

An Inventory of the Trees of Cricket Holler

By Rob Hook, in partial completion of his Wood Badge ticket, August 2002.

Forward

It is fitting that my Wood Badge ticket would incorporate an inventory of trees. As Fred Dudding, a staff member in my Wood Badge Troop, suggested, I chose something “that made my heart sing.” When I was in Scouting as a boy, the one thing I really wanted to learn was how to tell the trees apart. It seems that I never found or asked the right person to show me. Many years and several false starts and diversions later, I decided to pursue a master’s degree in biology, particularly plant biology. A large part of that decision rested on that desire planted during my scouting experience. I finally learned how to recognize the trees (well, a lot of them anyway) and I am lucky enough to use that skill in my profession today. So, even though I didn’t learn how to tell trees apart while I was a scout, my Scouting experience in the outdoors did show me something about myself that I later put to use. That makes me a Scouting success story!

Hopefully this document will help you along your journey toward learning more about the trees, other plants, and animals that you find in your outdoor adventures.

A Natural History of Cricket Holler

Montgomery County was covered with ice during the last (Wisconsin) ice age, some 10,000 years ago. This is a significant event in the natural history of the area, because it greatly affected the type of soils, drainage, and, as a result, the type of vegetation of the area.

The *Soil Survey of Montgomery County, Ohio* contains maps of the various soil types throughout the county, based on extensive field work conducted during the 1960s. The soils of the Cricket Holler area are mapped as Miamian silt loam, Miamian clay loam, or Hennepin silt loam, on slopes from 2 to 50%. The slopes allow all of these soil types to typically drain well. However, their composition of clay, particularly below the topsoil, will cause these soils to retain water in areas where there is not enough slope. A small part of the camp is mapped as Brookston soil, which is typically a poorly drained soil type. Any persons who have been to Cricket during the spring rains can attest to that fact. [Soils.PDF](#)

The original forest communities in the Cricket Holler area were classified by Braun (1950) as part of the Beech-Maple Forest Region, based on her widespread research of forest types throughout Ohio and the eastern US. Dominant species in this community were beech, sugar maple, yellow poplar, white ash, and oaks. Gordon (1969) classified the area as the Oak-Sugar Maple Community based on review of surveyors’ notes from the original land surveys. In his description of the Oak-Sugar Maple Community, Gordon lists the dominant trees as white oak, red oak, black walnut, black maple, sugar maple, white ash, red elm, basswood, black cherry, bitternut hickory, and shagbark hickory. The two descriptions are comparable, although Gordon lists neither beech nor yellow poplar as dominant trees in this area. These latter trees tend to occupy somewhat more mesic (moist) areas.

The influence of man on the natural history of the camp may have begun with the earliest white settlers, because it is likely that the original settlers or those that came soon after cleared most of the land for building materials and farming. We know from historical articles, aerial photos, and the current condition of the forest that Cricket Holler was mostly cleared within the past 100 years, except for the original 11 acres and a small amount of the camp adjacent to them.

Newspaper articles discuss the reforestation efforts at Cricket Holler between 1926 and the 1940s. A February 1945 article discusses the planting of 5000 trees during National Scout Week, with plans for 5000 more. To facilitate this massive undertaking, individual scouts agreed to plant at least 50 trees and then maintain them for a year. For following through on their commitment, scouts received the “Cricket Holler

Forest Builders Award". (For you patch collectors, the patch is described as a picture of Kit Cricket with shovel over his shoulder.) The article mentions that 76 acres were reforested with white and red pine, hemlock, tulip (yellow) poplar and walnut.

Aerial photos dating back to 1956 (on file with the Natural Resources Conservation Service, also known as the County soil and Water Conservation District) show the area that was wooded at that time, which I have chosen to refer to as the "old woods," areas that are regrowing (perhaps already planted at that time), and open field areas. The old woods includes the 11 acres, as well as portions of the camp adjacent to the north and east, and some narrow areas along the major streams to the southeast. Much of property was open field at that time, perhaps already planted with seedlings that are not yet visible from the air. Later photos show the areas of developing pines in several locations in the camp, and developing hardwoods (non-evergreen or deciduous woods) in other areas. Some of the hardwoods were probably planted, and some portions were allowed to regrow naturally. These three types of woods, the old woods, the pine plantations, and the successional hardwoods, form the current forest communities of Cricket Holler. [1956.PDF](#) [1994.PDF](#)

Methods of the inventory

To describe the composition of the forest, I located several circular "plots" in the various forest types. The plots were each one tenth of an acre, that is, a circle approximately 37.5 feet in radius. Within each plot, I recorded the species and diameter at breast height (known as "dbh") of each of the trees with a dbh greater than 5 inches. Five inches is sometimes used as the cutoff point for the "dominant" trees, although some trees with smaller diameters may reach canopy height. I placed 6 plots in the older woods, because I wanted a good profile of this woodland type. I placed 3 plots in pine plantations, and a single plot in the successional hardwoods south of the utility line.

