



EUNICE H. BRYAN
Nature Preserve

There are 2 trails in this preserve. Both begin to the right shortly after you enter the woods. The long trail forms a loop near the outer edge of the preserve. A short trail splits off of the outer loop and cuts through the center of the preserve. Along the way are numbered stations which correspond to the numbered paragraphs in this guide. In order to protect the preserve's natural values, please: remain on the trail, protect all plants and animals, keep the area free of litter, and observe the ban on hunting, fires, cutting, picnicking, camping, horses and vehicular use.

In February of 1991 a severe ice and wind storm damaged many trees in this forest. You will notice many fallen trees along the trail as a result of the storm, and in many areas the trail has been rerouted. This type of disturbance is a natural process which this forest has experienced before.

Trail Stations

1► Edge: Notice the sharp distinction between the forest and field. This man-made edge provides good wildlife habitat. There is food from the farmer's crops and weedy vegetation growing in the field, and protective cover in the nearby forest. Bobwhite nest along here, and squirrels can sometimes be seen foraging in the field. The best times to see these animals are early morning or late evening.

2► Environmental Moderation: If the day is hot, notice the cooler temperature as you enter the forest. But if it is a cold, windy day you may feel warmer within the forest. The overhead canopy and the surrounding understory act as a humidifier and wind barrier.

3► Tree Species: Move the indicator on the post to the number corresponding to the species listed below. The indicator will be pointing to the tree.

3.1► American beech has smooth gray bark, and triangular-shaped nuts enclosed in a spiny bur. The seedlings can survive and grow in the shade of other trees and will eventually replace them.

3.2► Tulip poplar, the state tree, has gray bark with long narrow ridges. Since it does not grow well in shade, it is found where past disturbances removed the overstory trees.

3.3► Ironwood, the small tree 20 feet in front of you, with light, fine-textured bark, has very dense, hard wood. It does not grow very large and therefore is found in the shade of other species.

3.4► Black cherry, behind the ironwood, has black, flat rounded plates of bark that appear to be loosely attached. The white flowers turn into dark round fruits. This species grows best in small openings or along the forest edge.



aster

goldenrod

peppergrass

bobwhite

tall fescue



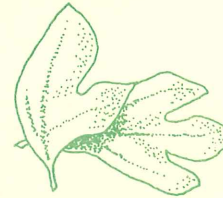
violet

spring beauty

4► Tree Species: Here are more examples of the 40 tree species found in this forest.

4.1► Black cherry was described at Station 3.5. Notice again the dark bark with its round plates.

4.2► Sassafras leaves often resemble mittens, and, along with the greenish twigs, are aromatic. Male and female flowers are on separate trees. The ripe fruit are dark blue on a red fleshy stalk.



4.3► Shagbark hickory bark gives this tree its name. The nut-like fruit is protected in a thick husk.



4.4► Chinquapin oak is rare here. The acorn has a thin bowl-shaped cup covering 1/3-1/2 of the fruit.



4.5► American beech was described at station 3.1. It can often be identified by its tendency to retain some of its dead leaves throughout the winter.

5► White oak is a common tree in this preserve. The whitish-gray bark resembles shingles on a roof as you look up the trunk. Some individuals are the largest trees in the forest.



6► Nutrient Cycle: The large log lying on the ground is gradually being broken down, completing the nutrient cycle. When a tree dies, insects, fungi, bacteria, and various burrowing animals break down the complex chemicals into simple essential elements. These elements are incorporated back into the soil where they can be reused by other growing plants. In this manner nutrients are recycled.

7► Tree Reproduction: As old trees die they are replaced through two types of reproduction: seedling growth, and stump and root sprouting. Toward the edge of the forest there are many small seedlings. A clump of large dark-barked trees may be seen growing approximately 20 ft. from the trail as you face the station marker. These American basswood sprouts came from the largest stem many years ago.

8► Poison ivy and Virginia creeper: Notice the vines growing on the white oak near the path. The one with three leaflets is poison ivy and should not be touched. The vine with 5 leaflets is Virginia creeper and is harmless. Throughout the woods you will notice both plants creeping along the ground or climbing up trees.

9► Den Trees: Did you notice the various sized holes in living and dead trees? Smaller, higher holes are used by woodpeckers, chickadees, or titmice. Larger holes might be used by raccoons, squirrels, or owls. At the base of the tree, you may find nuts that squirrels have gathered for food. You may also find corncobs brought in from nearby fields.

10► Tree Disease: The white oak in front of you had "smooth patch" or "white patch" disease when it was alive. This fungal disease, which did not kill the tree, usually causes smooth patches on the bark. Here it caused a constriction of the trunk as well.

11► Succession: This area once contained many dead trees. Their falling and decaying has given these shrubs and young trees a chance to grow. Eventually, the young trees will grow tall enough to shade out the shrubs, returning this area back to the way it was, and starting the cycle again.

You have now come to the point where the trail forks. If you wish to take the short trail take the fork to the left and refer to the following stations 12-20. If you wish to take the long trail continue on the right fork and refer to your guide for the Long Trail stations.

Short Trail

12► Large Wet Area: In early spring, this area is wet, along with a large part of the woods, providing excellent breeding grounds for frogs, salamanders, insects, and habitat for red-winged blackbirds, woodducks, and other life. The large trees surrounding this area are those which can grow under moist soil conditions. These include swamp white oak, pin oak, and red maple. In the center of the wet depression is the dense shrubby growth of buttonbush, so called for the round button-shaped fruits.

