green, pale white, and silver during midsummer. Late summer and fall bring bright fruits and colorful foliage. Witch hazel bears delicate yellow blooms late into the fall. And winter brings the red twigs of the osier dogwood, the enduring evergreens, and the delicate silhouettes of paper birch and other hardwoods.



Ruffed Grouse are secretive year-round residents of Maine

Viewing Wildlife

Wildlife viewing spots can easily be integrated into woodland gardens or trail design. This can be as simple as hanging a bird nesting box at the edge of the backyard or a more complicated project like constructing a boardwalk over a small wetland in order to view singing frogs, salamanders, and birds. Some wildlife — such as frogs, butterflies, and robins — can go on with their daily rituals without being too dis-

A Scenic Pine - Oak Woodland

turbed by your presence. Others require distance and a sense of safety before they will choose to nest or den in a certain area and may abandon their attempts to raise a family if disturbed. See *The Woods In Your Backyard: Home Improvement for Wildlife* for more information and a resource list on wildlife habits and habitats.

If you know of certain areas where wildlife gather, consider building a natural "blind" of pole sticks and brush in order to view the area through sight-holes without disturbing the animals. Blinds are useful for both bird watching and wildlife photography.

Creating Scenic Views

Sometimes landowners remove all underbrush, rotting logs, and dead lower tree limbs in order to encourage an open "park-like" look in their woods. While this practice may make the woods look "tidy", it discourages many kinds of birds and other wildlife, since it removes cover that is an essential part of their habitat requirements. It also decreases the amount of nutrients available to return to the soil, which, in turn, may eventually affect the health and beauty of the trees the landowner wants to enhance.

One option is to leave dead logs and some understory vegetation. Another is to clear the understory in a narrow strip, instead of clearing the understory over a large area. Clearing the understory of a white birch stand can enhance the beauty of the birches, for example, while the adjacent woods remain a wilder tangle that is more attractive to wildlife. Clearing the understory of a small area, while leaving the surrounding woods with a more complex understory, also provides a sense of privacy and refuge on a small property. By leaving the canopy above, there is also little need for the continued maintenance necessary to keep a new woodland clearing from becoming filled with the new growth that sprouts up in full sunlight. The shade keeps the competition down. Proper pruning tech-

niques for the mature trees will help keep them healthy.

Many factors will determine the healthiest and most scenic options for your woodland, including the size of your property, soil type, drainage and cost.

A Path Through the Woods: Creating Trails

With a little planning, a simple walking or cross country ski trail requires less than a day a year to build and maintain. A curving loop trail that takes advantage of varying terrain created by natural features such as dips, slopes, and rocky outcroppings will allow you easy access to your woods. Even a loop trail on a property as small as a quarter of an acre can provide a quick getaway to watch birds or walk the family dog, or be integrated into a landscape design. A trail designed to pass fern gardens, mossy boulders, and other natural areas of scenic interest also offers intimate views of seasonal change and the opportunity to view wildlife out your back door.

If your property is adjacent to property with existing trails, or is a piece of a larger woodland, your neighbors may be interested in helping create a longer community trail for use by participating landowners. See *The Woods In Your Backyard: Neighborly and Family Relations* for more information about community trails.

Interpretive nature trails with numbered stops along the way and a companion trail guide are an excellent way to get scout troops or youth groups involved and personally invested in trail design and maintenance. Picking interpretive stops that change seasonally will keep the interest of those who travel the trail regularly. Safe snag trees, vernal pools, woodland edges, streams, and simple historic features like stone walls or old cellar holes are a few good choices for interpretation.

You need not travel far for beauty and adventure in the woods of Maine. With some planning and little effort, both are just a few steps away.

Resources

Woodland Landscaping

Brookes, John. 1998. *Natural Landscapes.* This book discusses planting a natural garden, using plants in their natural environments and creating walkways and waterways on your property. DK Publishing. $29.95. Order through bookstores.

Collins, John F., et al. 1988. *Livable Landscape Design.* A workbook to help homeowners or professionals successfully apply basic design principles. Includes practical information about plant materials, paving, landscape structures, walls, fences, containers, and lighting. Cornell Cooperative Extension. 64 pp. Information Bulletin # 211. $12.00. To order: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications/gardening.html**

Gardening to Conserve Maine's Native Landscape: Plants to Use and Plants to Avoid. A comprehensive list of native flowering plants, trees, shrubs, vines, and ferns recommended for landscaping, along with their requirements for moisture and shade. University of Maine Cooperative Extension. Bulletin # 2500. Free.
To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Jones, Geoffrey T. 1993. *A Guide To Logging Aesthetics: Practical Tips for Loggers, Foresters and Landowners.* Fifty color photographs and text describe cost-effective and proven practices that minimize negative impacts during and immediately after the harvest while enhancing the wildlife, recreational, and aesthetic qualities of the woodlot. Cornell Cooperative Extension. 27 pp. Bulletin #123NRAES60. $7.00. To order: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications/natural-resources.html**

Verner, Yvette. *The Blooming Lawn: Creating a Flower Meadow.* 160 pp. $17.95. To order: Chelsea Green Publishing Co., P.O. Box 428, White River Junction, VT 05001 or 800-639-4099. Internet site at **http://www.chelsea green.com**

Wild Garden: Your Resource for Gardening with Native Plants and for Wildlife. The only magazine devoted entirely to gardening with native plants for beauty and for wildlife habitat improvement. Extensive resource lists, gardening design, and practical tips. $23.95 for 6 quarterly issues. To contact: 877-NATIVE-2 (toll-free) or e-mail at **circ@wild-garden.com**

Butterfly Gardening

Butterfly Gardening. University of Minnesota Cooperative Extension. $7.00. To order: 800-876-8636 or the Internet at **http://www.extension.umn.edu/documents/d/g/dg6711.html**

Stack, Lois Berg. *Landscaping for Butterflies and Moths.* Lists nectar sources for butterflies and moths. University of Maine Cooperative Extension. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Sources for Native Plants and Seeds

Fieldstone Gardens, Inc. Lists hundreds of northern-grown perennials and native wildflowers of the New England region. Excellent choices for both sun and shade. Mail order available. Contact: Fieldstone Gardens, Inc., 620 Quaker Lane, Vassalboro, ME 04989-9713 or 207-923-3836.

Johnny's Selected Seeds. Offers native varieties that are especially adapted to increase color variety and cold weather hardiness. Johnny's Selected Seeds, 222 Foss Hill Road, Albion, ME 04910-9731 or 207-437-4301.Internet site at **http://www.johnnyseeds.com**

New England Wildflower Society/Garden in the Woods. Sells native plants through their retail store from April 15-October 31. Also sells seeds and books through mail order. A catalog is available each January for $2.50. To order: New England Wildflower Society/Garden in the Woods, 180 Hemenway Road, Framingham, MA 01701-2699 or 508-877-7630. Internet site at **http://www.newfs.org**

Avena Institute. A non-profit botanical organization that offers a wide variety of classes on gardening, ecological stewardship and health — including a class on organic gardening of medicinal herbs. The institute grows its own herbs and sells herbal remedies. A native woodland plant restoration project is underway in their gardens, which are open to the public every Wednesday from 1:00-4:00 p.m. from mid-June through mid-October. Contact: Avena Institute, 219 Mill Street, Rockport, ME 04856 or 207-594-0694.

Nature Trails

Fazio, James. 1983. *Nature Trails: Guides to Environmental Understanding.* Suggests locations for nature trails, what to look for and an overall concept for a trail. Cornell Cooperative Extension. 4-H Leaders' Guide L-5-4. #147L54. $2.25. To order: 607-255-2080.

National Park Service. 1996. *ConservationWorks.* A booklet on creating trails, enhancing waterways and developing open spaces in towns and cities. The Androscoggin Greenways are used as an example. Internet site at **http://www.cr.nps.gov/rtca/rtc/rtcahome.html**

Pine Tree State Arboretum. 1997. *Self-Guided Tour: Pine Tree State Arboretum Outdoor Education Center.* (Brochure). A good trail brochure to use as an example for creating your own nature trail guide. Contact: 207-621-0031.

Thorp, Mary. *Mackworth Island, Human Influence on a Coastal Island: A Self-Guiding Trail Brochure.* Bureau of Public Lands, Maine Department of Conservation. (Brochure).

A good example of an interpretive trail guide. Contact: Maine Bureau of Public Lands, State House Station 22, Augusta, ME 04330 or 207-287-3061.

Fun in the Woods

Duensing. *Talking to Fireflies, Shrinking the Moon: Nature Activities for All Ages.* Forty fun activities designed for kids ages six to a hundred, from how to hypnotize a bullfrog to weave a daisy chain. Clear instructions with illustrations. $13.55. Available from Acorn Naturalists (#EE-6124). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Nursery Nature Walks. *Trails, Tails & Tidepools in Pails: Over 100 Nature Activities for Families with Babies and Young Children.* Filled with fun activities for parents with pre-schoolers. $9.30. Available from Acorn Naturalists (#PRE-741). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Burt. *Plant Identification Card Deck (Eastern Edition)* A fun photographic reference for identifying common edible and poisonous plants. Each card has detailed information on the plant, its habitat and uses. 52 cards. $7.95. Available from Acorn Naturalists (#BP-6384). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

BACKYARD FAMILY PROJECT #3

Creating a Woodland Wildflower Sanctuary

Planning a Woodland Garden

Creating a woodland wildflower garden or fern garden is similar to creating a flower garden in your yard, except it takes more time to get it started and requires less yearly maintenance once it is established. A woodland garden can be created beneath a canopy of tall trees, in a sunny gap in the middle of the woods, or at the edge of the lawn.

In the first case, you have a shade garden with light filtering through the canopy to the forest floor. In the second, you have a gap where full sun will be available part of the day. In the third case, sun will probably be available a large part of the day.

Either way, a magnificant garden that takes advantage of native plants can be created on less than 1/10 acre, and, if well planned, give the sense of a much larger area that is privately tucked away. It's a good idea to stay flexible when planning, though, since soil nutrient and moisture conditions influence what plants do well in a given location.

This is a good long-term family project. Get everyone involved by having each family member design and tend one small piece of the garden, thus creating a designer woodland garden that represents the personalities and tastes of the entire family.

GETTING READY

1. Review the rough map you created in *Backyard Family Project #1: Scouting Your Land* and *#2: A Wildlife Safari in Your Woods. (Didn't do it? Consider going back and starting there).*

2. Walk your land and look for natural trails, colorful trees, or areas on your property that already have a natural charm, like a group of boulders or an area with moss and ferns. Find places of particular interest and let them guide your decision making about where to concentrate your gardening efforts.

3. Identify plants, trees, shrubs, wildflowers and ferns already growing in these locations.

4. See the resources list on backyard habitat and creating woodland gardens for background reading on the subject.

5. Decide how much time you want to spend on the woodland garden before you begin. This will determine how big an area to concentrate on. You can always expand the garden next year if you decide to make it bigger.

TOOLS

- Enlarged copy of map created in *Backyard Family Project #1: Scouting Your Woods* and *#2:A Wildlife Safari in Your Woods* (optional).
- Notebook.
- Pencil or pen.
- Tree/shrub identification book.
- Flower identification book.

Doing the Activity

Time Frame: This will vary considerably depending on the size of the garden and how much soil preparation is necessary. Assume you will need several weekend days to establish the garden and occasional maintenance after that. Planning is a good winter activity.

1. Locate the area you wish to garden. It may have a centerpiece like a small stream, a moss covered boulder, a flowering tree, or a natural alcove for a stone bench.
2. Make several trips out to the area to identify trees, shrubs and flowers. Keep notes of what you identify in your journal and add the location of each new item to a map.
3. While you are out in the woods, note on your map where the different heights and colors naturally vary the structure and beauty of the site. Sketch in where different bed sites could go around these existing features, noting what heights or colors might accentuate them.
4. Rake *(or flag)* clear a curving trail *(possibly a loop trail)* through the area to get an idea what it would look like with flowers around it. Does the trail take advantage of the dips and curves in the terrain? Is it placed so it shows the landscape to good advantage? If you decide you don't like the trail location, rake the leaves and twigs back in and try another place.
5. Once you pick a site, you may choose to put in loosely defined beds until the woodland garden is established. The wildflowers and plants will blend in over time, creating a natural look, but it is a good idea to stake the corners of your beds while doing site preparation. Soil and bed preparation will pay off later whine the woods are full of flowers and maintenance is minimal, so keep that in mind if it seems like a lot of work up front.
6. Take a soil sample and send it for an analysis to find out what will grow well at that site. *(See Backyard Family Project #6: Getting Down and Dirty with Your Kids for directions on taking a soil sample)*.
7. After reading resource material and scouting your site, develop a written plan of action for the next year in your journal. For example, a good guideline is to prepare the site for shrubs and understory trees, order them and plant them soon after they arrive. Sites for flowering plants or other more delicate plants can be established later. Creating the woodland garden in steps will help the garden become well established, provide you with many enjoyable hours out in your woods while keeping the project from becoming daunting.

Related Activities

Wildlife Habitat

Woodland gardening can be beautifully combined with wildlife habitat improvement to create your own special retreat and provide food, water, cover, and room for birds, turtles, salamanders, and perhaps larger animals, too.

Nature Trail

A nature trail is a great follow-up to establishing a woodland garden. It can be as simple as planning a trail so that it passes certain features such as stone walls where a short tailed weasel lives, or a snag with woodpecker holes. With a little proper pruning, it doesn't take much to open up a simple path. Scouts, youth, or school groups might also want to work together to write and illustrate a simple nature trail guide.

4 From Mushrooms to Maple Syrup: *Specialty Products from Your Woods*

We tend to think of tropical forests as being the source of many raw materials, and they are, but it might surprise you how much your very own small patch of woods has to offer. Do you build furniture in your workshop, make handicrafts, or make jams and jellies from fresh fruit? If so, the raw materials might be available right out your backdoor.

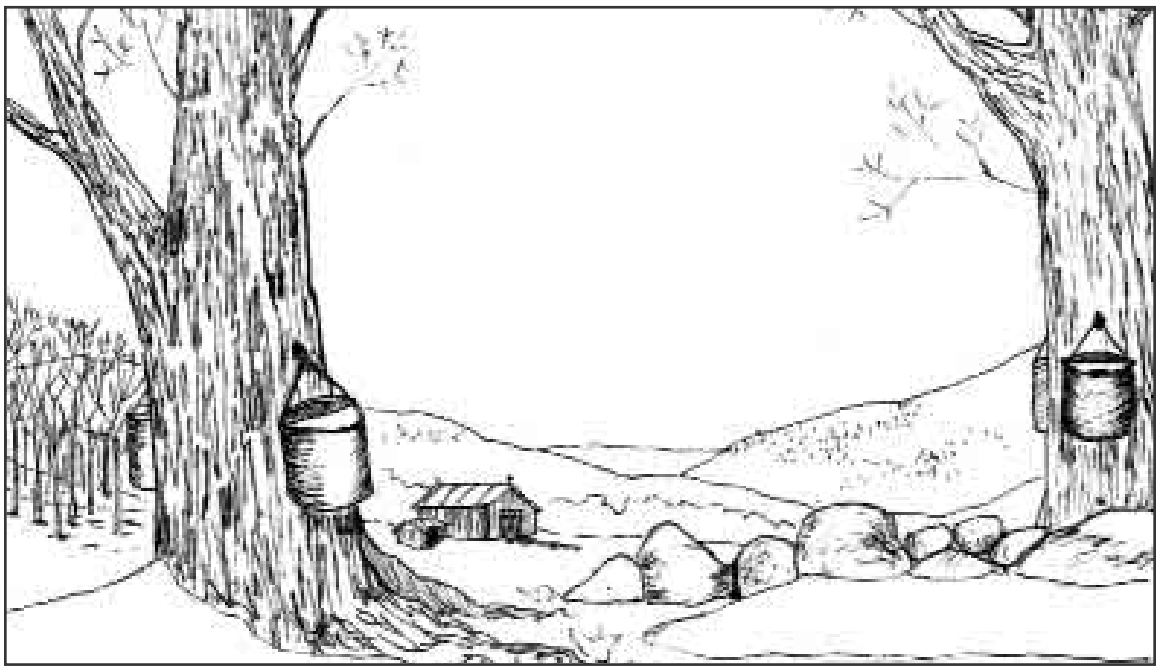
Depending on the type of soil and the trees and plants growing on your property, you may be able to grow or harvest a wide range of woodland products for your own use. In some cases, you can even make money from your woods while balancing other values like wildlife habitat improvement, recreation, and aesthetics.

There are so many kinds of renewable products to be harvested from the woods, that it seems limited only by your imagination.

Specialty Foods

Chokecherry jelly, birch beer, elderberry wine and maple syrup are just a few of the many foods made from trees of the forest and forest edge. In some parts of the state, you have the option of planting butternut or black walnut trees and harvesting your own crop of nuts in the future. Special varieties of apple, pear, sour pie cherry, and plum trees survive northern winters and thrive in the long days of summer. A few lucky folks in protected areas also have success with hardy peaches. Old apple trees can be reclaimed, too, with proper pruning and care.

Sun loving trees like chokecherry, elderberry, and juneberry can be encouraged by a combination of planting, pruning, and eliminating competing trees. Providing more sunlight, water, and space is the key to encouraging them to grow vigorously and



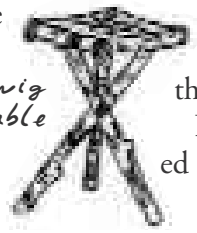
Tapping sugar maples for syrup

Growing shiitake mushrooms on inoculated oak logs

provide a healthy supply of raw renewable materials.

Let's look at sugar maple trees, the source of the raw material for maple syrup. If you have several good sized sugar maples, they may already produce enough sap each spring to produce all the syrup you need (one gallon of maple syrup is produced from boiling down 40 gallons of the watery sap collected from the tree). Clearing out other trees that crowd healthy sugar maples will allow the maples to grow into a hearty "sugarbush." To do this, you may also have to cut down some healthy maples to allow remaining ones to grow larger.

Maple trees are tapped in the spring by drilling a hole into the trunk and inserting a tap spile *(a small metal tube about two inches in length)*. The flowing maple sap runs daily during a few weeks in early spring when the nights are below freezing and days are warm. One large sugar maple can produce more than 50 gallons of sap a day under perfect conditions. Done properly, tapping does no harm to the tree.



Twig table

If you have noticed wild mushrooms growing on your property, you may have a supply of tasty exotic mushrooms that can provide a little side income. Mushroom companies that market exotic mushrooms are always looking for wild mushrooms like matsutake (which grows on hemlock), chanterelles (which are often found in mixed hardwoods and pine), black trumpets, chicken of the woods, and others. Buyers typically provide information on identification and proper collection.

Cultivating Woodland Gardens

More and more woodland owners grow wild herbs and mushrooms in their woods for their own use and for profit. Exotic shiitake (she-a-tah-kay) mushrooms, which bring a good price on the specialty food market, can be cultivated on freshly cut hardwood logs in the woodland understory with a small investment. Oyster mushrooms are even easier to grow than shiitake.