From these measurements, I was able to calculate the relative amounts, or "dominance," of the different species in each forest type. I calculated the density (number of trees per acre) and basal area by species and for all trees together. The basal area of a tree is the area of the ground that the trunk of the tree covers. A few large trees can have a greater basal area than a large number of small trees. Using both the density (number) and the basal area (sizes) of the trees of each species gives a more complete picture of which species are more abundant in the woods. The "relative dominance" number calculated for each species reflects both the density and basal area.

Results and Discussion

The results of the tree inventory and analysis are shown below for the three forest types that I identified: the old woods, the regrowing or "successional" hardwoods, and the pine "plantation" woods. [Forest.PDF](#)

First notice that most of the species listed in the old woods are the same species listed by Gordon (as described in the beginning of this document) as dominant in the woods of the area during the first land surveys. That is a good indication that if the old woods at Cricket Holler may have been only selectively cut, and that if they were cut in the past, they have recovered to point that is comparable to the original forests.

Summary of Trees in the Old Woods
Cricket Holler, July 2002

Species	Density (trees/acre)	Average Diameter (inches)	Maximum Diameter (in)	Relative Density (%)	Total BA (sq. ft./acre)	Relative BA (%)	Relative Dominance
American elm	10	9.0	11.6	5.5	3.5	2.1	7.5
Ash (white and blue)	43	15.9	26.0	23.6	48.7	28.5	52.1
Black walnut	3	20.8	24.3	1.8	8.0	4.7	6.5
Buckeye	2	17.0	17.0	0.9	2.6	1.5	2.4
Chinquapin oak	5	9.7	14.0	2.7	2.8	1.6	4.4
Hackberry	3	9.9	12.5	1.8	1.9	1.1	2.9
Hickories	5	10.4	14.6	3.6	3.9	2.4	6.0
Northern red oak	21	23.8	34.9	11.8	70.5	41.3	53.1
Sugar maple	84	7.7	12.0	46.4	22.8	13.4	59.7
White oak	3	18.6	19.2	1.8	6.2	3.6	5.4
Total	181	12.3	34.9	100.0	170.9	100.0	200.0

Summary of Trees in the Successional Hardwoods
Cricket Holler, July 2002

Species	Density (trees/acre)	Average Diameter (inches)	Maximum Diameter (in)	Relative Density (%)	Total BA (sq. ft./acre)	Relative BA (%)	Relative Dominance
American elm	30	8.4	10.0	13.6	11.7	8.5	22.1
Ash	39	13.8	16.4	18.2	41.6	30.1	48.3
Basswood	30	7.9	8.3	13.6	10.0	7.3	20.9
Black cherry	39	6.6	8.1	18.2	9.6	7.0	25.1
Chinquapin oak	30	13.3	14.4	13.6	28.6	20.7	34.3
Hickories	20	8.1	8.1	9.0	6.9	5.1	14.1
Northern red oak	10	16.5	16.5	4.5	14.6	10.6	15.1
Osage orange	20	11.6	14.0	9.1	15.1	10.9	20.0
Total	217	10.3	16.5	100.0	138.1	100.0	200.0

Summary of Trees in the Pine Plantations
Cricket Holler, July 2002

Species	Density (trees/acre)	Average Diameter (inches)	Maximum Diameter (in)	Relative Density (%)	Total BA (sq. ft./acre)	Relative BA (%)	Relative Dominance
American elm	7	6.6	6.7	4.0	1.5	1.2	5.2
Ash (white)	13	13.6	21.5	8.0	15.4	11.6	19.6
Black cherry	13	9.6	13.8	8.0	7.0	5.3	13.3
Black locust	13	11.3	13.4	8.0	9.6	7.2	15.2
Osage orange	7	14.8	14.8	4.0	7.9	5.9	9.9
Scotch pine	16	9.9	12.2	10.0	9.0	6.8	16.8
Silver maple	3	5.5	5.5	2.0	0.5	0.4	2.4
Sugar maple	16	7.0	8.0	10.0	4.4	3.3	13.3
White pine	76	12.9	21.4	46.0	77.0	58.2	104.2
Total	164	11.3	21.5	100.0	132.4	100.0	200.0

The inventory shows that there are substantial differences between the woodland types. First, look only at the totals in each summary. Of course, the older woods have larger trees, as can be seen comparing the “maximum diameter” column of the three summaries. Although the total average diameter doesn’t appear to change much between the woods types, it does vary considerably between species. Also, notice the “density” (number of trees per acre) is different between the old woods and the successional hardwoods. The successional hardwoods is made up of many more smaller trees than the old woods. Despite the number of trees, the “total basal area” in the old woods is greater because the trees are so much larger.

