

SOUTH WOODS SELF-GUIDING TOUR
WOODY PLANTS AND FOREST ECOLOGY: SPRING

(Please replace in box so others may use
this pamphlet)

South Woods is classified as a sugar maple-American basswood community although it has not always been so. It is undergoing a continual process of change due to climate, nature of the soil, and previously established vegetation. This process, called succession, consists of a series of steps or communities leading to a final, or climax, stage. Previously mostly an oak forest, South Woods has nearly reached its climax stage with shade tolerant maples and basswood being the dominant species, although many oaks are still present. The dominant trees exert influence over the other vegetation because they are more numerous and produce heavy shade in the summer.

Four layers comprise the deciduous forest:
1) soil and leaf litter, 2) herbaceous vegetation,
3) shrubby vegetation, and 4) the tree canopy layer. Standing here at the entrance, can you visualize the different layers?

A very special feature of South Woods is that it is not managed intensively. This means it is left largely undisturbed, so dead/fallen trees remain during their slow process of decomposition to serve as homes for birds, mammals, fungi, mosses, and many small invertebrates. Eventually the nutrients in the decomposing wood will be returned to the soil.

While reading the information corresponding to a given numbered post along the trail, please face the post as a point of reference.

#1 Among the early spring blooming flowers is a group called the spring ephemerals. As the name implies, ephemerals are of short duration (excluding their underground parts). They grow extremely

rapidly in early spring, sometimes before the last snows have melted. Full bloom and leaf expansion for photosynthetic purposes occur before the trees' leaves are fully expanded. In early June, the ephemerals have died back completely. All of them have underground food storage organs such as tubers, bulbs, rhizomes or corms that remain dormant until the following spring. Examples of ephemerals include dogtooth violet, squirrel corn, Dutchman's breeches, spring beauty, wild leek, and toothwort.

Ephemerals' strategy is clearly an adaptation to low summer light conditions produced by the dominant trees. This adaptation is an indication that ephemerals and deciduous trees such as in South Woods have long co-existed. It could be said that the trees produced the growth patterns of ephemerals.

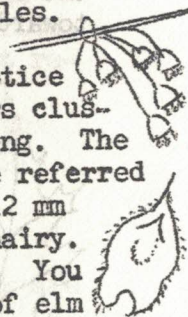
Spring brings another rush of life in the form of birds, some passing through to more northern summer homes, and others returning to their home, South Woods. Finding a mate and nesting site, establishing and defending territories, and caring for new families all contribute as reasons for a very musical woods. A partial list of spring and summer tenants includes robins, wood thrushes, blue jays, house wrens, starlings, cardinals, mourning doves, flickers, red-headed woodpeckers, catbirds, brown thrashers, crested flycatchers, red-eyed vireos, rose-breasted grosbeaks, goldfinches, chipping sparrows, and indigo buntings.

#2 The path that led you to this point, as well as all outer borders and openings within the woods are termed "forest edge." Edge is characterized by an open mixture of trees and shrubs, and is a very valuable part of the forest to mammals and birds. It serves as hiding places, or cover, for rabbits, pheasants, and other animals, and is the preferred nesting habitat for several species of birds.

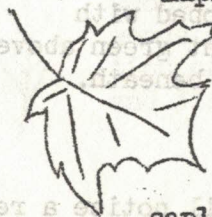
#3 Many of the standing dead trees to the left, right, and ahead are American elms (*Ulmus americana*). Their death is due to a fungus producing Dutch elm disease, spread by elm bark beetles.



Living elms have light gray bark and double-toothed leaves. You may notice small (3mm wide), greenish flowers clustered along twigs in early spring. The fruits of the American elm are referred to as keys and are about 10-12 mm long, elliptical, flat and hairy. They mature in early spring. You may notice quite a number of elm saplings sprinkled through this area. Elms do not seem to be affected by the beetles or fungus until about 10 years of age.



#4 Looking beyond the post, you will notice a mature sugar maple (*Acer saccharum*). The bark is light gray, rough, and deeply furrowed into narrow scaly ridges. In early spring flowers about 5 mm long, bell shaped, and yellowish-green are present in drooping clusters on long slender stalks. New leaves also may be seen in early spring, which later becomes a dull, dark green above and paler beneath. The surrounding area is occupied mainly by sugar maple saplings. The other species of trees do not appear to be reproducing. These maple saplings are extremely shade tolerant and may remain as very small seedlings/saplings for as long as 40 years, whereas oak, hickory, and basswood saplings are not shade tolerant. The

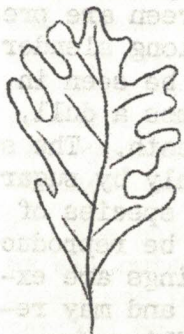


mature trees create a canopy overhead which takes out much sunlight. When an opening occurs in the canopy, the long-awaiting saplings shoot up toward the newly available sunlight.

#5 Beyond this post is a mature red oak (*Quercus rubra*) characterized by blackish deeply furrowed bark laced with broad, shiny strips which appear shinier as you look higher up the trunk. Leaves are lobed with pointed tips, are dull green above and dull light green beneath.