Highly valued ginseng can be cultivated in the shady understory on moderately

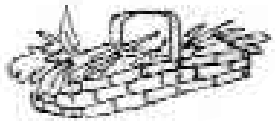
well drained sites with loamy soils. Ginseng requires little yearly maintenance and brings one of the highest prices for medicinal plants in the world. It is also a perfect companion crop for sugar maple. If you decide to tend to a sugarbush it would be worth your while to look into growing ginseng, too. Ginseng is picky about where it will grow, however, so a soil test is essential. Since wild ginseng is also a protected species, you must be licensed through the Maine Department of Agriculture if you plan to sell any of your harvest. Licensing is a simple process, however, and shouldn't deter you if your woods have the appropriate growing conditions.

Medicinal herbs like echinacea and St. Johnswort, two of the most widely used herbs in the country, can be cultivated in the backyard where the lawn meets the woods. Several herbs not only provide medicinal value, but also provide food for butterflies and add attractive color to your yard. Are you interested in producing your own honey? Bee keeping and wildflower gardens are mutually complementary; wildflowers flavor the honey and bees help regenerate the flowers.

GINSENG
Panax quinquefolium
8 to 24 inches tall

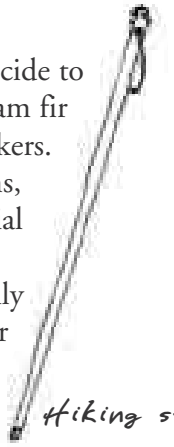
Craft Materials from the Woods

Speckled alder is flexible enough for bentwood furniture and for stickwood baskets used for planters, willows make pliable raw materials for twig baskets, while ash and maple are good choices for walking sticks because they take the stress of pounding without splitting.



Ash basket

Craft materials from your woods seem limited only by your imagination. Local commercial florists often buy greenery for seasonal arrangements. You may decide to make Christmas wreaths from balsam fir or sell balsam fir tips to wreath makers. Requests for tips, pine cones, acorns, and other decorative natural material used in making Christmas wreaths and holiday arrangements are usually advertised in the local newspaper or in the weekly Swap and Sell guide in November and December. Pruning balsam fir trees for tips can also help shape the young trees into nice Christmas trees over several years. A by-product of tipping and wreath making are the balsam fir needles, which can be collected and stuffed into small pillows to make fragrant sachets.

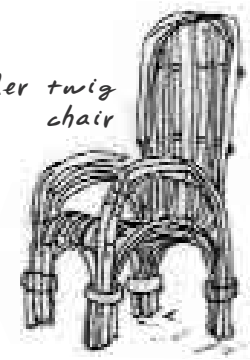


Hiking staff

High Quality Furniture Wood

If you have maples on your property, you may have the raw material for valuable veneer used to make fine furniture, musical instruments and clocks. "Figured" maple wood with unique decorative grain, such as curly maple and birdseye maple, can be worth thousands of dollars when quality is high. Both are rare and quality varies from tree to tree — as do prices. If you plan to cut firewood, it is certainly in your best interest to check your maple or assess any other potentially valuable veneer tree before you cut it into cordwood. It would be a shame to burn up one tree that is valuable enough by itself to pay your annual property taxes.

You might consider milling some lumber from your own land if you build furniture as a hobby. Portable saw mill operators will often come right to your property to saw lumber from logs that have been cut and piled in a working area. This is an inexpensive way to get quality lumber, and the



furniture you create will have a history tied directly to your land. It is also a way to recapture the beauty of older trees before they become diseased and are no longer valuable for lumber.

If you do have lumber produced on your land, be sure to find out if the saw mill owner is covered in terms of liability. In case of an accident, landowners are usually protected from legal action only if no fee is charged for a service. It is always a good idea to check with your insurance agent to see if your homeowner policy covers accidents of this nature.

RESOURCES

Background Information

Special Forest Products. This growing Internet site covers a wide range of special products, with separate pages explaining how to grow, harvest, and market them. Directories list people interested in buying or selling products. Extensive links to related sites. Internet site at **http://www.sfp.forprod.vt.edu**

Christmas Wreaths and Trees

Growing a Continuous Supply of Balsam Fir Wreath Brush. University of Maine Cooperative Extension. Bulletin #7089. 4 pp. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Making Balsam Fir Wreaths. University of Maine Cooperative Extension. 4 pp. Bulletin #7012. $.75. To order: 800-287-0274 or the Intenet at **http://www.umext.maine.edu**

Marketing Maine Christmas Wreaths. University of Maine Cooperative Extension. 2 pp. Bulletin #3019. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

So You Want to Grow Christmas Trees. University of Maine Cooperative Extension. 2 pp. Bulletin #7048. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Ginseng

Eastman, L.M. 1976. *Ginseng, Panax quinquefolius L. in Maine and its Relevance to the Critical Areas Program.* Has basic information pertaining to ginseng and it's habitat and reproduction in Maine. Planning Report No. 16. State Planning Office, Augusta, Maine. Contact: 207-287-3261 or the Internet at **www.state.me.us/spo**

Maine Ginseng Growers Association. A non-profit association that provides information on growing and marketing Ginseng in Maine. Contact: P.O. Box 382, Andover, ME 04216-0382.

Persons, W. Scott. *American Ginseng: Green Gold*. 1994. A grower's guide. Includes history of ginseng and use. Contact: Bright Mountain Books, 138 Springside Rd., Asheville, NC 28803.

Herbs

Avena Institute. A non-profit botanical organization that offers a wide variety of classes on gardening, including classes on organic gardening of medicinal herbs and how to make herbal remedies. A native woodland plant restoration project is underway in their gardens, which are open to the public every Wednesday from 1:00 - 4:00 p.m. from mid-June through mid-October. Contact: Avena Institute, 219 Mill Street, Rockport, ME 04856 or 207-594-0694.

United Plant Savers. A non-profit association dedicated to replanting At-Risk native medicinal plants. Contact: 802-479-9825 or the Internet at **http://www.plantsavers.org**

Maple Sugaring

How to Tap Maple Trees and Make Maple Syrup. University of Maine Cooperative Extension. 4 pp. Bulletin #7036. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Maple Production Videos. Travel with Cornell maple specialist Lewis Staats through the sugar

bush and sugar house to learn how to collect sap and produce maple syrup efficiently. Designed for the experienced or novice maple products producer, and of special interest to people considering getting into the business. For specific information, request a catalog from Cornell Cooperative Extension. Contact: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications**

Mushrooms

Growing Mushrooms. Personal Contact: Mike Dubois. Provides technical information on growing mushrooms. Also a broker for mushroom starter spawn. Contact: 207-364-8632.

Oyster Creek Farm Mushroom Company. Sells mushroom growing kits (shiitake) for non-commercial growers and buys (and sells) wild mushrooms. Contact: RR 1 Box 320, Damriscotta, ME 04543 or 207-563-1076.

Maine Mycological Society. A membership organization devoted to a better understanding of wild mushrooms and our environment. Holds field trips and special workshops. Contact: 1808 B Forest Avenue, Portland, Maine 04103 or 207-878-2060.

Rustic Furniture

Building Rustic Furniture. Alan Bradstreet, a member of the Maine Woodworkers Association, builds rustic furniture and helps organize educational events on furniture building. Personal contact: 856 Lawrence Road, Pownel ME 04069 or 207-688-4728.

Center for Furniture Craftsmanship. Offers courses on rustic furniture making. Rockland, ME. Contact: 207-594-5611.

Haystack Mountain School of Crafts. Offers course on rustic furniture making. Deer Isle, ME. Contact: 207-348-2306.

Mack, Daniel. 1999. *Simple Rustic Furniture.* A how-to guide on building rustic furniture by the expert. 160 pp., with photographs. Lark Books. $18.95. Order through bookstores.

Lumber From Your Land

Bragg, Don C., and Douglas D. Stokke. 1994. *Field Identification of Birdseye in Sugar Maple.* Gives procedures for the field identification of birdseye in standing sugar maple trees. USDA, Forest Service, Research Paper NC-317. Contact: Peter Lammert, Utilization Forester, Maine Forest Service at 800-367-0223.

Edmonds, Robert L., et al. 1988. *Lumber From Local Woodlots.* Information on harvesting timber, sawing logs and seasoning lumber. Cornell Cooperative Extension. #123NRAES-27. $8.00. To order: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications/natural-resources.html**

Portable Sawmills, Figured Wood Identification, Wood Products. Peter Lammert, Utilization Forester, Maine Forest Service. Personal contact: 207-287-4995 or e-mail at **peter.lammert@state.me.us**. Please include telephone number in e-mail contacts.

Making Crafts

Pollock, Lorna. *How to Make a Pine Needle Basket.* Booklet comes with kit materials to make your first baskets. Instructions included for more ornate baskets using material from your woods. Ages 10 - Adult. $17.95. Available from Acorn Naturalists (#KIT-7118). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Kate. *Two-Hour Nature Crafts.* Sixty nature crafts with complete instructions. All the materials you need are right out your back door. $21.20. Available from Acorn Naturalists (#EE-7125). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

BACKYARD FAMILY PROJECT #4

You Can Grow Mushrooms!

Fresh, flavorful gourmet mushrooms to accompany fresh vegetables from the garden? It's not difficult to do! It does require a time commitment, but it's low-tech, inexpensive and rewarding.

Shiitake mushrooms (she-a-tah-kay), are favored in the Far East where they grow wild on decaying logs. Due to their popularity in Asian cuisine, shiitake have also been cultivated on oak logs in Japan for centuries. Considered to be the Japanese equivalent of "an apple a day", Shiitake mushrooms are high in B vitamins and protein, and low in fat and cholesterol. Recent studies also indicate other health benefits, from stimulating the human immune system in order to inhibit cancer growth to lowering "Bad" blood cholesterol. But eating Shiitake is not like taking medicine. Shiitake are one of the tastiest mushrooms on the market, and they are no more difficult to grow than fresh vegetables.

Very little investment is needed to begin and, once a mushroom site is established, little maintenance is required to keep mushrooms producing for four to six years. However, growing mushrooms is a long-term family project. The process takes patience, since it will be anywhere from six months to almost two years before mushrooms are ready to pick. Each harvest period can be timed to last several weeks. Mushrooms not used or sold fresh can successfully be dried for future use.

Mushroom gardens are established by inoculating fresh cut wood with mushroom "spawn". Not much space is needed, and some people grow them in shady spots in backyard house lots. One mushroom gardener even chose to move his mushroom garden to a new property when he sold his house. The move was a little cumbersome, but entirely successful. The mushrooms are still producing on a regular basis.

GETTING READY

1. Review information in *Backyard Family Project #1: Scouting Your Land* on the importance of marking your property boundaries.

2. Identify small hardwoods on your property. You will need fresh cut logs that are 4" to 5" inches diameter across the trunk and three to four feet long. The logs will have to be rearranged occasionally, so consider how heavy they will be to lift when they are saturated with water. You don't want them to be too heavy, but you also don't want them to be too small. Logs less than 4" in diameter *(across the cut ends)* are not ideal; they tend to dry out quickly. Ideally, you will cut hardwood trees that are poor growing *(but not diseased)* to use for your mushroom crop.

3. Shiitake mushrooms grow on stacks of hardwood logs. Your mushroom garden shouldn't be too remote: choose a place you visit on a regular basis. Access to electricity *(or a cordless drill)* on inoculation day and running water for the growing site *(several times a year)* will also be necessary. Look for a location in deep shade during the growing season, and protected from excessive drying winds — especially during the winter. Although Shiitake will not grow on softwoods, softwood stands provide good shade and protection, so you can always move the hardwood logs into your hemlock stand if you have one. If you don't have a protected location, you'll need to cover the growing site with burlap in the winter.

4. Review Safety Chapter. A safety review is always a good idea, but you need not own a chainsaw to cut enough logs to grow mushrooms. A good, inexpensive, non-mechanized buck saw or bow saw available at hardware or sporting goods stores will do the job.

5. This is not a one person job. It's a great project for a family, because everyone will have an assigned task on inoculation day. If you are taking this on as a one-person project, enlist some neighborhood help on inoculation day in return for an offer of fresh mushrooms later on.

Tools

On inoculation day, you will need:

- 10 - 15 fresh cut hardwood logs 4" - 6" in diameter across the cut ends, and 3' to 4' long. Logs over 6" in diameter or smaller than 4" don't produce well. Oak is best, but hop hornbeam, birch, beech, maple, and other wood with dark, thick bark will work. Softwoods will not work. Dead trees or downed logs won't work. Trees can be cut in the winter, but inoculation must occur in early spring before higher temperatures encourage decay.
- Shiitake "plugs" inoculated with shiitake spawn. These are available by mail from a variety of suppliers. Be sure to let them know the climate for your part of the state, so they supply a suitable strain. Inoculation of logs should occur within a few days after the spawn arrives.
- An electric drill with a 5/16" wood bit. You can rent a drill if you don't own one.
- 1 pound box of canning wax *(available in most grocery and hardware stores)*.
- Something to melt the wax in *(Canned Heat works well)*.
- A brush or turkey baster to apply the hot wax to the logs.
- Water
- A wire brush

Doing the Activity

Time Frame: Initially, a full day for inoculation. Follow-up requires an hour every two months for maintenance, another full day when inoculation is complete, and regular attendance during harvest periods.

1. Cut logs into regular lengths. Three foot logs are easy to stack and manageable to move. All logs should be the same length.

2. Remove mosses and lichens from logs with a wire brush, but be careful not to damage the bark.

3. Drill 5/16" diameter holes, 1" to 1 1/2" deep. Holes should be drilled all the way around the log and spaced about 3 inches apart. A diamond pattern of holes works well, allowing an even distribution of the spawn throughout the log.

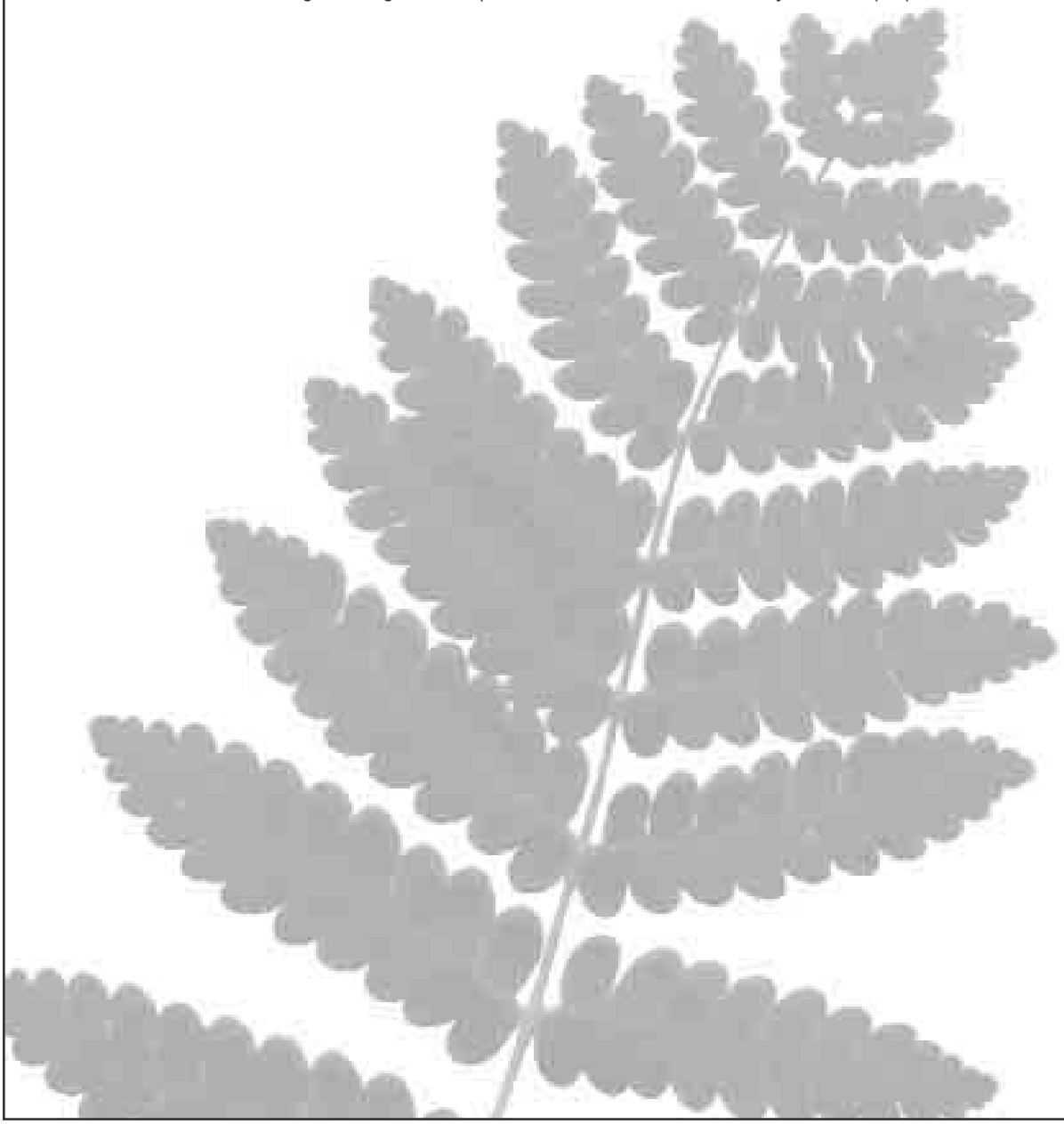
4. Immediately after drilling, tap inoculated wooden plugs gently into holes until they are flush with the bark. Avoid damaging the bark and wash your hands frequently to avoid contaminating the spawn with "weed" organisms from the bark or surrounding areas. This is important, since Shiitake do not compete well with native organisms and contamination can mean you get few mushrooms for your efforts.

5. Immediately seal each hole with melted wax, but do not seal the cut ends of the logs.

6. Stack the logs "log cabin" fashion in a four-sided square *(or use another method recommended in the inoculation kit you buy)*. Make sure the stack has good air flow but is out of drying winds.

Follow Up

Logs should be restacked every 2-4 months. The spawn run is complete when fuzzy white blotches appear on the log ends. The thicker the log, the longer it takes for this to occur. At that point, logs must either be soaked in clean cold water overnight in a large barrel or trash can, or soaked with a sprinkler for a day. Then restack the logs. Mushrooms should be ready to pick approximately 20 days after soaking. After the harvest, the logs need a rest before the next soaking. The logs should produce mushrooms for several years with proper care.



5 Safe, Safer, Safest! *Be Aware of Woodland Hazards*

What do you need to know about being safe in the woods? The best defense against safety hazards is to know what they are and how to reduce them when you can.

Staying Found

Getting lost on a few acres is easier than it seems. If your property is a small piece of a bigger woodland, it is best to learn how to orient yourself and teach other members of the family how to do the same. Investing the time and effort to learn how to use a map and compass will give you a skill useful for a lifetime. If you decide to do any work on your property, it will also allow you to accurately mark your own property boundaries, thus saving you from paying a professional surveyor to do the job.