Interestingly, the density between the old woods and the pine woods is comparable. That may be by plan, that is, the planting was done at a certain density on purpose. But the pine woods has a smaller total basal area because the trees are generally smaller in diameter. This limited sample essentially shows the pine woods about midway between the successional woods and the old woods. That is also interesting, because the successional hardwoods are perhaps a bit older than the pine woods. Pines, as a general rule, grow faster than many hardwoods, so they gain a lot more size in the same period of time. That is why pines are often the preferred type of tree for forest planting for timber or pulp production. It is also the reason that much of the lumber and pulp comes from those parts of the country where pines are abundant: the northwest and southeast. On the other hand, in the Daniel Boone National Forest in Kentucky, the US Forest Service manages their forest for yellow poplar, which is also a fast growing tree but also a useful wood.

Also note the differences in the species between the woodland types. Look at the “relative dominance” column in each summary. The old woods are clearly dominated by ash, northern red oak, and sugar maple. Notice that the sugar maple in these woods is mostly made up of many smaller trees compared the oaks. This might suggest that the forest, over time as the oaks get older and fall, will become dominated by sugar maples.

In the successional woods, we see that the dominance of the woods is shared by a number of species, in a race, as it were, to see which will dominate. Note particularly that ash is near the top. Put that information together with the old woods data, and we may conclude that ash is a type of tree that will establish early in an area, and long-lived and large enough to remain a key component of the forest for some time thereafter.

Basswood and chinquapin oak will also likely remain important parts of the forest, even though they are not represented in the old woods samples. The same might be said for American elm, except that a nasty disease called “Dutch elm disease” will kill the American elm before its time. The somewhat slow growing northern red oak is trailing, but may outlive many of the other trees (such as black cherry and osage orange), to become a dominant tree in the future in this woods. Although not in the canopy of the successional hardwoods sample, sugar maple is present in the understory of that woods as well. It is slow growing and very shade tolerant. You might say it is a “patient” tree, waiting for its time. It will remain a common species at Cricket Holler for many years to come.

Notice that there are some species in the successional hardwoods are not present in the old growth canopy, namely black cherry and osage orange. These species are prone to move into an area early in its regrowth. While black cherry will likely remain a small component of the forest, the osage orange is definitely a tree species that is limited to open areas. It will only grow to about 30 or 40 tall, and once it is shaded by larger trees, it will disappear from the forest. Curiously, the hackberry, which shares habitat with osage orange, is present in the old woods but not in the successional woods sample. That is probably an error of taking only a small sample of the successional woods. But, it also indicates that some of the successional species may remain in old growth woods by invading open areas created by large gaps in the forest canopy where several trees fall from blow down. Before man cleared the forest on a large scale, this is the “niche” these species occupied in the forest landscape.

Obviously, white pine (and some scotch pine) clearly dominates the planted pine woods. But notice that several of the “unplanted,” invading species in the pine plantations are co-dominant, such as black locust, black cherry, ash and sugar maple. Silver maple is a fast growing tree that will invade an area if it is moist enough, but will not outlive other trees. Notice that this tree is often planted in yards, because it grows so quickly and will provide quick shade. They are not very tolerant of the shade of other trees, however. Notice that the sugar maple, the tree that may eventually dominate the old woods, has begun to grow in the pine woods.

Sugar maple and yellow poplar, as two of the species that were systematically planted at Cricket in the 1940s, are quite abundant in the northeastern part of the camp. Obviously, this was one of the places that was planted. Also, in the area of the camp just south of the entrance road, there are many of the species that were planted. The abundance of scotch pines suggests that it was also once of the species supplied by the Forest Service.

Conclusion

This little study is a just a sample of some of the studies that scouts and scouters can do at Cricket Holler or other places. Now that you know a little bit about the Cricket forest, go look for yourself. What patterns can you see? You don’t need to measure any trees to see some simple patterns in trees composition from one part of the woods to another. For example, can you see patterns in the types of trees that grow in drier sites compared to wetter sites?

You are encouraged to use the **Cricket Holler tree key**, and go learn some trees for yourself. It is a basic list, and there are many more in Ohio and around the country to learn, but you can learn to tell the trees apart. Once you do, you will be awed by the diversity of plant life. You will appreciate the outdoors more, recognizing the plants that you see around you. You will become a better steward of the land. This is our common mission as members of the brotherhood of Scouting.

ENJOY THE OUTDOORS!

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