#6 Common elderberry (*Sambucus canadensis*) is a part of the shrub layer around you. Leaves are composed of 5-11 coarse-toothed leaflets, the undersides of which are fuzzy white. The specks on the brown bark are called lenticels, and are "breathing" pores for the plant.



#7 This white oak (*Quercus alba*) has very typical "white" bark. You may observe several mature white and red oaks but no oak saplings. This is evidence of an oak community being replaced by maples and basswoods. White oak leaves are lobed with rounded tips, are bright green above and whitish gray-green beneath.

#8 To your left and right you will notice a red and a white oak, respectively. Compare their leaves and bark.

#9 A tornado passed through this section of the woods in August, 1978. Destruction of small segments of the canopy by disease, wind, or lightning will occur in any forest if a sufficient time period elapses. Fallen trees are in various stages of decay, contributing to the nutrient recycling of the woods. The larger than normal opening ahead of you up the path, caused by the tornado, has allowed sunlight to reach the maple saplings. Compare their height to saplings under a closed canopy.

#10 On the other side of this fallen red oak are three black cherry saplings (*Prunus serotina*). The bark on these young trees is smooth, bronze-colored, and speckled with white lenticels.



Late spring may bring flowers with 5 rounded, white petals spreading along a drooped axis at the ends of leafy twigs. Leaves are long and narrow, dark green above and light green with a hairy midrib beneath. These saplings would not have grown here but for the opening created by the fallen oak, because they are shade intolerant.

#11 A sprinkling of shrubs with bright red twigs and branchlets called red-osier dogwood (*Cornus stolonifera*) occurs in this area. Look for 4-petaled white flowers in late spring. Leaves are elliptical in shape and have a unique, smoothly arching vein structure. Dogwoods grow best in wet areas. This section of the woods is near Crystal Creek and its floodplain.



#12 Straight ahead of you is a relatively small tree with light brown bark broken into long, narrow, flat ridges. The bark is often "shreddy" in appearance if the ridges have broken up slightly. This ironwood (*Ostrya virginiana*) is fully mature and is considered a sub-dominant in the maple-basswood climax because although its numbers may be quite high, its small size exerts less influence in the overall canopy than larger trees. Leaves are double-toothed and look very much like those of elm, but are less rough.



#13 Directly ahead is a basswood (*Tilia americana*) clone. Leaves are shiny green above, heart-shaped, fine-toothed, and may be 5-10" long. Basswood's main reproductive mechanism is a form of cloning called stump-sprouting. The mother tree root-sprouts around its base in a ring. When the original central stem (tree) dies as this one has, the shoots develop into mature trees. These in turn are capable of producing more shoots and so on, until rings of basswoods result.



#14 This is a continuation of the wind's work. Once an opening has been created, the surrounding area is even more susceptible to windthrow and the opening will grow as the years pass.

#15 Looking beyond this post (west) and through the woods, starting a few meters away, is an area called the floodplain, so termed because it is frequently covered by water when the creek floods (usually in late winter and spring). This frequent flooding flattens the ground over time and blankets it with moist silt. You may

notice a difference in species of trees growing in the floodplain from the upland area in which you have been walking. Black ash, willow, and American hornbeam are common floodplain species.

#16 This impressive red oak is just over 200 years old.

#17 Fungi inhabit both standing and fallen dead trees and are important in their slow decay. Woody bracket fungi decorate this dead sugar maple.

#18 Next to the ironwood (remember, small diameter and shreddy bark) is a smaller tree with muscle-like, smooth, blue-gray bark. The leaves of the ironwood and American hornbeam (*Carpinus caroliniana*) are very similar. Both are egg-shaped and double-toothed. Hornbeam is a floodplain species and perhaps a bit displaced here. However, this point of the upland may have reached moisture levels comparable to the floodplain via water seepage underground.



#19 The cherry saplings previously encountered on the trail will grow to resemble this mature black cherry tree. The bronze bark will become rough (chippy) and very dark. This particular cherry tree is taller and more narrow than is typical. This is probably due to a small canopy opening the tree reached for as it was growing.

#20 Another example of a basswood clone is before you. Although individual saplings are not shade tolerant, this species is able to co-dominate with sugar maples because of its reproductive strategy. Young stems receive the benefit of nutrient directly through the tall mother tree, and so survive

until they are tall enough to acquire places of their own in the canopy.



#21 This white ash (*Fraxinus americana*) is identifiable by its regularly diamond-shaped bark ridges. Flowers in early spring are purplish and form clusters before leaves develop. Five to 9 leaflets make up one leaf.

The next stop is on the white trail, which starts just ahead of you.

#22 Butternut (*Juglans cinerea*) has compound, yellow-green leaves with 7-17 leaflets. The wide bark ridges are smooth topped making a shiny, interlaced network of large diamonds superimposed upon blackish grooves.

This is easily seen if you look up high on the trunk. The saplings beneath the mature butternut are bitternut hickory (*Carya cordiformis*). These have 5-11 leaflets. Bright yellow buds are present in early spring.



THANK YOU FOR RETURNING THIS PAMPHLET TO THE BOX!