Chainsaw Safety

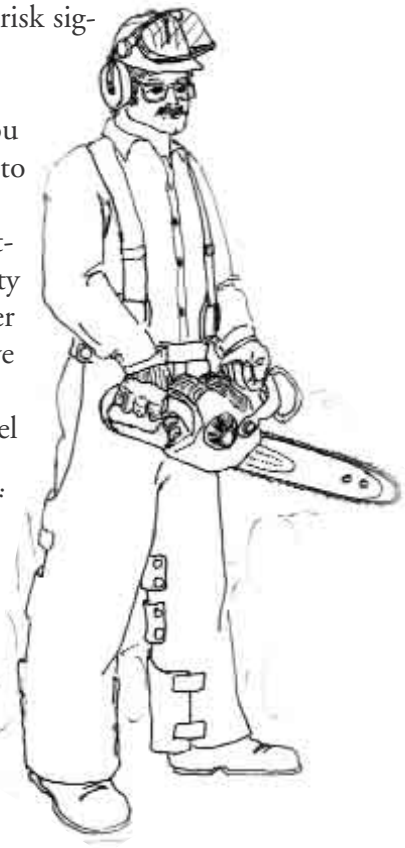
Cutting trees can kill you. In fact, logging is one of the most hazardous professions, with thousands of injuries occurring nationwide every year. Even professional loggers and woodsmen who have cut wood for decades get hurt and killed every year. Don't let that happen to you. Even if you've been using a chainsaw for years, new cutting methods and other safety tips significantly decrease your chances of getting hurt. According to logging professionals, hands-on safety courses are the best way to learn. Books and videos are a distant second. Professional chainsaw dealers often have safety videos for rent or sale that provide a very basic introduction or a useful refresher.

At the very least, a chainsaw should have the following:

- A chain brake
- Enough room in the handle and grip area to control the saw if it kicks back
- A low profile safety chain on the bar
- A bar no longer than 16 inches

People often think a longer bar makes a saw faster and stronger, but all it really does is add unnecessary weight. A well-maintained small chainsaw engine with a short bar is all anyone but a professional logger really needs. Larger saws only slightly decrease cutting time and add weight that makes them more difficult to control, thus increasing the safety risk significantly.

There is a lot to think about when you go out in the woods to cut. Have you maintained the saw recently? Do you have safety protection like leather gloves, a hard hat, eye and ear protection, kevlar chaps, and steel



How to Identify Hazard Trees

- Will a tree hit people, cars, buildings, or power lines if it falls?
- Has the tree lost a lot of branches lately?
- Is the tree dead? Does it have a dead top or branches? Snags are often left for nesting wildlife, but it is important that they not be a threat to humans.
- Are there deep, open cracks in the trunk, trunk crotch, or branches? Cracks eventually turn into breaks.
- Has the tree been topped *(the tallest, leading branches cut off)* or tipped *(the ends of branches cut off)* in the past? If so, sprouts may grow rapidly from the top or sides. As a result, the overall tree may be weakened while the new growth increases the danger by making the tree top heavy.
- Has the tree been damaged by a storm? Lightning can kill the roots.
- Do shelf mushrooms grow from the root area? Fungus is an indication of rot. The rest of the tree may still look healthy while the roots are starting to weaken. The tree may fall unexpectedly as a result.
- Do shelf mushrooms grow from the trunk? Are there black cankers or hollow spots? Entire living branches can unexpectedly pull out from a rotting trunk.
- Is the tree leaning to one side, or are there considerably more branches on one side of the trunk? The weight of them can pull the tree over, if it is already weakened.

toed boots? Look around. Do you have a good escape route if the tree doesn't fall the way you plan? Or is there brush or other trees that might trip you up? Is the wind blowing? How strong? From what direction? How does the tree lean? Does it have more branches on one side or the other? Do other trees block the direction you want the tree to fall? All of these things will determine how to safely take down a tree. Dead or dying trees are particularly difficult to cut and may require a different technique to be felled safely.

One last word on chainsaw and cutting safety: No matter how much you know about chain saws, reviewing safety information will help keep your mind on staying safe when you go out in the woods to cut.

Hazard Tree - Dangerous broken limb - A Widow(er) Maker

Hazardous Trees

Standing dead trees, or snags, provide excellent wildlife habitat, but damaged or dead trees located in areas where they endanger people or property should be removed. Hazard trees can be very unpredictable; branches may fall unexpectedly or the entire tree may fall without notice. Usually, hazard trees can be identified and removed before an accident occurs.

Sometimes, working among hazard trees is unavoidable. If you work among wind or ice damaged trees, wearing a hard hat may save you if a branch falls unexpectedly.

Keeping Healthy Trees from Becoming Hazard Trees

Hazard trees occur naturally, but healthy trees sometimes become hazards

due to improper pruning. For example, cutting the tops off big trees or removing the tips of big branches can weaken a tree. Proper pruning will keep a tree healthy.

Trees can also easily be damaged during construction of buildings or woods roads and trails, allowing insects or disease to begin to weaken or kill the tree. If the roots of a tree are damaged when a new lawn is being put in, for example, the tree may appear healthy, but be weakened at or below ground level. The worst hazard to trees during construction is filling in around trees and over root systems. As little as four inches of new soil can smother the roots. The practice of leaving a small hollow around the base of the tree is not adequate, because many fine roots spread far out from the trunk. Trees with weakened root systems can unexpectedly topple or snap off at the base in severe wind storms.

If you plant new trees, make sure the tree species suit the soil and water conditions of the site. To do this, you must know what trees will grow well on your site and also be sure they won't become hazardous when they grow larger. Your local garden center can give you some direction, but for professional assistance contact your community forester at the Maine Forest Service, a landscape contractor or arborist, or Cooperative Extension for more information.

Dig Safe!

If you decide to plant a tree or landscape your yard, state and federal law requires that you notify utilities so you won't accidentally dig into an underground cable. Call the toll free number at the "Dig Safe" center and they will contact the appropriate utilities for you. The utilities will then come out and mark the location of any underground facilities. 888-DIG-SAFE.

Wind and Ice Hazards

Avoid going in the woods during ice storms or high winds. Ice weighs trees down, causing some branches and tops to snap unexpectedly. Ice damaged trees, or trees trapped and bent over by the weight of trees that fell on them, are especially hazardous to cut. It is wise to leave them to experienced wood cutters trained in felling hazard trees.

Strong winds can blow branches, tops, and entire trees over unexpectedly. If you plan to work in the woods, wait for a calmer day.

Fire Danger: What You Can Do to Decrease the Risk

Is wildfire something home owners should be concerned about? Could the wildfires that burned over 200,000 acres and devastated nine Maine communities in 1947 happen again?

Extreme drought conditions combined with the lack of a comprehensive fire management planning contributed to the severity of the 1947 fires. The Maine Forest Service and municipalities manage wildfires today with increasingly sophisticated tools, but new factors have developed since the week Maine burned in 1947 that make wildfire a danger to land owners who have woods on their property.

New residential development is on the rise in central, southern, and coastal Maine. Most of these houses are being built in the woods. While wooded home sites offer privacy, they also come with certain risks. House fires in wooded areas cause unique problems for small town and rural fire departments for several reasons. Often, it takes longer for firefighters to reach homes on the outskirts of town. Driveways too narrow for fire engines, or without enough room for them to turn around, can add to the delay. There is also the possibility that a house fire can become a wildfire, particular-

ly in a dry year. Wildfires also tend to be more costly and dangerous to fight and can easily exhaust the fire rescue budget of small towns.

How to Protect Your Home from Wildfire

Regular maintenance, such as keeping gutters clear of debris, storing flammable material away from inhabited structures, cleaning and installing screens on chimneys, and removing flammable vegetation near the house will go a long way towards fire protection. Removing fire hazards from inside the home, such as improperly stored camping stove fuel or faulty wiring, is also important. Well-maintained smoke alarms are a requirement for a safe house. If you are building a new home in the woods, it is important to create a driveway wide enough for fire engines to enter and turn around.

Backyard Burning

Winds can create a hazard if you are burning backyard brush, since fires tend to create their own wind by sucking up nearby oxygen to fuel the flames. Many home owners start burning brush in a very light wind and end up calling the fire department when the fire gets out of control. A common comment is that "the wind just came out of nowhere."

Everyone is required by law to get a signed burning permit for any open burning. If you don't have one, you will be fined — and you'll also be liable for damage to adjacent properties as well as the cost of putting the fire out. Permits are available from the local town fire warden. If you live in an unorganized town or area, you can call the local Maine Forest Service office or the central number. They will direct you to the telephone number of a local contact for a permit.

Valuable time may be lost in trying to put out a backyard fire that gets out of control and becomes a grass fire or a woodland fire. The most important thing to do is get out of the area and get help as quickly as possible.

More information on how to reduce the risk of fire in and around your home, and information on burning permits is available from the Fire Control Division of the Maine Forest Service at 800-750-9777.

Resources

Orienteering

MacGown, R.H. 1981. *Yankee Woodlot: Basic Mapping*. Information on base maps, determining directions, reading distances and bearings, measuring distances and creating maps of woodlots or acreage includes additional reading and supply source lists. University of Maine Cooperative Extension. 16 pp. Bulletin #7007. $2.50. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Malone. *Staying Found: The Complete Map and Compass Handbook.* Offers a simple system for learning map and compass use that makes it easy to understand what you are doing and why. $10.95. Available from Acorn Naturalists (# B-3035). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Topographic Maps. These geographically detailed maps are available from many outdoor stores. All maps in the state are also available by mail. To order: DeLorme Map Store, 2 DeLorme Drive, P.O. Box 298, Yarmouth, ME 04096 or 207-846-7100.

Using a Map and Compass. Straightforward information with illustrations. Yankee Woodlot Series. University of Maine Cooperative Extension. Bulletin #7127. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Where is it? Deeds and Boundaries. How to find your property boundaries using your deed and on-the-ground clues. Yankee Woodlot Series. University of Maine Cooperative Extension. Bulletin #7077. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Chainsaw Use and Safety

Accident Emergencies. University of Maine Cooperative Extension. 2 pp. Bulletin #7002. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Chainsaw Safety Information. Internet site at **http://muextension.missour.edu/xplor/agguides/agengin/g01958**

Chainsaw Safety Training. Video. $35.00. Contact: Northern Woods Safety Foundation, P.O. Box 557, Jackman, ME 04945.

Chainsaw Safety Information and Training. Contact: Small Woodland Owners Association of Maine (SWOAM), P.O. Box 296, Augusta, ME 04332 or 207-626-0005. E-mail at **swoam@mint.net**

Chain Saw Safety. University of Maine Cooperative Extension. 4 pp. Bulletin #2353. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Proper Pruning for Healthy Trees

The Profit in Pruning. 1986. Forest Fact Sheet. Department of Conservation, Maine Forest Service. Illustrates proper pruning techniques and the results of good pruning. To order: 800-367-0223 or call your local field forester.

How to Prune Trees. Illustrated Brochure. USDA, Forest Service, Northeastern Area, State and Private Forestry. Report Number NA-FR-01-95. Contact: Maine Forest Service Urban and Community Forester at 800-367-0223.

Pruning Standards for Shade Trees. 1988. National Arborist Association. Offers terminology, diagrams and establishes the four classes of pruning. Contact: National Arborist Association, The Meeting Mall Place, Rte. 101, P.O. Box 1094, Amherst, NH 03031-1094 or 603-673-3311.

Hazard Tree Identification and Prevention

Call Dig Safe Before You Dig, It's the Law! Brochure outlining your legal responsibilities to contact utilities before you do any digging and the safety reasons behind the law. Contact: 888-DIG-SAFE or 888-344-7233.

Miller, Nancy L., et al. 1993. *Protecting Trees from Construction Damage, A Homeowner's Guide.* NR-FO-6135-S. Minnesota Extension Service. Contact; Minnesota Extension Service, Distribution Center, 20 Coffey Hall, 1420 Eckles Ave., St. Paul, MN 55108-6064.

Shigo, Dr. Alex L. 1985. *Homeowner's Guide for Beautiful, Safe, and Healthy Trees.* USDA Forest Service, Northeastern Forest Experiment Station. Report Number NE-INF-58-84. Contact: 603-868-5710.

Shigo, Dr. Alex L. *Tree Hazards, 13 Questions That Could Save a Life. Maybe Yours!* Contact the publisher: Shigo and Trees, Associates, 4 Denbow Rd., Durham, NH 03824 or 603-868-7459.

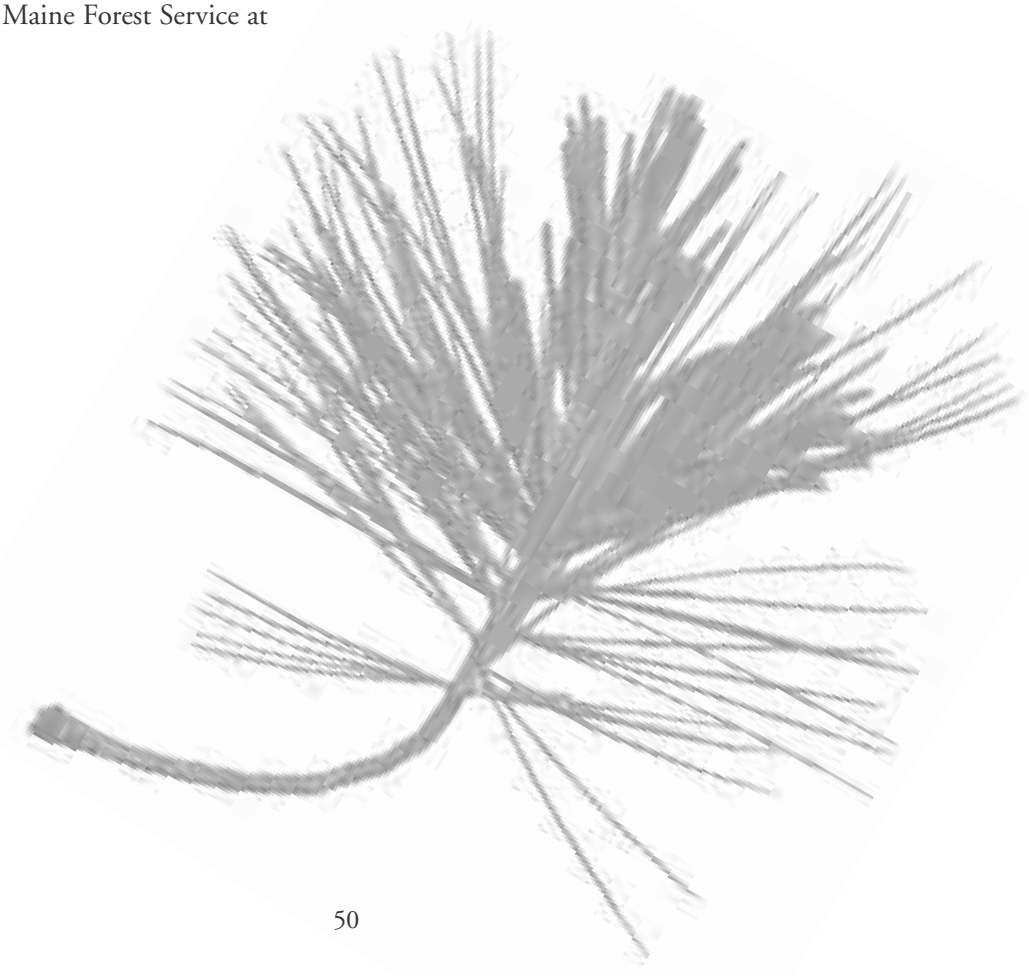
Wildlife Habitat/Hazard Tree Decision Model. Informative pamphlet that shows you how to decide whether it is best to keep a tree for wildlife purposes or cut it down for safety reasons. Contact: USDA Forest Service, Northeastern Area S &PF at 603-868-7600. Also available from the Maine Forest Service at 800-367-0223.

Fire Hazard Prevention

Common Sense Fire Protection Standards for Real Estate Development in Rural Maine. Winter 1991. Fire Control Division of Maine Forest Service, Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.

State of Maine Rules and Guidelines for Open Burning. 1995. Brochure. Department of Environmental Protection and Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.

Wildfire is the Enemy of Your Forest Home. Fire Control Division of Maine Forest Service, Department of Conservation. To order: Fire Control Division of Maine Forest Service at 800-750-9777.



Finding Your Way in the Woods: *Basic Map and Compass Skills*

Your big backyard is a great place to learn map and compass skills that will be useful for a lifetime of exploring, whether you are in the neighborhood woodlot or the Great North Woods. And it's a lot of fun to learn as a family.

This is a basic introduction to map and compass skills. See the Resources list at the end of *The Woods in Your Backyard: Safe Safer Safest!* for more in-depth instruction.

Once you learn basic map and compass skills, you'll also be able to accurately map your property and mark your property boundaries — an essential step if you plan to do any woodland projects!

TOOLS

- A compass. Get one that can be adjusted for declination. The inexpensive Silva brand compass is available at most outdoor stores for ten dollars or so. Two or three people should be able to share one compass. If you have more people, you'll need more than one.
- Small notepad and a pencil.

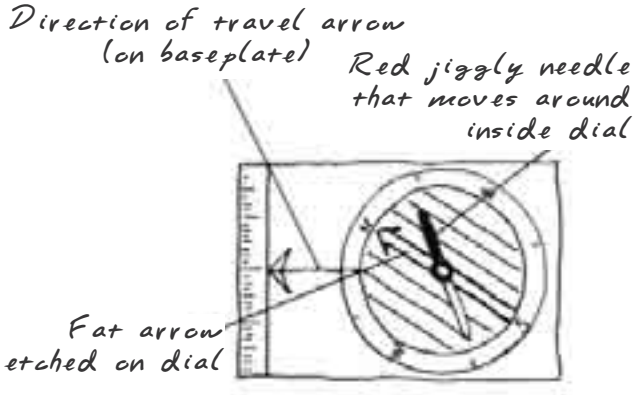
Optional:

- A topographic map of your area. This will allow you to read the land. They are available at most outdoor stores.

DOING THE ACTIVITY

Time Frame: 1 hour.

Step 1: Basic Compass Skills



1. Start out in the backyard next to the bird bath or a corner of the house *(starting point).*

2. The compass will have a jiggly needle that moves around inside a round dial. This is the magnetic needle whose *(usually)* red end points in a northerly direction. The other end, which is usually white, points in a southerly direction. There is also a fat arrow etched on the round dial that only moves when you turn that dial. You can ignore the fat arrow for now.

3. A long skinny arrow is in the middle of the flat, rectangular base plate. It points towards the narrow edges of the plate. This is the Direction of Travel arrow. *(It's very obvious on some compasses and hard to find on others. This is the only arrow on a compass that does not move. It is imprinted on the base plate).*

4. Now, hold the compass so it is flat in the palm of your hand, hold your arm out straight and aim the Direction of Travel arrow at some recognizable landmark in the distance, like a pine tree among a bunch of hardwoods. If you are at the bird bath, you don't want to aim at the bird house twenty feet away; it's too close.

Make sure the compass stays flat in the palm of your hand; you won't get an accurate reading if you hold it (or your arm) at an angle.

5. Okay, you're pointing at the pine tree. Now, turn the round dial until the fat arrow etched on the dial is aligned with the red end of the jiggly magnetic needle inside the dial. Make sure the pointy arrow "head" of the fat needle *(not the blunt arrow "tail")* is aligned with the red end of the jiggly magnetic needle.

6. Read the degrees on the dial where it meets the skinny direction of travel arrow on the base plate. That number is called an azimuth. Write that azimuth down on your notepad.

7. Now walk to the recognizable landmark *(the pine tree in our example)*, hold your compass out in front of you and turn your whole body *(not just your arm)* very slowly, until the red magnetic needle lines up with the fat arrow on the dial again. Look down the skinny Direction of Travel arrow, sight on a new landmark in the line of sight and walk towards it.

8. If you want to go back to the starting point, turn the dial 180 degrees. Say you were initially following an azimuth of 95 degrees *(you can tell the azimuth by where the numbers on the dial meet the Direction of Travel arrow)*. Turn the dial 180 degrees *(to 275 degrees)*, then turn your whole body until the fat arrow on the dial matches up with the jiggly red magnetic needle inside the dial. Without moving the jiggly arrow out of alignment with the fat arrow, aim your Direction of Travel arrow at a landmark, walk until you reach the landmark, then repeat until you are back at your starting point.

Suppose you get turned around when hunting or hiking in the woods. Even this basic knowledge will allow you to take a compass out of your pocket, set a direction and stick to it. If you see a landmark in the distance that you recognize — like a lake, mountain, or radio tower — you can take a reading to it, set the azimuth, and work your way towards it in steps by sighting on a closer landmark in the same azimuth (like a tree), walking to it, and repeating this until you reach your destination.

Using map and compass

Step 2: Using a Map and Compass

The magnetic needle of the compass points in a northerly direction, but it doesn't point exactly north. It points to a heavily magnetized rock formation north of Hudson Bay, which is south of the North Pole. When you strike out across your woods *(as outlined in Step 1)*, this really doesn't matter. When you use a map or follow a deed, it does. The correction factor between the Hudson Bay rocks and the North Pole varies depending on where *you* are located. This correction factor is called the **declination**, and it is undoubtedly the most confusing thing about using a compass.

In Maine, the declination is anywhere from 17 degrees to 22 degrees west. The declination is always marked on a topographic map, usually in the right hand corner on the bottom. It is two arrows that look like the hands of a clock. The declination number of degrees will be noted between the "hands".

1. Take a look at the topographic map and acquaint yourself with it. Do you see features you recognize? Can you actually find your house as one of the little black squares on the map? *(Many topographic maps haven't been revised since the 1950's, so don't be surprised if you don't)*. Once you see something you recognize *(and can physically get yourself to)*, look at the map and find a distant landmark you would like to reach using the map and compass. It might be a pond or wetland, a field, or another road.

2. Using a ruler or other straight edge, draw a pencil line on the map from the point you recognize *(a)* to the place you want to go *(b)*.

3. With the direction of travel arrow pointing towards *(b)*, place the long edge of the base plate of your compass along the line you drew on the map.

4. Ignore the red jiggly magnetic needle. Turn the dial until the fat arrow on the dial *(and all the parallel lines etched on the dial housing)* line up with north on the map.

5. Look around for the declination information. If it is a USGS topographical map, it will be there. *(Most maps are not based on magnetic north, but on true north, so you will need to correct for declination)*.

6. Now, subtract the declination from the reading on your dial that lines up with the direction of travel arrow. For example, say you are going from your house to a pond a mile away. After doing the last five steps in this set of instructions, you note that the direction of travel points to 160 degrees. You look in the corner of the map and see the declination is 18 degrees West. You subtract 18 degrees from 160 and come up with 142 degrees *(your azimuth)*. Keep ignoring the jiggly red needle, and turn the dial until 142 degrees lines up with the Direction of Travel arrow on the base plate.

Note that the declination would be east in Washington state, not west as it is in Maine. On the west coast, you add the declination instead of subtract it.

Also note that some compasses have a setting for declination, so you don't have to do the math every time you change your direction of travel as long as you are still in an area with the same declination.

7. Take yourself physically to point *(a)*. This is your starting point. Write down your azimuth in case the dial somehow gets moved. *(In the above example, the azimuth is 142 degrees)*.

8. Now, hold the compass out flat in the palm of your hand and then turn your whole body until the jiggly red magnetic needle lines up with the fat arrow on the dial. Look in the Direction of Travel, sight on a tree or rock in the distance, and walk to it.

9. Repeat step 8 until you reach point *(b)*, your finishing point.

10. To go home, turn the dial 180 degrees and repeat step 8 until you get back to your starting point *(a)*.

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 and the skills you learn.

The town office can provide a photocopy of the town tax map where your property is located. Some town offices also have information available on the Internet.

Your property deed will provide some ideas about how to locate your boundaries, including locations of iron posts or trees with blazes *(markings made by an ax, usually at eye level or above)*. However, old deed descriptions are often vague. Copies are available at your county Registry of Deeds office. Topographical maps that show streams, elevation changes, and other features can be very helpful, too. A good outdoor store will help you find the topographic map you need.

6 Being a Friend to Your Woods: *Protecting Your Land from Damage*

The woods in your backyard are remarkably resilient, but they are not immune from damage. Fortunately, you have some control over the ecological health of your little piece of the earth. What you decide to do with your property (or decide not to do) affects it, the land adjacent to it, the water that falls on it and flows over it, and the birds, butterflies, and other animals that rely on it. Even doing nothing has an effect.

With a little planning and a little work, you'll see the benefits of your efforts. For example, if you see muddy water in the ditch after a rainstorm this year and you plant bushes and wildflowers to slow the runoff, your reward will be clean flowing water next year. You'll keep your nutrient rich soil in your yard and the whole range of aquatic life in nearby streams will benefit. You'll see the results of your own efforts right out your back door.

Your Woods are Unique

Several factors besides the availability of sunlight affect tree and plant growth including; the slope of the land, climate, and soil. All contribute to which tree species will grow well in a certain location. Added up, these factors make up the site conditions of a woodland. There may be more than one site on your property.

Site conditions provide a sort of natural constraint on what will grow effectively on your property. If you have a dry south facing slope, for example, white pine and woodland wildflowers will probably do well. But white cedar would not thrive. Artificial changes in site conditions are possible, but not very practical. They tend to be expensive and require a lot of maintenance. It's much easier to work with native tree and plant species that will thrive on an existing site.

Soil: The Foundation of Your Yard and Your Woods

Soil is similar to the foundation of your house. It's not very noticeable, but there wouldn't be any thing growing on top without it. In fact, soil is one of the most important factors in determining what kinds of tree and plant species grow well in a certain location.

The basic ingredients of soil fall into two categories: mineral soil (made up of clay, silt, and sand) and organic soil (made up of

Soil: Foundation of your yard and woods

O-Organic Pad-Dead and decayed organic matter mixed with soil
A - A Horizon
B - B Horizon
C - C Horizon - Parent Material

Cutaway view of soil test pit

decomposing leaves and other organic matter as well as small invertebrates and other organisms). Soil moisture and air spaces in the soil also factor in to the kinds of plant or tree life a certain location can support.

The amount of sand, silt, and clay varies from place to place. Soils with a heavy clay content tend to be sticky and not well drained, though they can be quite fertile. Soils with a lot of sand tend to be gritty, not hold water very well, and usually are not very fertile. Silt laden soils feel smooth and tend to have good drainage. Loam is a fairly even mix of all three.

Decomposing trees and leaves form the organic layer (also called the O horizon). As the organic layer breaks down, it mixes with mineral soil from below to form the nutrient-rich topsoil (the A horizon) beneath the O horizon.

If you have ever dug a hole on your property, you probably noticed different colors of soil layers as the hole got deeper. The dark organic soil layer on top is usually about an inch thick. The organic layer and the layer below it (the topsoil) contain most of the nutrients that nourish a growing woodland. These rich soil layers are not easily replaced; it takes between 100 to 600 years to form an inch of top soil.

Unfortunately, wind and water can erode away an inch of topsoil in a single year if the there are no trees, shrubs, plants, downed logs or other material to hold it in place. Once the topsoil washes away, it is much harder for plants and trees to grow at all and a cycle of erosion leaves the land nutrient poor. Soil sediment also is likely to end up in waterways, where it affects fish and other aquatic life.

Soil maps available from the Natural Resource Conservation Service (NRCS) can provide a general idea of what to expect from your soil. They are accurate from three to five acres. Inexpensive soil analysis kits are also available from NRCS and your county Cooperative Extension office. You send a sample of soil to the lab with information on your land ownership goals, and they send back specific information that can factor in your planning process.

The trees growing in a certain location can give you some clues about the soil. The white pine mentioned previously grows well on well-drained soils while the cedar favors poorly drained sites.

Protecting Soil and Water

Forested areas tend to act like sponges when it rains. Trees and their roots hold water in the ground and release it slowly after taking up many of the nutrients that can become pollutants if they end up in streams or lakes. They also hold soil in place when it rains. Rain that hits bare ground runs off into water ways. It has no vegetative "sponge" to soak it up, so it picks up soil, pesticides, herbicides, and motor oil as it runs off. The soil particles, once suspended in a stream or pond, rob the water of dissolved oxygen needed by aquatic life. Some fish and other aquatic life in Maine tolerate low oxygen levels in muddy water. Many more do not. A muddied stream can ruin habitats for fish, frogs, and other water dwelling creatures. As anyone who fishes for trout knows, you can't catch a clear water fish in a muddy stream. A muddy stream doesn't look very nice, either.

If you plan to build a house or put in a woods trail, some planning is necessary to prevent erosion when removing vegetation near water or on slopes.

Any conservation measures you take will help keep the precious soil on the ground while also keeping water clean.

Conservation measures that prevent erosion include:

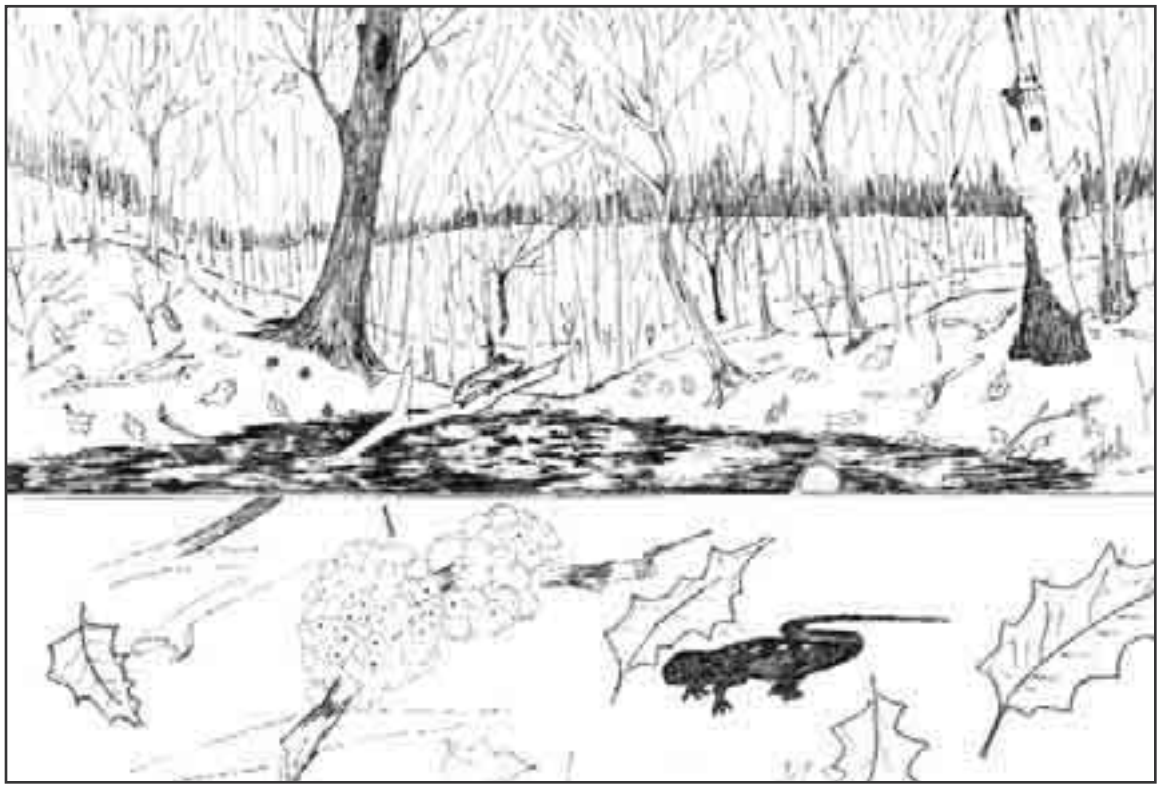
- Designing woods roads and trails to divert run-off into vegetation
- Planting trees and shrubs near waterways
- Alternating small lawn areas with landscaped shrubs, wildflowers, or ground covers
- Planting areas next to driveways and parking lots
- Seeding areas that were cleared during construction
- Covering bare soil to keep it from washing away

Coping with Insect and Disease Problems

While all trees have a limited life span, insects and disease can affect the health of your woods by paving the way for premature decay. The impact can be widespread if conditions are ripe for insect or disease outbreaks. Ten million acres of mature balsam fir and spruce forest provided the right conditions for the spruce budworm to take hold in the nineteen eighties, resulting in large tracts of dead and dying trees.

As with most things, it is easier to prevent insect and disease problems than to treat them. It is not necessarily too late once mushrooms begin growing out of tree trunks, or dead limbs and discolored foliage appear, but prevention is preferable and usually less costly.

The best defense against insects and disease is to encourage a variety of different tree species to grow, since most pests specifically attack only one kind of tree or bush.



Can you find and identify these woodland features?
a. Edge b. Riparian Area c. Snags d. Mast trees e. Vernal pool

White pine blister rust, for example, will not attack red pine, spruce, larch, or balsam fir. A property with trees of different ages is also more resistant than one with trees of all the same age.

Some pest outbreaks can be controlled, while others run their course naturally without widespread damage to the woods. A dead tree here or there is a good thing to have in the woods: snags contribute important wildlife habitat and recycle nutrients into soil. Not all mushrooms and insects cause tree health problems, either; many are beneficial to the overall health and beauty of the woods. But you probably don't want a lot of trees to die at the same time. Diversity is the key. The more variety of trees you have, the more likely it is that your woods will remain healthy overall.

Information bulletins on specific tree ailments and newsletters on current insect and disease conditions in the state are available from the Maine Forest Service. Contact the Insect and Disease Division at 207-287-2431 or check out their Internet site at **www.state.me.us/doc/mfs/idmhome.htm**

Special Considerations

Wetlands

Do you have woodland areas that are wet in spring but dry up in summer? If so, you probably have a temporary forested wetland called a vernal pool on your property. Vernal pools, which vary in size from as small as a mud puddle to many acres in size, provide important spring breeding sites for frogs, toads, salamanders, insects, and small mammals. Some vernal pools are home to rare and protected species.

All wetland areas and stream sides are home to a variety of life. They are also very

susceptible to erosion, so special considerations are important when undertaking activities such as cutting trees, digging, planting, and trail building. Guidelines on activities in wetland areas are available from the Maine Forest Service and the Maine Department of Environmental Protection.

Sensitive Species

How can you tell if you have a threatened plant or other sensitive species on your property? What does it mean in terms of what you can or cannot do? Most sensitive species are found in riparian areas, or the edge area between wetlands, streams, pools and adjacent uplands. Certainly, it is a privilege as a land owner to be a steward to a sensitive species, but it also carries certain responsibilities. Sensitive species rarely pose problems to property owners who want to improve their woods. The Maine Natural Areas Program puts out a list of species of special concern and can give you guidance on what may live on your property.

Laws You Need to Know Before You Cut

No-one likes laws, but four statewide conservation laws are designed to protect water quality and forest health. Amendments of the laws occur periodically, so it is a good idea to call the Department of Environmental Protection, the Land Use Regulation Commission, and the Maine Forest Service to get updates on current amendments before you cut trees or move soil. Your town office is a good place to start to find out about local regulations in your area. If no local regulations exist, then the state laws still apply.

The four state laws are:

Protection and Improvement of Waters Law

Protects waterways from pollution by soil runoff that can occur during home construction, road construction, logging, or any similar activity with the potential for causing erosion.

Natural Resources Protection Act

Regulates any work done in, over, or next to any body of water, including dunes, marshes, and other wetlands. Also applies to areas that have significant wildlife habitat and to mountain areas over 2,700 feet in elevation.

Shoreland Zoning

Regulates activities as wide ranging as construction and pruning trees within 75 feet of streams and within 250 feet of ponds, lakes, rivers, tidal areas, and freshwater wetlands. Towns may have even more stringent regulations than the state, so check with the town office on local zoning requirements. If you live in an unorganized town, check with the Land Use Regulation Commission. All areas of the state are subject to shoreland zoning, so if you have difficulty obtaining information from local sources, contact the Department of Environmental Protection for guidelines.

Forest Practices Act

Regulates the size, arrangement, management, and regrowth of clearcuts. Check with the Maine Forest Service for current information on this law.

A booklet titled *A Field Guide to Laws Pertaining to Timber Harvests in Organized Areas of Maine* outlines the four laws in more detail. A booklet titled *Best Management Practices: Field Handbook* is a how-to guide for on-site erosion control.

Resources

Preventing Erosion

Best Management Practices: Field Handbook. 1992. Illustrates proper procedures for preventing erosion and pollution of wetlands, streams, and waterways. Maine Forest Service. Department of Conservation. Free. Contact: 800-367-0223.

Best Management Practices Manual. Includes sections on groundwater, plant nutrient programs, pesticides, fertilizers, animal manures, and soils. University of Maine Cooperative Extension. 35 pp. in a 3-ring binder. Bulletin # 2014. Free. Contact: 800-287-0274 or the Internet at **http://www. umext.maine.edu**

Eight Simple Steps to Clean Water. Easy to read brochure that highlights things to do at home to protect clean water. Department of Environmental Protection, Bureau of Land and Water Quality. Contact: 207-287-3901 or the Internet at **www. state.me.us/dep/mdephome.htm**

A Field Guide to Laws Pertaining to Timber Harvests in Organized Areas of Maine. A quick review of the laws you need to know before you cut wood. Contact: Maine Department of Environmental Protection at 800-452-1942.

Land Use Regulation Commission. Department of Conservation. Contact for information on activities in unorganized towns. Contact: 207-287-2631.

Natural Resources Conservation Service (NRCS)/Soil and Water Conservation Districts. The best local contact for information and assistance on how to protect soil and water, and the plants, trees, and animals that rely on them. Call for the number of your local office. General Information: 207-866-7241 or the Internet at **http://nrcs.usda.gov**

Protecting Water Quality in Forested Areas. Morten Moesswilde, Water Quality Coordinator, Maine Forest Service. Personal contact: 207-287-8430 or e-mail at **morten_moesswilde@state.me.us**

Insects and Diseases

Know Your Tree Diseases. 1988. Designed to help youth or adults determine what disease is attacking a tree. Shows what contributes to the health—or demise—of a tree. 24 pp. Cornell Cooperative Extension. Bulletin # 153J116. $3.00. To order: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications/natural-resources.html**

LaBonte, George and Richard Dearborn. 1980. *Field Book of Destructive Forest Insects.* Division of Entomology, Maine Forest Service, Department of Conservation. For current information, contact: Insect and Disease Management Division at Maine Forest Service, 50 Hospital St., Augusta, ME 04330 or 207-287-2431.

Marsh, Joel W., et al. 1974. *Insect Primer, with Special Reference to Forest Pests and with Notes on Forest Tree Diseases and Injuries.* Classification of insects, with particular information on insects that are helpful and harmful to people, animals and trees. Circular No. 9. Sixth Edition. Contact: Insect and Disease Management Division at Maine Forest Service, 50 Hospital St., Augusta, ME 04330 or 207-287-2431.

Pest Alert Series. Current bulletins on tree insect or disease problems in the state. Describes the problem *(including identification in the field)*, then offers remedies if they exist. An informative newsletter is also sent out during the growing season. Call or write to be put on the mailing list. Contact:Insect and Disease Management Division at Maine Forest Service, 50 Hospital St., Augusta, ME 04330. 207-287-2431.

Sensitive Species

Maine Natural Areas Program. Brochure. More information available on specific species or habitats. Contact: Maine Natural Areas Program, Department of Conservation, 93 State House Station, Augusta, ME 04333 or 207-287-8044.

Soils

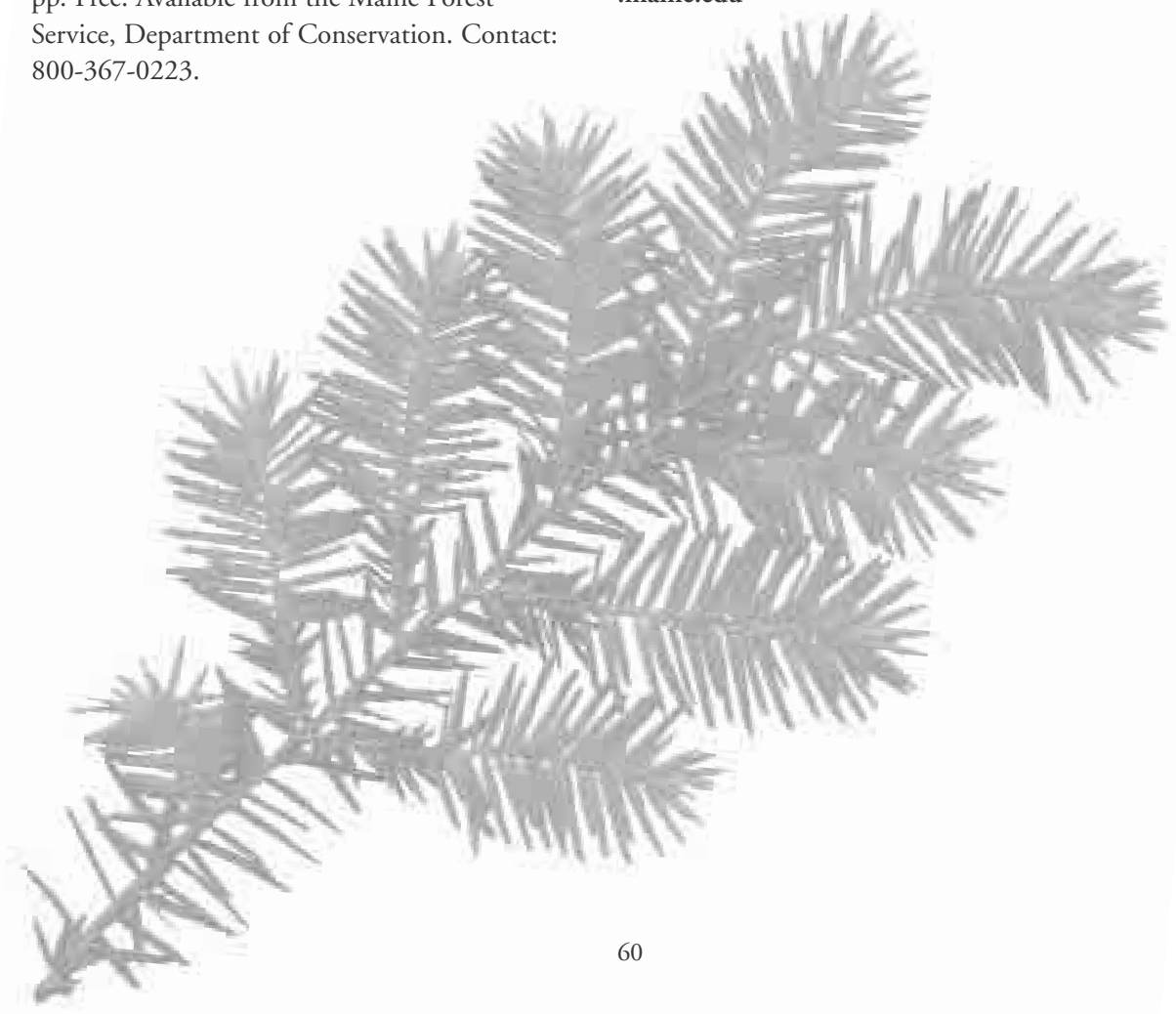
Complete Soil Test Kit. Don't want to send your sample out for testing? Here's the complete do-it-yourself kit for 15 fast soil tests. Garden guide manual and the Lamotte Soil Handbook included to help you interpret results. Refills Available. $37.95. Available from Acorn Naturalists (#TEST-6390). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Landowners Guide to Forest Stewardship Practices: Forest Soils. Informative introductory bulletin on forest soils. Includes illustrations. 4 pp. Free. Available from the Maine Forest Service, Department of Conservation. Contact: 800-367-0223.

Natural Resources Conservation Service (NRCS)/Soil and Water Conservation Districts. The best local contact for soil and water information and assistance. Also offers a wide range of training sessions. Call for the number of your local office. General Information: 207-866-7241 or the Internet at **http://nrcs.usda.gov**

Winkler and Rogers. *Soil.* From the award winning Our Endangered Planet series. Covers soil formation, types, weathering, relationship to groundwater, gardening and plant growth. Targets ages 9 - 16. $16.95. Available from Acorn Naturalists (#B-4181). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

What's Under It? Yankee Woodlot Series. A look at forest soils and how they function. Illustrated. University of Maine Cooperative Extension. Bulletin #7076. 6 pp. $.50. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**



Getting Down and Dirty: *Looking at the Soil Beneath Your Feet*

The soil beneath our backyards is full of hidden life. Tiny soil microorganisms *(and the bigger animals like earthworms and woodchucks)* are the original recyclers. They turn old leaves, dead trees, and other organic matter back into nutrient rich soil and create tiny spaces in the soil that allow oxygen and water to flow through.

Not all soils are created equal, though. The underlying rock influences the type and quality of the soil, as does the wetness of the area, and the slope. Erosion can also strip off the fertile top soil even on a good site if the land is treated poorly.

It can be a lot of fun to poke around beneath the mysterious surface to see what's below it. You can easily determine the quality of your soil in a more scientific manner at the same time by collecting a soil sample and sending it in for analysis. The University of Maine will analyze your soil for a small fee and give you some ideas about what you can grow on your property.

But first, you get to play in the dirt!

Leaf Litter - Forest Floor - Soil Critters

How many forest floor critters can you locate?

Hint: Mouse, Salamander, Rotting Log, Millipede, Earthworm, Beetles, Fungi - (Toadstools, Indian Pipe), Small Woodland Flower - (Jack-in-the-pulpit)

Getting Ready

1. If you didn't do *Backyard Family Project #1: Scouting Your Land*, now is a great time to go back and make a map of your property. It will be useful if you want to put the Family Projects together to make a plan.

2. Review the University of Maine Cooperative Extension Bulletin #7076. *What's Under It? Forest Soils* and/or *Landowners Guide to Forest Stewardship Practices: Forest Soils* available from the Maine Forest Service.

Tools

- Shovel or garden trowel
- Several small glass jars (baby food or jelly jars with lids work great)
- Magnifying glass
- Pen or pencil
- Soil Sleuth Checklist
- *What's Under It?* and/or *Landowners Guide to Forest Stewardship Practices: Forest Soils*
- Compass (optional)
- A photocopy of the Master Map (optional)

Doing the Activity

Time Frame: 1 - 2 Hours

1. Follow compass bearings established in *Backyard Family Project #1: Scouting Your Land*, or simply walk through the woods until you notice a change in vegetation type. If you made a Master Map, stop and draw the vegetation boundary line on the map. *(For example, if you are in a hardwood stand and come to an area with ferns and moss, that boundary may indicate a soil change. The same holds true if you come to an area with mostly spruce and fir).*

2. Dig a small hole in both areas. *(Soil pits are usually three feet deep, but a foot or less should be sufficient for this activity).*

3. Without packing down the soil, take a sample of the topsoil from each location *(about 3 or 4 inches down from the ground surface)* and put them in separate jars. There is no need to fill the jars. A half cup of soil from each site should be enough.

4. Label the jars *(Site #1, Site #2, and so on)*. Write the Site #'s down on the Master Map if you use one.

5. Using the hand lens or magnifying glass, look at the soil samples. What do you see? Small pieces of leaves and sticks? Small soil animals like earthworms and insects? Small pebbles or grains of sand? Sticky clay? Compare your soil samples using the Soil Sleuth Checklist. If you have a copy of the Master Map, write your soil notes right on it in the appropriate locations for each soil sample site.

6. Take your soil samples to the back porch or kitchen and add enough water to almost fill each jar, put the lids on and shake hard for several minutes until all the soil is suspended in water. No clumps should remain. Then let the soil samples sit overnight without moving.

7. The soil will settle in layers, with the largest sediments settling out first. Tiny pebbles will fall out first, followed by sand, silt, and clay on top. Organic materials may float. Compare your samples. Is the sand layer larger in one sample than another? Does one have a thicker clay layer? (Clay sometimes will stay suspended in the water for a long time, making it cloudy. This is a good indication that there is a fair amount of clay in the soil). Use *What's Under It?* and *Forest Soils* to help you figure out what you have.

8. Why do you think you found certain trees and vegetation in one site and not in the other? Does the soil give you any clues?

9. Send your soil samples to the University of Maine to be tested and you can check to see how well you did! *(See Resource list for address information).*

(Family Project adapted from Project Learning Tree: Soil Stories. American Forest Foundation. 1993).

Follow-Up

Digging a Soil Pit

If you do decide to dig a deeper hole, you will be able to see the color changes between the different layers of the organic layer *(O horizon)*, the top soil *(A horizon)*, and the underlying mineral soil layers *(B and C horizons)*. You will also get a better idea of the ratio of sand, silt, and clay.

A soil pit allows you to look at and feel the texture of the different colored soil layers. If you have a significant change in vegetation or slope, you may want to dig more than one hole. If you only dig one, choose a place that is representative in slope and vegetation to the rest of your property. You'll need a sharp edged shovel to dig a hole with clean, sharp sides that will allow you to clearly see the different soil horizons. Use the publications listed above to help interpret what you see. The soil will change color and texture from layer to layer. How thick is each layer? Sketch a vertical cross section of the soil profile and estimate the thickness of each layer and note it on your sketch. Knowing what your soil is made of will go a long way to giving you ideas about what you can and cannot do on your property.

Soil Sleuth Check List

- ☐ What grows on the site? Evergreens? *(White pine? Spruces?)* Hardwoods? *(Oak? Red maple?)* Ferns and mosses?
- ☐ Is the site on a hill or slope? Flat area? Depression?
- ☐ Describe the color of the soil. What kind of brown is it? Orange-brown? The color of coffee grounds? Khaki-colored? Does it look more like chocolate ice cream or whole wheat bread?
- ☐ What does it smell like? Fresh? Fishy? Clean? Rich? Like rotten eggs?
- ☐ Rub it between your fingers. How does it feel? Gritty like sand or sticky like clay? Smooth like silt? Is it dry, damp, or wet?
- ☐ Look closely with a magnifying glass. What do the different soil particles look like? Are they large, small, or both? How big are the air spaces between the particles? Can you see them?
- ☐ What little creatures do you see? Draw a sketch if you don't know what they are.
- ☐ What other organic components do you see? Pieces of leaves, twigs, or small roots? Seeds or nuts?

7 Neighborly & Family Relations: *Benefits of Working Together*

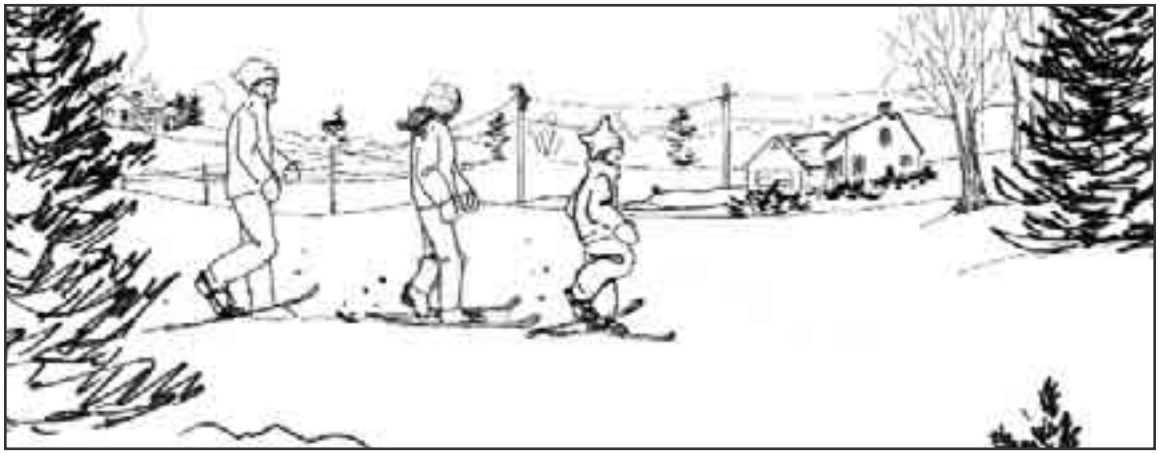
Are you interested in creating good homes for wildlife or improving your sugar maples with an eye towards making maple syrup? Then you might want to talk to your neighbors. What happens on their property may be a factor in how successful you are in being a good friend to yours. You may even find that you share some of the same values and can work together towards common goals. At the very least, it is worth letting your neighbors know what you are up to, just to keep relations friendly.

Your family is important, too. If you spend time improving your property, you will almost certainly become attached to it and want the spirit of stewardship to continue if you decide to sell it or bequeath it to your heirs. Fortunately, there are several options available that may help you reduce property and estate taxes while continuing your approach to land conservation. Some options allow for limited residential construction, agriculture, and forestry.

The Importance of Property Boundaries

If you plan to create trails, improve wildlife habitat, or cut trees for any reason, you will need to know the legal location of your property boundaries. Liability questions can easily arise if you cut a tree on your neighbor's property. This is remarkably easy to do if the boundary line is not marked or marked incorrectly. Locating property boundaries can be a bit of an adventure if an old deed is involved, though, since many deeds refer to large trees, barbed wire fences, and other landmarks that were standing a hundred years ago and are no longer around.

The best place to start is with a town tax map available at the town office. Your county Registry of Deeds is the next step. If you let your neighbors know you are looking at shared property lines, they may be able to help you out if they have had their property professionally surveyed. If you plan to do extensive work in your woods,



A neighborhood trail offers year-round recreation opportunities right out your backdoor.

you will want to consider having your property lines surveyed by a licensed surveyor. Otherwise, you can find your own property lines with help from the publications listed in the resources and the information from the town office and the Registry of Deeds.

Sharing Water, Sharing Soil

Are your neighbors uphill from you? If so, a wooded area between their property and your house may make the difference between a dry cellar in the spring or a constant battle with a sump pump to keep the furnace from drowning. Similarly, if you plan to put in a large lawn or paved area around your newly built house, consider the effects surface run-off will have on adjacent areas and waterways.

Surface run-off can also be a problem on parking lots, golf courses, agricultural fields, clear cuts, roads, trails, construction sites and other unvegetated or lightly vegetated areas. Run-off picks up soil particles as it goes, creating rills and gullies as it runs down unprotected slopes and polluting nearby waterways. It also picks up whatever else is on the ground or pavement, including motor oil, pesticides, and other contaminants. Conservation measures, like buffer zones with trees and shrubs to catch surface run-off, will keep the soil where it should be: on the ground instead of in the water.

If your neighbor's practices are affecting your property, it might be prudent to share some written information with them on how they can benefit from soil and water conservation measures.

Community Relations

What is your reaction when you see a sign that says "No Trespassing: Violators will be Prosecuted?"

There are costs and benefits of keeping your land open to public access, particularly if you move to a property that has historically been open to the public for hunting or other recreational use. If you don't post it, your land may be open to abuse. On the other hand, if you do post it, you may cut off friendly relations with your neighbors and not be effective in keeping persistent trespassers off your property, anyway.

Your personal priorities and values for your land are a good guide for weighing the decision about public access. Another option is to control who goes on your property and when they do so. Allowing your neighbors access by written permission may encourage good will and help you reach some of your goals. For example, a property owner that has no interest in hunting may allow adjacent neighbors written permission to hunt in return for year round access to their property for other recreational opportunities like cross country skiing, mountain biking, or hiking.

Your personal priorities and values for your land are a good guide for weighing the decision about public access.

Cooperating with your neighbors and allowing controlled public access may also offer you more privacy than expected, since you can ask your neighbors to let you know if they see someone who doesn't have permission to be on your property. In this way, members of the neighborhood look out for each other.

Some landowners are wary of opening up their land for recreational use because they fear getting sued if something goes wrong, but landowner liability is well protected under Maine law as long as landowners do not charge a user fee. In fact, Maine has one of the strongest landowner liability protection laws in the country. The rule of thumb is that there is no cause for concern if someone gets hurt on your property unless money is somehow involved.

Clearing a neighborhood trail

However, the final decision on whether to allow public access always rests with you, the owner.

Working Together to Provide Homes for Wildlife

Remember that all wildlife need food, water, cover, and space to meet their daily living requirements. Perhaps your neighbors have a good water source and you have good food sources for a variety of wildlife. You can still develop essential cover for many species that visit your neighbors for a drink. Between the two properties, you may be able to provide all the habitat requirements for a variety of species, including migratory songbirds who need refueling stops on their travels.

Better yet, let your neighbors in on your plans and see if they are interested in a joint effort. If they become interested in improving wildlife habitat, your combined efforts will likely have an even bigger impact — particularly for species that need more than ten acres to survive. Requesting permission from your neighbors to venture beyond your own property boundaries into their backyards will also help further neighborly relations.

Neighborhood Trails

If your property is adjacent to property with existing trails, or is a piece of a larger woodland, your neighbors may be interested in working together to create a longer community trail for use by participating landowners.

Neighborhood trails are like hidden treasures. Instead of walking your dog or running on the side of the road, your daily exercise takes you into the peaceful beauty of the woods for a long walk. Neighborhood trails also have the advantage of not being known to those who live outside the neighborhood and are unlikely to attract wider use. Existing trails indicate that vandalism tends to go down after the trail is put in place, since neighbors watch out for each other's property.

Community Timber Harvest

If you decide to cut some trees on your small property in order to meet the other goals for your land, you may not have enough wood to make it economically worthwhile to have a logger cut and haul it out. Instead of making money off the sale, you may have to pay the logger! If several of your neighbors want to work together towards common goals such as recreational access or wildlife habitat improvement, there may be good reason to do a community timber harvest. The income from the wood will probably cover the costs of the work and may provide some income for participating landowners, depending on the size of the combined properties and how many trees are removed. If you decide to pursue a community timber harvest, it is essential that you work with a licensed professional forester who has your best interests in mind and will guide the logger's work. The forester will keep your personal goals, the health of the land, and your legal interests in mind. The forester will also facilitate the details of the harvest from beginning to end.

Contact the Maine Forest Service for a list of licensed professional foresters in the state.

Planning for the Future

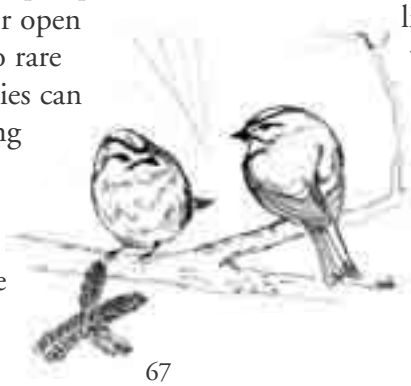
Many landowners face the prospect of increasing property taxes and high estate taxes that will prohibit their heirs from keeping ownership of treasured property. Some people think that giving their property to their children now will ease the future estate tax burden. This may not be the case. Fortunately, options exist that allow landowners to preserve undeveloped parts of their property if it has scenic or open space values, or is important to rare wildlife species. Larger properties can be preserved under a continuing use agreement for agriculture, forestry, or ranching. Today, hundreds of thousands of acres of privately owned Maine land are under some kind of long term protection from development.

You don't need to give your land away to protect it. Nor do you have to give up all rights to build new buildings or add on to existing ones. Under a conservation easement, for example, your tax burden is reduced based on a plan to limit development on the property. You still retain ownership of your property, but trade some rights to build new structures in return for lower taxes and the assurance that undeveloped areas will stay largely undeveloped — even if you or future owners decide to sell the property. Nonprofit land trusts help landowners with information and planning on conservation easements. Contact them for more information on your options.

Working Together

A small house lot with a few trees is not a very big piece of the forest, but it is an important piece. If your neighbors on either side and in back also have a yard and some trees, you probably have enough area between you to provide habitat for some species of birds and other small wildlife like butterflies and moths.

If you have several acres, you and your neighbors have even more options if you work together. People working together can make a difference. You can create or conserve wildlife habitat and open up recreational opportunities. You can also get to know your neighbors better and build a sense of community, without giving up the privacy your wooded property affords. And a sense of community is something that is dearly missing from so many of our busy lives. Who would think that we would find it right outside our back doors?



Golden-Crowned Kinglets are one of the many species that rely on you to be a good friend to your woods.

What kind of tracks are these?

Resources

Land Trusts and Conservation Easements

Forest Legacy: Protecting America's Private Forest Heritage. A brochure explaining the Forest Legacy Program and conservation easements. American Forestry Association. Contact: Maine Forest Service, Department of Conservation at 800-367-0223.

Coastal Mountains Land Trust. A non-profit organization that works with landowners who live on or near the coast of Maine. Contact: CMLT, P.O. Box 101, Rockport, ME 04856 or 207-236-7091.

Maine Coast Heritage Trust. Provides conservation advisory services to landowners, local land trusts and state and community officials free of charge. Contact MCHT at 169 Park Row, Brunswick, ME 04011 or 207-729-7366. Or P.O. Box 426, Northeast Harbor, ME 04662 or 207-276-5156.

Schauffler, F. Marina. 1994. *Conservation Options: A Guide for Maine Landowners.* Maine Coast Heritage Trust with Land Trust Alliance. Offers techniques for preserving property and ensuring long-term protection. Contact: Maine Coast Heritage Trust, 167 Park Row, Brunswick, ME 04011 or 207-729-7366.

Landowner Liability

Maine: Landowner Liability Explained. (Brochure) Androscoggin Land Trust, et al. September, 1996. Contact: Landowner Relations Coordinator at the Maine Department of Inland Fisheries and Wildlife at 207-287-8091.

Maps

Topographic Maps. These geographically detailed maps are available from many outdoor stores. All maps in the state are also available by mail. To order: DeLorme Map Store, 2 DeLorme Drive, P.O. Box 298, Yarmouth, ME 04096 or 207-846-7100.

Trails

The Complete Guide to Trail Building and Maintenance. A comprehensive How-To manual for trail builders. Appalachian Mountain Club. $14.95. Order through bookstores or from Acorn Naturalists (#IN-3029). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Fazio, James. 1983. *Nature Trails: Guides to Environmental Understanding.* Suggests locations for nature trails, what to look for and an overall concept for a trail. New York State College of Agriculture and Life Sciences, Cornell University. 4-H Leaders' Guide L-5-4. #147L54. $2.25. To order: 607-255-2080.

Newman, Laura. 1998. *Trails as Classrooms: Resource Guide.* A teacher's guide for using trails in experiential learning. Contact: Laura Newman, Education and Community Outreach Coordinator, Portland Trails, 1 India Street, Portland, ME 04101 or 207-775-2411.

Protecting Water Quality *(during trail or road construction in forested areas).*

Morten Moesswilde, Water Quality Coordinator, Maine Forest Service. Personal contact: 207-287-8430 or e-mail at **morten_moesswilde@state.me.us**

Natural and Human Communities

Berg. *Discovering Your Life-Place: A First Bio-Regional Workbook.* Designed to work with younger people to construct a map that shows the natural features of an area (or bioregion), followed by an exploration of ways to make their community a more livable place. Includes wildlife habitat improvement and community gardening as examples. $9.95. Available through Acorn Naturalists (#EE-4902). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Leopold, Aldo. *A Sand County Almanac.* The conservation classic by the father of ecology is a beautifully written natural history that promotes an ethical approach to the land as an extension of our ethical community relations with our fellow humans. Eloquent, thought provoking, and still timely, it has stood at the top of conservation writings for over half a century. Available at bookstores or through Acorn Naturalists. $6.95. (#EE-6183). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Malone. *Wild Adventures: A Guidebook of Activities for Building Connections with Others and the Earth.* 1999. A field guide that integrates nature with cooperative team building. Geared towards parents (or educators) of children 9-12, but easily modified for older and younger people. 40 Activities. $22.95. Available from Acorn Naturalists (#EE-7115). To order: 800-422-8886 or the Internet at **http://www.acornnaturalists.com**

Hart. *Children's Participation: Involving Young Citizens in Community Development and Environmental Care.* Successful models, practical techniques and resources for involving young people, ages 7 and up, in projects of direct benefit to the local community and the environment. $37.95. Available form Acorn Naturalists (EE-5008). To order: 800-422-8886 or the Internet at **www.acornnaturalists.com**

BACKYARD FAMILY PROJECT #7

How About a Community Trail? *Working with Your Neighbors*

A trail through your property can easily be hooked up with your neighbor's property to create a place to cross-country ski, walk the dog, or simply enjoy a leisurely stroll through the woods. Details of trail planning and maintenance must be worked out among neighbors, but most simple walking or skiing trails require little construction time or maintenance since they are not intended for heavy use. A neighborhood work day, twice a year, combined with a summer barbecue or a winter sledding party would be sufficient for most trails. It is also a fun family activity that will give you a chance to get to know your neighbors and work towards a goal that benefits all.

Many community trails in the state that cross private property are based on agreements that are not legally binding. Often, agreements are made with a handshake. This simple approach seems to work, since landowners have the option to change their minds about access at any time. This rarely happens. Neighborhood trails build community ties so that neighbors tend to look out for each other and for the trail as a whole. The surprising result has been reduced vandalism in many areas.

This project focuses on planning a neighborhood trail. See the Resource list for more complete information on trail design and building.

GETTING READY

1. Getting to know your neighbors is the first step. Invite the neighborhood children and their parents to join you in *Backyard Family Project #2: A Wildlife Safari in Your Woods*. Or invite everyone over for a neighborhood potluck cookout to get acquainted.

2. Review *The Woods in Your Backyard: Safe, Safer, Safest!* for information on avoiding woodland hazards.

TOOLS

For Planning a Trail

- Map of your property and adjoining properties. *(Photocopy available from town office)*
- USGS Topographical Map of your area. *(Available at local outdoor stores)*
- Trail building guide that addresses erosion control.
- *Landowner Liability Explained* Brochure. *(Available from the Maine Forest Service)*
- *How to Prune Trees* Brochure. *(Available from the Maine Forest Service)*

For Building a Trail

- Colored flagging. *(Available at hardware stores)*
- Bow saw and/or pruning shears
- Brush clearing tool
- Work gloves
- Eye protection *(cheap, light colored plastic eye glasses will work)*

Doing the Activity

1. Read trail building brochures to get an idea how to design a trail. A simple design will work well for a neighborhood trail. A walking trail rarely requires cutting live trees. If the trail will not see heavy use, you can route it through existing openings and clear a path of branches and underbrush just wide enough for one person at a time. You'll want to consider what is best for wildlife when you plan your trail location, too. If you plan more ambitious work like excavation, moving rocks, or building bridges, you will also need to plan the trail to prevent erosion.

2. Write a simple letter to introduce the trail idea to your neighbors. Include the benefits that you feel a trail will bring to the neighborhood and a photocopy of the section of the topographical map where the trail would go (with a proposed trail sketched in) and a copy of *Landowner Liability Explained*.

3. Call the neighbors to see if they have any questions and if they want to get together to look at the map and see where a trail might work.

4. With permission from your neighbors, scout out their land to see a good place to locate a trail. On your land and theirs, look for different features in the landscape that you can take advantage of when laying out the trail. Curving trails are much more appealing than straight ones, so consider curves when you do your reconnaissance. Take flagging along to mark appealing spots so you can easily find them again.

5. Once an agreement is reached between neighbors, organize the tools and set a work party date. If the proposed trail is flagged in advance, and children are given specific tasks such as hauling brush or limbing trees, trail building should be fast and efficient. See who wants to volunteer to provide food for the hungry trail workers at lunch time and at the end of the day.

6. When the trail building crew is assembled, review safety, pruning techniques, width you want the trail to be, what to cut and what to leave. Be sure to assign children specific tasks to be responsible for, like clearing brush and hauling it away. Crews may be most efficient if divided into teams of three or four that are spread out along the length of the trail and work towards each other. Be sure to acquire the right number of tools so every team has what they need.

Related Activities

Create A Nature Trail.

The maps and checklists in *Backyard Family Project #2: A Wildlife Safari in Your Woods* will help in planning if you decide to create a nature trail in your woods, or cooperate on a trail with your neighbors.

Interpretive nature trails with numbered stops along the way and a companion trail guide are an excellent way to get scout troops or youth groups involved and personally invested in trail design and maintenance. Picking interpretive stops that change seasonally will keep the interest of those who travel the trail regularly. Safe snag trees, vernal pools, woodland edges, streams, and simple historical features like stone walls or old cellar holes are a few good choices for interpretation.

8 Turning Great Ideas into Action: *Planning is the Key!*

Now you have all these great ideas for your property. How do you go about doing them?

If you decide to put an addition on to your house there are several decisions that you need to make. How big will it be? How much can you afford to spend? What will it be used for? Where will the door and windows go? And should you hire a professional to do it or do you have the tools and knowledge to do it yourself?

The same process holds true for your woods. If your goals are small and simple like putting in a walking trail or planting a few shrubs to attract wildlife, a few simple tools and the information provided in the recommended resources may be all you need. If you decide to cut some firewood, improve wildlife habitat or put in a cross country ski trail, then a planning document will help improve the health of your woods while you reach your other goals — and possibly even save you time and money. First, you need to decide what you want to do. What are your objectives? Then, determine if those objectives are realistic and affordable.

Doing It Yourself vs. Hiring a Professional

Here are the basics: No matter whether you own a quarter of an acre or a hundred acres, it's a good idea to mark your property lines, protect yourself with safety equipment if you plan to do the work yourself, and develop a written plan of work. Your plan may be a few notes or it may be extensive, depending on your interests. Regardless of your other goals, it's best to keep the ecological interests of the woods and it's inhabitants in mind.

Foresters versus Loggers

Your land may be too small for either a forester or a logger to get involved, but it's worth knowing the difference between the two if you decide to cut any trees.

Professional forestry advice

Loggers are skilled at cutting trees. They usually pay the landowner a set sum for the standing trees and make a profit when they get paid for the quantity and quality of the wood they bring to the mill. The more high quality wood they bring to the mill, the more profit they make.

Foresters are trained in four year forestry programs to read the wooded landscape. They understand soils and water, how

trees grow and where they grow well, how to prevent erosion, the economic value of the standing trees (known as **stumpage** in the forestry world), and much more. They take a long term view of the forest and can tell some of the forest history of a piece of property by what grows there today. They can also predict the species and health of the forest in the future and what landowners can do to "manage" the woods so they are healthy over the long term.

On larger properties, foresters define property lines, identify insects and disease problems, and assess the economic value of the standing trees as well as their projected economic value over time.

If requested by the landowner, foresters assess wildlife habitat, recreational opportunities, and other landscape features — but these assessments vary widely depending on the personal interests, knowledge and experience of the forester. Once the information is collected and analyzed, the forester compiles it in a written **management plan** that acts as a decision-making guide.

If a timber harvest is recommended, the forester hires the logger, and oversees any cutting of timber to be sure the landowner objectives are met and environmental regulations are followed. Foresters often save landowners money since they make decisions that increase the economic value of standing trees over the long term.

Some foresters are paid by the management plan, others take a percentage of the income of a timber harvest that they have overseen, still others charge an hourly fee. It is standard practice to ask foresters for references from previous clients. Talking with a landowner who has worked with the forester over a number of years will give you a good idea whether your property will be managed in accordance with your goals and values.

Landowner Beware

Along with the many non-economic values that woodlands offer, they also are an investment. The standing trees are worth money. Over time, with proper management, they will probably be worth more. Just like some stocks are worth more money than others, some trees are worth more than others. Market prices for wood vary. Trees are also more or less valuable depending on their species, age, and health. A forester has the expertise to tell you when it is in your best economic interest to cut trees and when it is best to continue to let them grow. A good forester will balance those economic concerns with ecological concerns and with other landowner goals. They will act as both an economic advisor and an ecological advisor for the natural resource you have on your property.

Don't leave it to the logger to decide which trees to cut...

If you plan to have some logging done in your woods and decide not to hire a forester, it is important to protect yourself from liability, your investment (the trees themselves), and your woods from potential damage. To care for your woods, decide in advance which trees should go and which should stay in order to best meet your goals. The easiest way to mark trees is to spray a paint mark on the ones you wish to cut (and instruct the logger on which to take). Work with the logger on the location of the trails if you want to use skidder trails for recreation later on. Don't leave it to the logger to decide which trees to cut or where to put skidders, and don't hesitate to stop a logging operation in progress if you feel your directions are not being followed. It's your land and the logger is working for you.

Most loggers are ethical, but there is a significant problem in the state with those who are not. Avoid hiring a logger that

approaches you in person or through the mail and offers to clean your woods up for free, or worse yet, wants to be paid to cut your trees and take them away. This is akin to paying someone to steal your wallet. Many sad stories exist of landowners who are left with an after-harvest eyesore, no income from their natural resources, and a signed contract that protects the logger from being sued. If you hire a logger, be sure to have a written contract that legally protects you and your property. A sample contract is available from the Maine Forest Service.

Doing a "Walk Through"

It is unlikely that you will hire a forester to create a management plan for a property under ten acres. You may be able to hire a landscape architect, arbor-ist, or a professional forester on an hourly basis to do a short "walk through" with you in order to give you some ideas about how to meet your goals. Look for someone who can tell you about the soil, historical land use, the health and economic value of the trees growing on your property, the wildlife that lives there, and what the woods will look like in twenty years if you leave them alone or if you choose to cut some trees.

It's best to have a list of objectives and questions ready before the visit. A professional should work with you, keeping your interests in mind and telling you if your objectives are practical for your woods. Keep in mind that many objectives, from wildlife habitat improvement to achieving a healthier woodland, require cutting some trees.

What is Good Forestry?

The practice of good forestry, or silviculture, promotes the health of the woods as a whole, rather than focusing on individual trees. Good forestry mimics natural processes of birth, growth and death — and tailors these processes to help achieve landowner goals without compromising the ecological health of the woods.

Silviculture was initially developed to help regulate logging and work towards a long term supply of timber. Initially, this meant that good forestry was the ability to grow trees faster and more efficiently and cut them for profit without damaging water quality or future trees. These origins led to much of the terminology of forestry that includes terms such as "crop trees" and "timber harvests".

Generally, on larger woodlands, good forestry today means taking into consideration the sustainability of the woodland "crop" or product, but also sustaining or reestablishing the ecological health of the woods. As an owner of a small piece of the Maine woods, good forestry means integrating this knowledge of silviculture into an overall bigger picture of the value of your land to water quality, wildlife habitat, and your other goals. There is more than one way to do that.

Good forestry today means taking into consideration the sustainability of the woodland

You and Your Woods: Two Examples

Here are two examples that show how small property owners combined their values and objectives with the amount of time and money they wanted to spend.

Woodland Example 1:

This property of nine acres is fairly flat, with young poplar, cherry, white birch, gray birch, balsam fir, and alders growing in a damp area right behind the house. Most of the property is old pasture land that grew up into medium to large sized poplar, gray birch, and white birch. A lot of the poplar has broken branches from winter storms. A

Mature poplar and birch with a dense understory of pine/spruce, note conks growing on over-mature birch and storm-damaged poplar.

dense thicket of shade-tolerant spruce, partially shade-tolerant fir, and pine are growing up beneath the sun loving hardwoods. None are taller than 25 feet high and most are spindly due to the crowded growing conditions.

Old stone walls that used to border field edges run through the woods. An old white pine with a dead top grows next to one of the walls in the middle of the woods. At one back corner of the property is 3/4 acre of hemlock, which is the edge of a larger hemlock stand located on the neighboring property.

Landowner Objectives

The owners want to be able to get outside and walk through the woods, which is not easy because of the dense conifer thickets. They also want to improve wildlife habitat and are concerned with the overall health of the woods. They don't like the way the damaged poplars look and want to do something about them. They have also noticed shelf mushrooms, or conks, growing on the birch but aren't sure if the trees are severely damaged as a result.

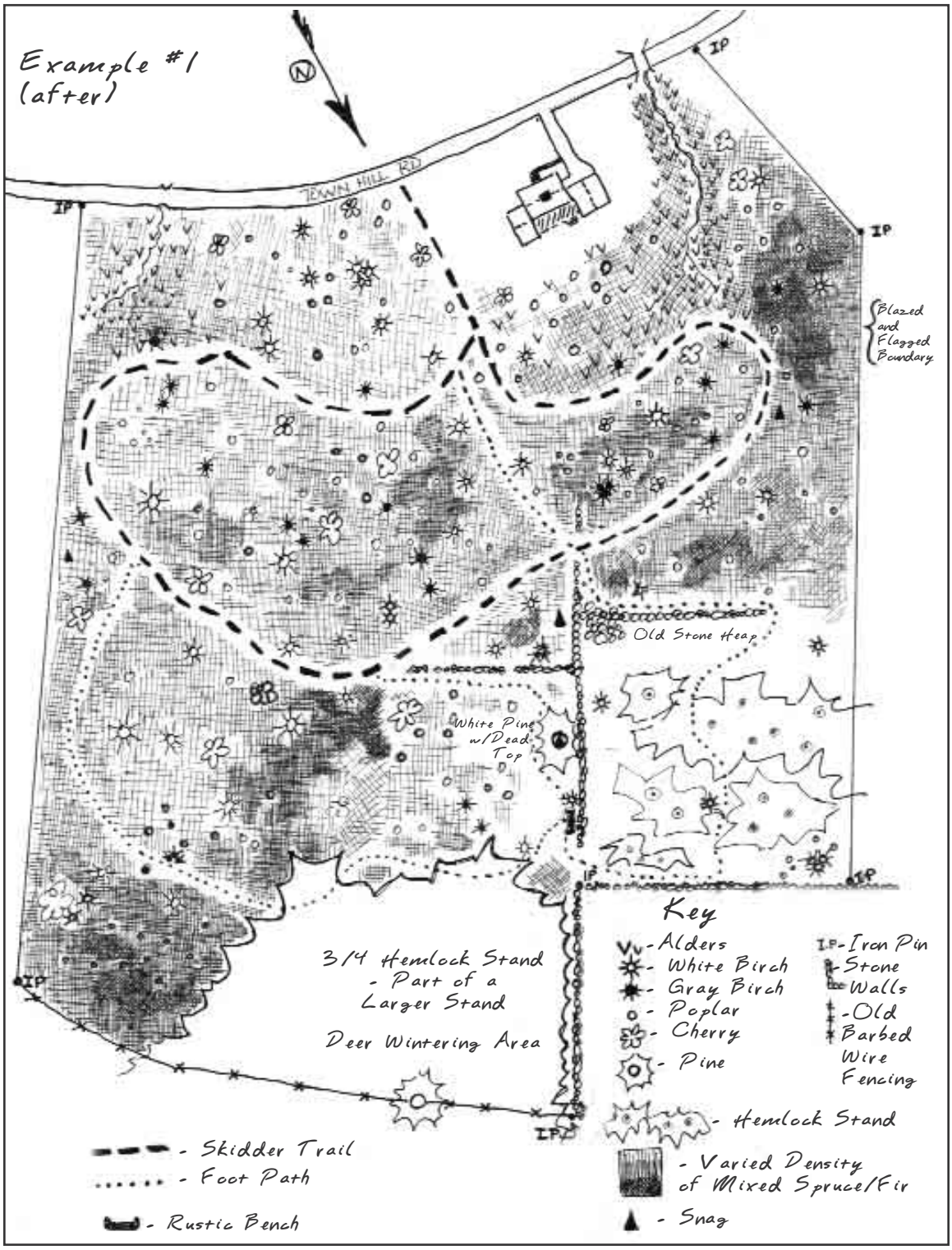
Actions

The landowners decide to hire a forester for a couple of hours to walk through their woods and answer some questions. Keeping their priorities in mind, she tells them that the poplar is over-mature and diseased with canker. The broken branches no longer produce buds which are a favorite food for partridge (ruffed grouse) in the late winter and early spring. Broken, hanging branches are also a safety risk because they can fall at any time.

Shelf mushrooms growing on some of the birch indicates internal decay. Several of these could still be saved as snag trees for wildlife, and the others cut in order to reduce safety hazards in the woods. She recommends leaving the cut birch on the forest floor for wildlife use and to replenish the soil.

The big old pine with the dead top already has woodpecker holes on one side but will stand for a long time without causing a hazard, though it is important to reassess it every few years to be sure it doesn't become one. The forester tells the landowners that cutting many of the poplar and some of the birch would be the best fit for their priorities of improving access and wildlife habitat. Thinning out some of the conifers in the understory will allow the remaining ones

Woodland Example #1: A nine acre woodland dominated by a mixed northern hardwood overstory with a dense understory of shade tolerant spruce and balsam fir. Alders, gray and white birches and cherry grow in the damper areas.



Woodland Example #1: Some of the damaged and mature poplars were removed to allow more light into the understory. The landowners planned the location of the skidder trails for the logger, then added on to it by clearing smaller trails that pass important landscape features such as snag trees and a vernal pool. A rustic bench in an open area near the stone wall and a white pine takes advantage of a scenic spot.

more room to grow taller and bushier, thus diversifying the structure of the woods. Some of the understory could also be left as it is to provide thick cover for wildlife.

Harvesting the poplar is a small job that can be done by hiring someone with a farm tractor to cut the trees and haul out the logs. The forester suggests they ask at a local farm and garden supply store and search the weekly Swap and Sell guide for someone offering the service.

The forester gives them an eyeball estimate that the amount of timber removed will be approximately two big truck loads, or about 20 cords. The landowners will probably just break even between the expense of the woodcutter and the income from selling the logs. They decide to flag a loop trail where they want the woodcutter to make a trail to haul the logs out. Seeding the trails with a native "conservation mix" available at garden supply stores after the job is finished will keep the trail from growing back into brush, protect soil and water, and also provide food for deer, rabbits and other wildlife.

The forester reminds the landowners that papers must be filed with the Maine Forest Service if they plan to sell any wood and cautions them to have a written contract with the woodcutter that protects their objectives for their woods and protects them from liability.

With a little exploration, the forester finds that the hemlock at the back of the property appears to be an important piece of a larger deer wintering area. The owners and the forester agree that the best thing to do is leave it alone. The owners also decide to contact their neighbors since they probably would appreciate knowing that they have important deer wintering area on their property.

Woodland Example 2:

This property has a house on 1 1/2 acres of mixed northern hardwoods. The woods are primarily made up of oak, birch, and maple of varying heights. Some ornamental conifers grow near the house and a large old white pine grows at the back of the lawn.

Landowner Objectives

The owners, a young couple with two children, like to watch birds and would like to make maple syrup for their own use and to give as gifts. They would also like to emphasize the beauty of the birch and beech trees. Their primary consideration is to make sure their actions improve the overall health of their property.

Actions

The owners clearly mark their property boundaries and, using a tree identification guide, identify most of the trees on their property to species. They find that many of the trees they thought were sugar maples are red maples, instead. The red maples will still produce sap, though not as much as the sugar maples. To find out if the maples are large enough to tap, they measure the circumference of each trunk at about four feet from the ground. A few good sized sugar maples and red maples are over 24 inches in circumference (the minimum size for tapping). They mark each tappable-sized tree with colored flagging to be able to see them from a distance, then walk back a hundred feet to view the overall form and health of the marked trees.

On the rough map they drew of their property, they record notes about the size and health of the trees. Some maples growing close to other trees have small crowns and will not be good sap producers unless they have some room to spread out in the canopy to grow more leaves. One cluster of maples sprouts from an old stump and competes with its close neighbors for water, sunlight, and soil nutrients. Some have thin foliage. The landowners decide to help the largest maples with the biggest crowns by thinning out competing trees—without

opening up the woods so much that increased sunlight encourages new trees to compete with the maples.

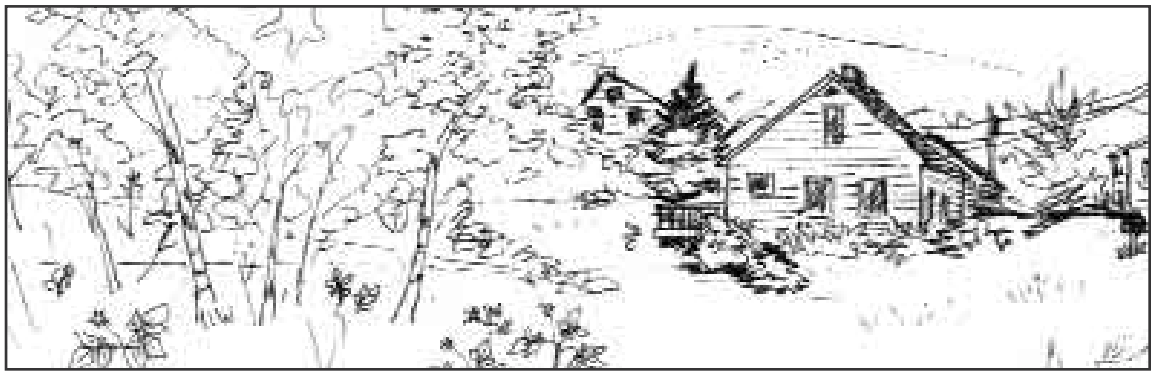
The owners do the work themselves. At the same time, they trim back some ladder fuels from ornamental conifers growing near the house in order to reduce fire hazards.

When they first scouted their woods, the owners noticed several large sugar maples on the neighboring property. They decide to contact the neighbors to tell them about their maple sugaring plans and ask if they are willing to have their trees tapped in exchange for some maple syrup. After discussing how maple syrup is made and the effects on the trees (which are tapped for only a few weeks in the spring), the neighbors readily agreed and asked if they could join in during the maple sugaring season.

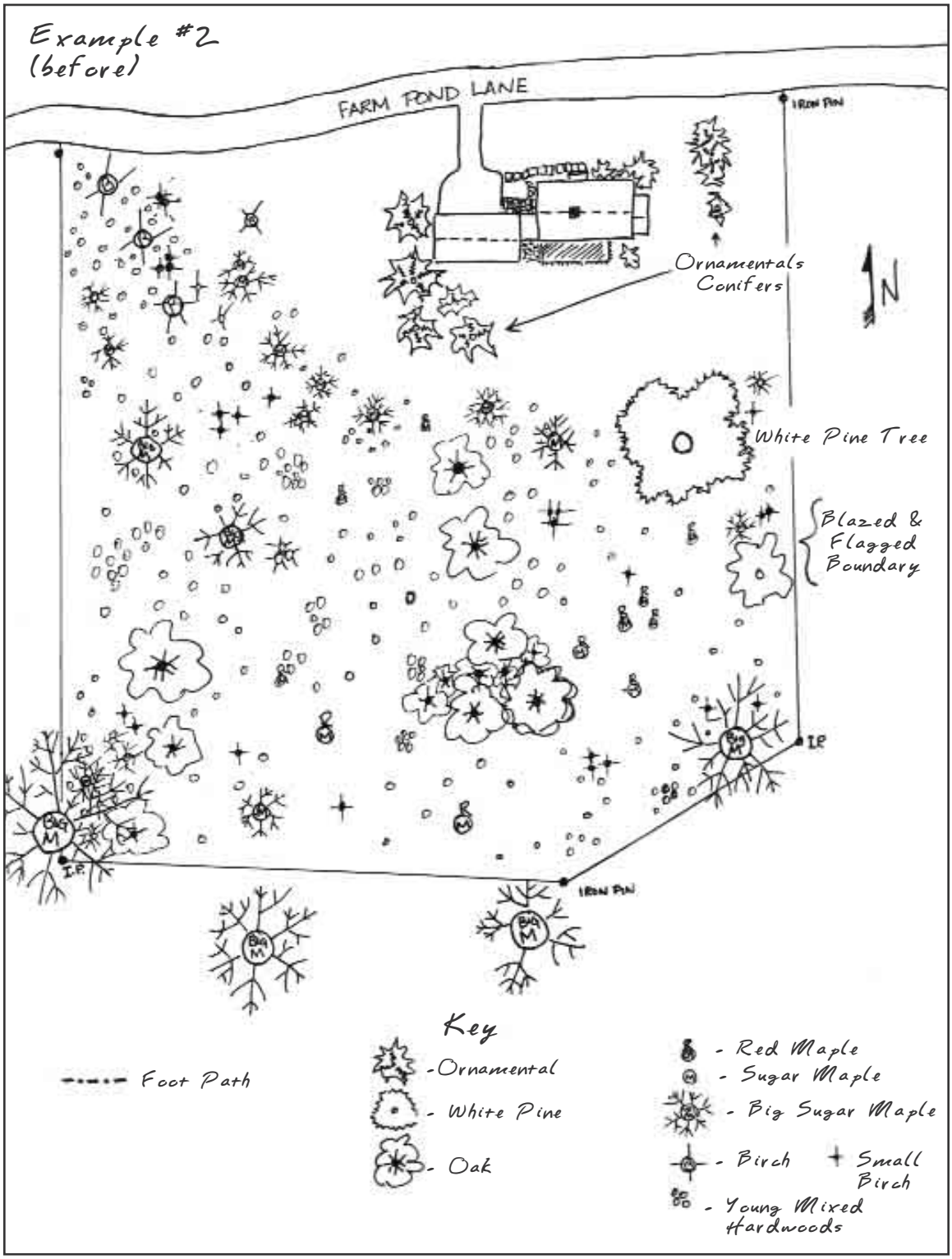
The big white pine at the back of the lawn has a dead branch. The owners think it might be diseased and contact the Insect and Disease Management (IDM) Division of the Maine Forest Service for more information. From the information they obtain, they believe the branch was damaged in a storm and will have no lasting impact on the tree. They decide to hire a licensed tree care company to remove the hazardous branch since it is beyond their skill to do so.

They consider opening up the lower level of the woods by pruning the lower branches of the trees left after thinning in order to make a more park-like look. After finding out that this kind of pruning discourages most wildlife, because little cover is left in the understory, they decide to prune only one small area beneath white birch where they plan to cultivate some medicinal herbs in the understory for their own use. They also plan to put in a circular trail to take advantage of bird watching on their property.

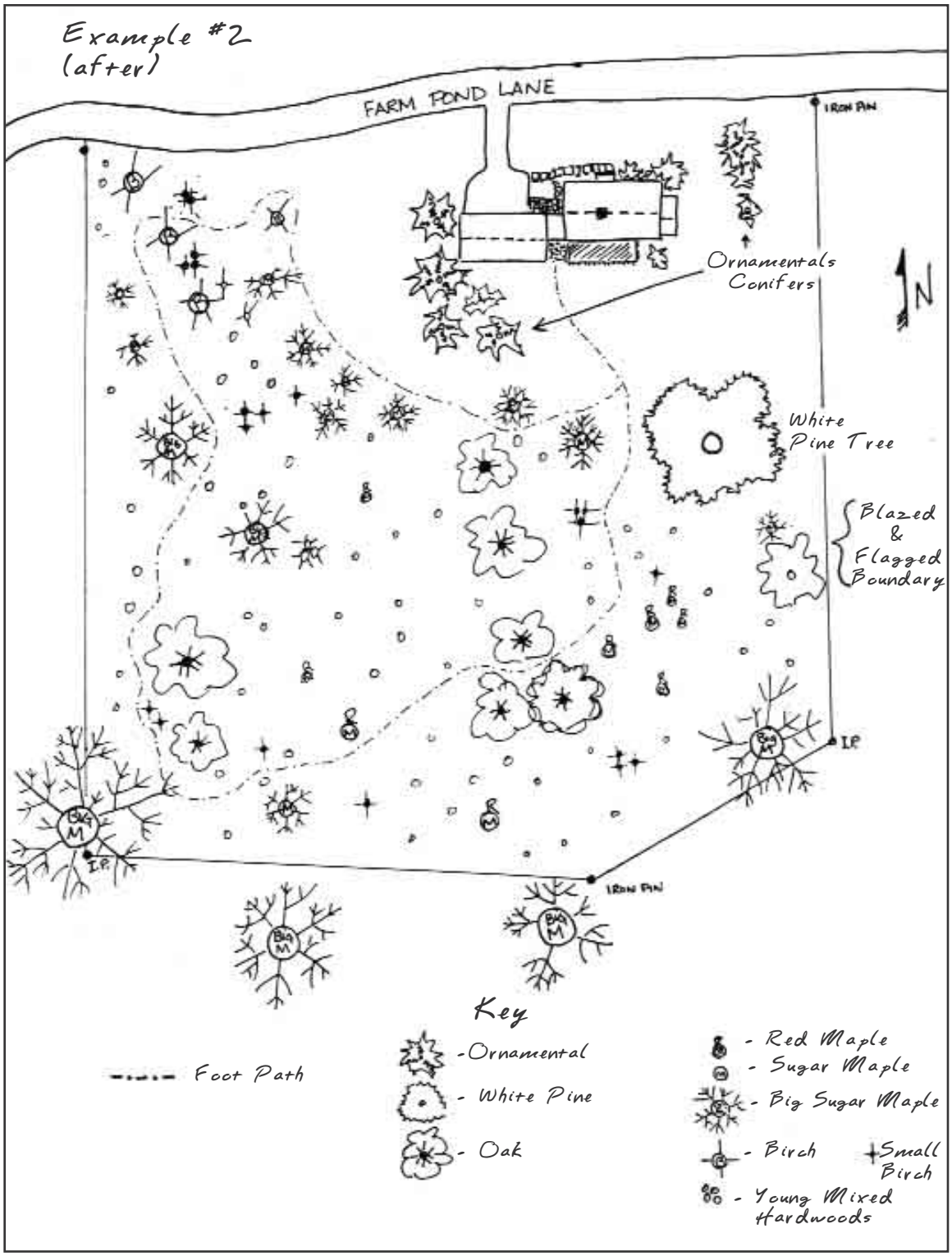
Before cleaning out underbrush



After, note ginseng now growing in new space.



Woodland Example #2: A 1 1/2 acre property with mixed northern hardwoods made up of oak, birch and maple. Ornamental conifers grow near the house.



Woodland Example #2: Weaker trees competing with healthy, sap-producing sugar and red maples were removed, but some were left to provide cover for wildlife. The understory beneath the birches was cleared to make room for a future woodland herb garden. The owners plan to put in a narrow walking trail.

Resources

Property Boundaries

Boundary Information. Maine Forest Service, Department of Conservation. Forest Fact Sheet 4. Contact: 800-367-0223 (In-state) or 207-287-2791 (Out of State).

Timber Trespass. Maine Forest Service, Department of Conservation. Information Sheet. Contains selected laws pertaining to cutting timber without landowner permission. This is a common occurrence when property boundaries are not accurately marked (or not marked at all). Contact: 800-367-0223 (In-state) or 207-287-2791 (Out of State).

Proper Pruning for Healthy Trees

The Profit in Pruning. 1986. Forest Fact Sheet. Department of Conservation, Maine Forest Service. Illustrates proper pruning techniques and the results of good pruning. To order: 800-367-0223 or call your local field forester.

Pruning Guide for Pine and Hardwood Trees. University of New Hampshire Cooperative Extension. Forest Fact Sheet 12. To order, request a brochure of Cooperative Extension publications from: Information Services and Publications, UNH Cooperative Extension, Taylor Hall, University of New Hampshire, Durham, NH 03824.

Cutting and Selling Trees

A Field Guide To Laws Pertaining to Timber Harvesting in Organized Areas of Maine. January 1996. Explains, in simple terms, state laws and regulations that must be considered when harvesting wood. Maine Department of Environmental Protection. Contact: DEP, Bureau of Land and Water Quality, 17 State House Station, Augusta, ME 04333 or 800-452-1942 (In-state) or 207-287-2111.

A Guide to Selling Trees from Your Woodlot. University of Maine Cooperative Extension.12 pp. #7096. $1.00. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Improve Your Woodlot by Cutting Firewood. University of New Hampshire Cooperative Extension. Contact: Information Services and Publications, UNH Cooperative Extension, Taylor Hall-University of New Hampshire, Durham, NH 03824.

Information Sheet: Shoreland Zoning. Describes what constitutes a shoreland zone and gives the minimum state standards (local standards may be more stringent) for timber harvesting within this zone. Contact: 207-287-4987.

Selecting a Logger. (Brochure). Gives options for choosing a logger. Department of Conservation, Maine Forest Service. Contact: 800-367-0223 (In-state) or 207-287-2791 (Out of State).

Selling Less for More. Tips on getting the most from harvesting your woodlot. University of Maine Cooperative Extension. 2 pp. Bulletin #7180. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Timber Sales Contract. University of Maine Cooperative Extension. 4 pp. Bulletin #7074. Free. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Woodlot Harvesting with Small Tractors. University of Maine Cooperative Extension. 8 pp. Bulletin #7054. $1.00. Contact: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Woodland Planning

Beattie, Mollie et al. 1993. *Working with your Woodland: A Landowner's Guide.* Provides all the basics necessary for sustainable forest management on small woodlands. Hanover: University Press of New England. Order through bookstores.

Decker, D.J., et al. *Wildlife and Timber from Private Lands: A Landowner's Guide to Planning.* This guide helps landowners incorporate wildlife considerations into woodland management planning. Cornell Cooperative Extension. Information Bulletin #193. To order: 607-255-2080 or the Internet at **http://www.cce.cornell.edu/publications/natural-resources.html**

Landowner's Guide to Forest Stewardship Practices. A series on the ecology, stewardship, and management of small woodlands. Funded by the Stewardship Incentive Program, which assists owners of more than ten acres. Provides good background information specific to Maine for anyone who wants to know more about the forest in general and their property in particular. Available from the Department of Conservation, Maine Forest Service. Contact: 800-367-0223 (In-state) or 207-287-2791 (Out of State).

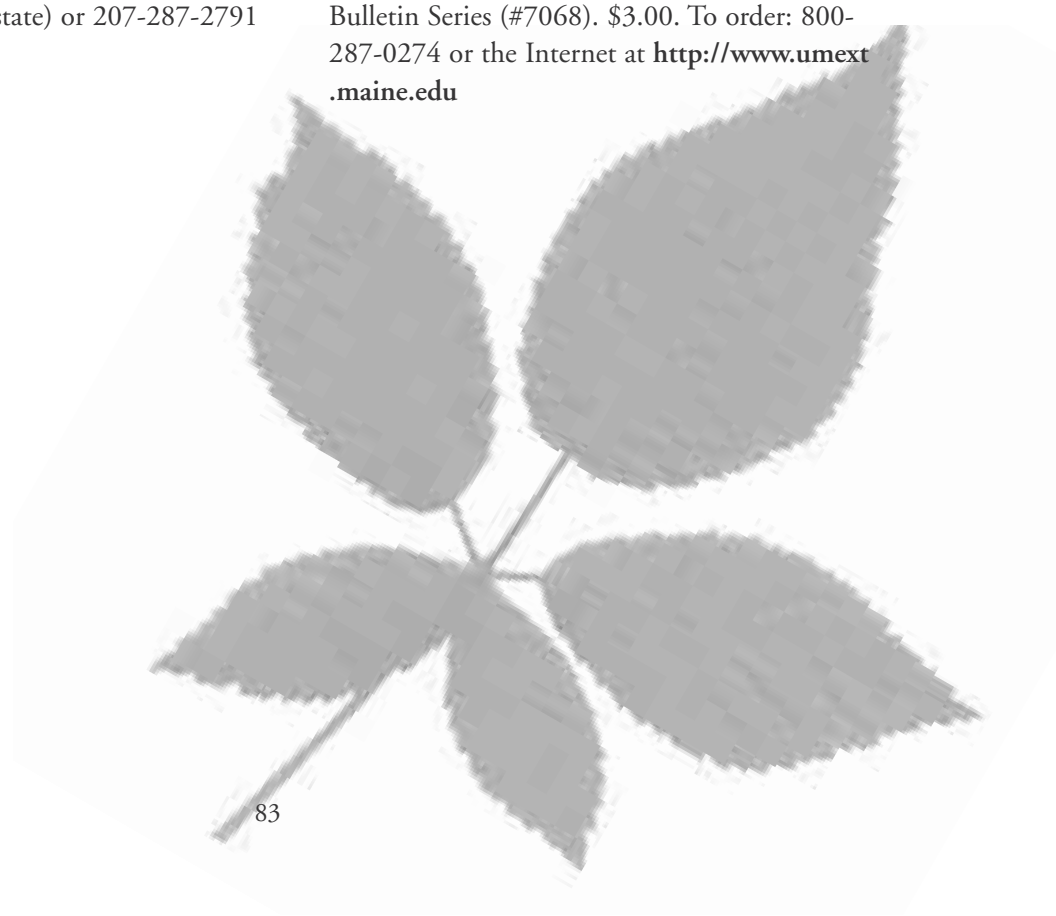
Forestry in Blueberry Country: Forestry Management Benefits In Maine's Lowbush Blueberry Country. Contact: Down East RC&D, P.O. Box 210, Cherryfield, ME 04622 or call 207-546-2368 or the Maine Forest Service, State House Station 22, Augusta, ME 04333 or call 800-367-0223 (In-state) or 207-287-2791 (Out of State).

Seeking Professional Forestry Assistance. University of Maine Cooperative Extension. 6 pp. Bulletin #7071. Free. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**

Thinning Young Forest Stands. University of New Hampshire Cooperative Extension. Forest Fact Sheet 7. To order, request a brochure of Cooperative Extension publications from: Information Services and Publications, UNH Cooperative Extension, Taylor Hall, University of New Hampshire, Durham, NH 03824.

Weeding Young Forests. University of New Hampshire Cooperative Extension. Forest Fact Sheet 6. To order, request a brochure of Cooperative Extension publications from: Information Services and Publications, UNH Cooperative Extension, Taylor Hall, University of New Hampshire, Durham, NH 03824.

Yankee Woodlot Plan and Video Series. Easy to understand 10-part series of informative fact sheets for small landowners, plus a journal and directory that can be used with the Video. Call for information on the video. Contact: University of Maine Cooperative Extension. Bulletin Series (#7068). $3.00. To order: 800-287-0274 or the Internet at **http://www.umext.maine.edu**



BACKYARD FAMILY PROJECT #8

Creating a Plan for Work and Fun

When you put all the Backyard Family Projects together you will have almost completed a comprehensive work plan while having fun in the woods with your family and neighbors. All you need to add are proposed actions, a time frame for completing the work, and a schedule of any maintenance or seasonal work. Get the whole family involved in decision-making to finish up the plan for your land.

DOING THE ACTIVITY

The Backyard Family Projects combined provide a good picture of your woods and your interests. Put them together, read them over and add in a work (and fun) schedule to guide you to your goals. Remember, you choose how much or how little you want to do. You can always decide to do more later.

Step 1: Brainstorming

Get your family together and brainstorm a list of things you would like to do on your property. Want to build a tree house, make maple syrup, grow mushrooms, create wildlife habitat, and create a nature trail? Don't worry if the different activities are compatible for now, just jot down a wish list.

1. When you finish the list, discuss all the items and decide on your top three priorities.

2. Discuss how much time each of you are willing to spend *(per week, per month, or per year)* on the activity. Are you willing to give up some television time to spend some time outside with the family? Or are you willing to cut back on some other activity that takes you away from home? How much time do you have in the spring to collect and make maple syrup? How much time do you have to prepare, plant, and tend a woodland wildflower garden? Do you have the time to talk with your neighbors about a community trail or organize a neighborhood get together? Your answers to these questions will determine if you tap five trees or fifteen, or plant a three by five foot flower plot or a thirteen by fifteen foot plot. Remember, it's always best to start small and expand.

Step 2: Putting the Pieces Together

Now that you have established your top three priorities, take a look at the Backyard Family Projects to see which ones you've done and which ones will be useful for you to do. It's a good idea to get a three-ring binder to collect all the projects, maps, and your notes.

The Backyard Family Projects fit together best in the following order:

Backyard Family Project #5: How to Find Your Way in the Woods. This is an activity well worth doing so you can mark your property boundaries and create an accurate map of your property.

Backyard Family Project #1: Scouting Your Land. A basic map of your property will be useful no matter what you decide to do. It can be added on to as you discover more and more about your property. Make several photocopies of the finished Master Map to use in future planning activities. *(You may even want to make a couple on transparencies at a copy store and buy some erasable pens. This way you can play around with where a trail might go or where a wildflower garden might work, without having to go through your whole stack of photocopies).*

Backyard Family Project #6: Getting Down and Dirty. Understanding your soil will allow you to understand one of the most basic limitations to what you can do with your property. *(The other significant factor is the amount of shade).* Note on the Master Map where vegetation changes from one kind to another. These vegetation boundaries are useful in indicating soil dampness (and type), but they also provide useful clues towards what kinds of activities to pursue in certain areas of your property.

Backyard Family Project #2: A Wildlife Safari in Your Woods. Draw in wildlife habitat and wildlife signs on the Master Map. This will give you a picture of what wildlife habitat you already have and might want to protect, and where you can do some wildlife home improvement projects.

Backyard Family Project #3: Planning a Woodland Wildflower Garden. Add notes about wildflowers you identified to the Master Map and woodland features like boulders, streams, or rock walls that you want to incorporate into your design.

Backyard Family Project #4: You Can Grow Mushrooms! If mushrooms are your interest, add notes to the Master Map about where hard woods are available for logs and where there are favorable shady sites protected from drying winds located in an area not too far from a water supply.

Backyard Family Project #7: How About a Community Trail? Whether you plan a trail on your property or a neighborhood trail that spans several properties, sketch in the piece on the Master Map that crosses your property. Take advantage of scenic spots like paper birch trees, rock walls, large white pines, flowering trees, snags, and vernal pools.

Step 3: A Quick and Easy Way to Get Organized

The woods in your backyard should be fun, so you don't want to make your family projects a chore. Keeping flexibility on when things need to be done to complete a woodland project will keep them from becoming chores, but some planning will allow them to be more fun. A wall calendar can serve as an easy reminder.

Creating a Yearly Calendar and "To Do" Lists

1. Look at the information you've already collected in the Backyard Family Projects, decide which 3 projects you want to do first and then fill out a "To Do" list for each. After filling out the "To Do" list, prioritize all the items on the list in the order that you need to do them. *(See the attached example for Maple Sugaring)*. It's a good idea to photocopy the "To Do" list — one copy for each of the family projects you plan to do. You can include these lists in the 3-ring binder with all your other notes and use them as a guide.

2. Using a monthly wall calendar, write in when certain activities need to take place. Logs for growing mushrooms can be cut in winter, for example, to be used in the early spring *(or cut right before inoculation)*. Maple stands can be thinned of smaller, less healthy trees in the fall when the foliage is beautiful and black flies are nonexistent. Creating a neighborhood trail in summer requires some work contacting neighbors and getting organized in the spring. *(Use a different colored pen for each of your top three projects and you'll be able to see at a glance what activity is related to which project).*

3. Use the calendar to also record what you see on your property and where you see it. Do you notice a lot of birds in the trees in May? Painted trilliums in the woods near a big rock? A robin's nest beneath the overhang of the shed in June? St. Johnswort blooming in July? Monarch butterflies in September? If the whole family adds notes of what they see, soon you'll have a day to day record of your property and the whole community of living things that makes up the natural neighborhood in the woods in your backyard.

Activity Maple Sugaring

To Do:	Who Will Do?:
Learn to identify maple trees	Whole family
Find maple trees that are large enough to tap	Dad and the kids
Take out some competing trees	Hire someone
Hire someone to take out the trees	Mom will do
Tools for making syrup: a drill, spiles, buckets, a boiling pan	Dad
Look for old wood stove (to boil sap)	Mom
Split firewood	Hire someone
Collect bottles, jars for syrup	The kids
Late winter "to do" list for collecting sap/making syrup	

Notes: Need to keep an eye out for stove at yard sales

Check for someone to cut wood (Ask Larry at the Barbershop).

Activity _____

To Do:	Who Will Do?:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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Notes: _____

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Glossary

Acadian Cover Type: The spruce-fir and the northern mixed hardwoods forest cover types overlap in the middle of the state and in parts of eastern Maine. This overlap is referred to by many as the Acadian type.

Aspen-Birch Cover Type: 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.

Azimuth: Measurements, stated in degrees, that are measured clockwise from North on a compass. The largest azimuth is 360 degrees. You can tell the azimuth on a compass by where the numbers on the dial meet the Direction of Travel arrow.

Canopy: The ceiling of the woods created by the foliage.

Competition: Each individual tree in the woods competes for sunlight, water, nutrients, and growing space. Some will do better than others. Not surprisingly, this phenomenon is called competition.

Cover: The place where animals can rest safely. Cover may be a den in a rocky hillside for a red fox, whereas snowshoe hares hide beneath the sheltering branches of evergreen trees and wood frogs find shelter beneath dead leaves on the forest floor. Cover also changes according to season. During the nesting season, many birds need special requirements to raise their young safely.

Deciduous: Refers to trees that lose their leaves in the fall. Usually these are broadleaf trees, but some conifers, like tamarack in Maine, turn yellow and lose their needles in the fall.

Declination: The needle of a compass points to magnetic north, a highly magnetized area north of Hudson's Bay. The magnetic north pole lies about 1,300 miles from the geographic (true) North Pole. Depending on where you are on the planet, the difference between Magnetic North and True North varies. The difference between the two is the declination. The declination can be set on a compass.

Disturbed area: An area that is altered due to natural and human forces. The actual species of trees and plants that grow on a disturbed area are influenced by many factors.

Edge: Any place where two different natural areas meet. Whether it is a high tide zone and the adjacent shore, a field edge where it meets the woods, or a stream and stream bank, edges are usually home to many species of plants and animals.

Even-aged: Refers to a woodland with trees that are of the same generation and tend to grow older at more or less the same rate, creating a sort of Baby Boom generation.

Figured wood: High quality lumber or veneer with unique decorative grain, such as curly maple and birdseye maple. Figured wood can be worth thousands of dollars when quality is high.

Forest floor: Home to small woodland flowers and bushes, tree seedlings, small mammals, ground nesting birds, insects, amphibians, and many other kinds of life.

Forest cover types: 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.

Gap: A relatively small opening in the forest canopy created by a tree, or group of trees, that falls or is removed. The gap allows more sun-

light into 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.

Habitat: Wildlife need the same basics. (1) food, (2) water, (3) cover, and (4) space. These four components make up the habitat, or living requirements, of each species. Habitat requirements change from season to season for most species.

Leaf litter: Decaying wood and leaves, known as leaf litter, are home to earthworms, beetles, and microscopic organisms that recycle rotting material back into nutrient rich soil.

Loam: A soil with a fairly even mix of sand, silt, and clay mixed with organic matter. A preferred soil type for many agricultural activities.

Management plan: An assessment by a licensed professional forester of a property for timber, wildlife habitat, and other natural features of interest to the landowner. Includes recommendations. Acts as a decision-making guide for landowners.

Mast: Trees and shrubs that produce fruit, nuts, or seeds eaten by wildlife.

Mineral soil: The underlying soil made up of varying quantities of clay, silt, and sand.

Northern Mixed Hardwoods Cover Type: A cover type 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 most common species in this cover type.

Organic soil: Made up of decomposing leaves and other organic matter as well as small invertebrates and other organisms.

Pine-Oak Cover Type: 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.

Pioneer species: Sun loving species that grow fast in newly created openings, but have short lives.

Pure stands: 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.

Riparian area: Edge area between wetlands, streams, pools and adjacent uplands. Typically a 300 foot wide zone. It is important to more kinds of wildlife than any other habitat type in the state.

Shade intolerant: Species that grow well in full sun and don't grow well in the shade. Tend to be pioneer species.

Shade tolerant: Species that grow well in the shade. Tend to be secondary species that follow pioneer species during the process of succession.

Silviculture: The practice of forestry management that promotes the health of the woods as a whole, rather than focusing on individual trees. Mimics natural processes of birth, growth and death — and tailors these processes to help achieve landowner goals. Historically, it meant the ability to grow trees faster and more efficiently and cut them for profit without damaging water quality or future trees. These origins led to much of the terminology of forestry that includes terms such as "crop trees" and "timber harvests". Today, good forestry includes balancing the ecological values with economic concerns.

Site: Refers to an area of land and its capacity to grow trees and other vegetation as a function of environmental factors such as climate, soil, drainage, and more.

Snag: A standing dead tree, or part of a tree. Snags are important wildlife habitat. They provide homes for 58 species of wildlife in Maine.

Soil maps: Show different kinds of soil in an area. They are available from the Natural Resource Conservation Service (NRCS) can provide a general idea of what to expect from the soil in specific locations. They are accurate from three to five acres.

Space: The entire area, or territory, that each animal needs to find food, water, and cover. This varies widely from one species to the next, and also varies seasonally within the same species.

Spruce-Fir Cover Type: Forest cover type that primarily consists of red spruce and balsam fir. It is the most common type in northern and eastern Maine.

Structure: Woodland structure is made up of gaps, edges, creeks, bogs, and 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 complex, with small, medium, and large trees combined with a variety of geographic components like rock outcroppings, wetlands, and streams

Stumpage: The economic value of the standing trees, which varies depending on the species, the condition and size of the tree, and several other factors. Usually refers to the amount a logger will pay for the standing trees "on the stump." The mill rate (the amount the mill pays) will be higher. Stumpage price reports are available from the Maine Forest Service.

Succession: There are two types of succession. Primary Succession occurs on newly formed soils or rock, often after an environmental phenomenon that had eradicated all vegetation and soil. After a volcanic eruption, for example, primary succession would begin in some places. Secondary succession occurs following the removal of part or all of all the original vegetation that grew in a specific place. An old field growing into a woodland is and example of secondary succession.

Topographic Map: A map that shows geographic features such as elevation, waterways, forested areas, open areas, towns, and roads. Useful in orienteering, planning, and location of property boundaries.

Topsoil: As the organic layer breaks down, it mixes with mineral soil from below to form the nutrient-rich topsoil (the A horizon) beneath the O horizon.

Uneven-aged: The woods may have several different ages 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. A woodland with three different "age classes" is considered uneven-aged.

Vernal pools. Woodland vernal pools are created by melting snow and rain in the spring and often dry up by late summer and fall. They vary in size from as small as a mud puddle to many acres in size, provide important spring breeding sites for frogs, toads, salamanders, insects, and small mammals. Some vernal pools are home to rare and protected species. Considered living laboratories by wetlands ecologists, they are also studied for their significance to woodlands as a whole.

Notes

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