13► Root System: The root system provides support, and transport for nutrients and water. Notice the roots of the trees before you, and how close to the surface they are. This is a result of the water table being near the ground surface. Observe the roots of other fallen trees located along this trail.

14► Look Around You: The surrounding area shows some of the most severe disturbance from the February 1991 ice and wind storm. Although these trees have extensive root systems, they are vulnerable to falling under storm conditions. The added weight of icy upper branches, has taken its toll on several trees in this area. When an individual tree falls in a forested situation, it generally takes nearby trees down as well, allowing the sun to reach the forest floor. Sun-loving plants replace the shade-tolerant species that occurred here previously. In time, with no significant disturbances, mature forest will return to this site. This is called forest succession as described at Station 11.

15► New Habitat: The uprooting of this tree created a "pond-like" depression, which is now home to insects, amphibians, and reptiles during the wet times of the year. Salamanders, snakes, and earthworms inhabit the area under the log. The wood will decay with the help of weather, insects, and fungi.

16► Night Life: During the summer, as dusk approaches, bats pursue insects, and fireflies flash their light signals around the periphery of the woods and in the fields. Within the woods flying

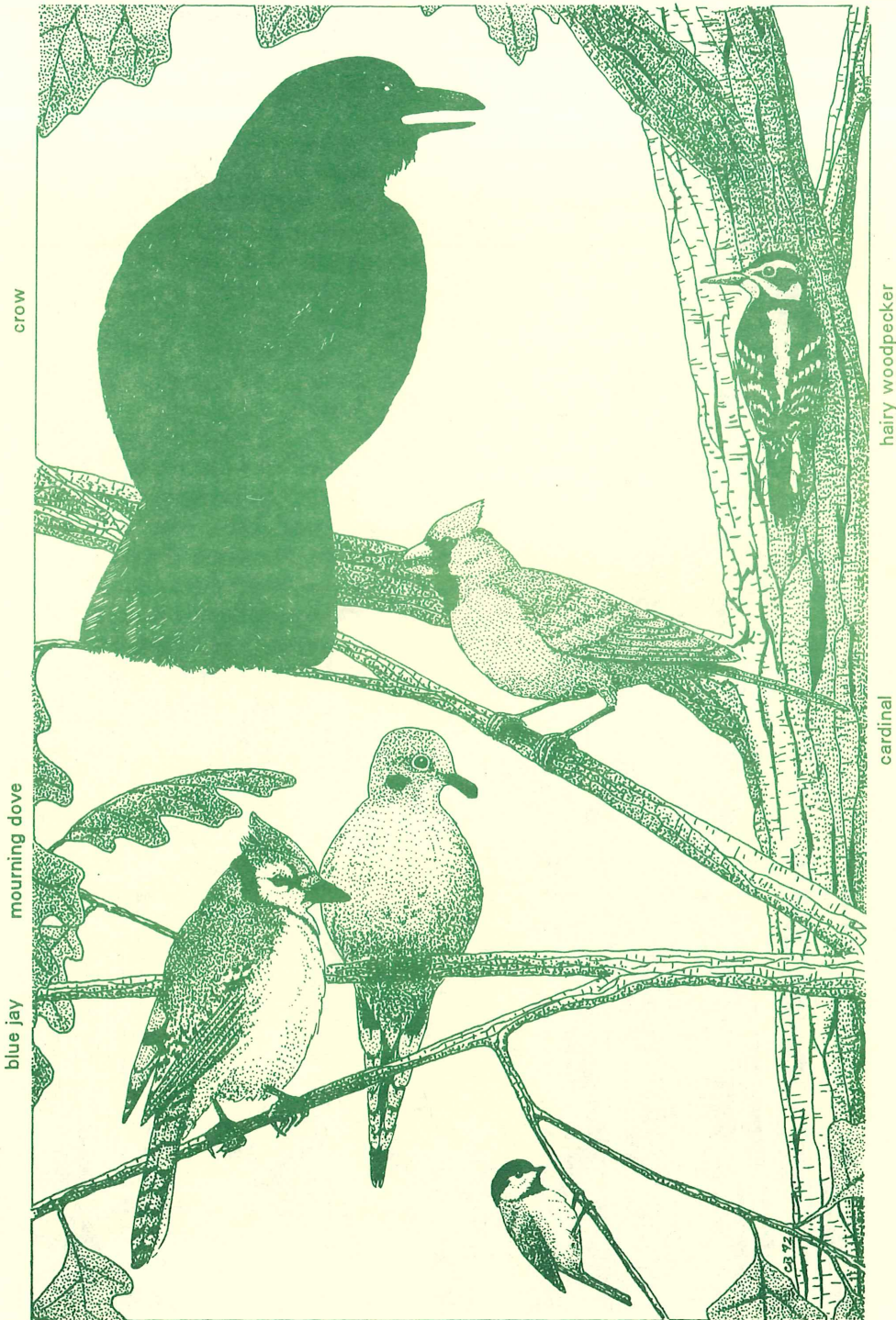
12 & 15 ▼

buttonbush



water plantain

leopard frog



chickadee

squirrels glide from tree to tree letting out a high pitched chatter, owls begin to stir, and raccoons and opossums look for fruits, nuts, tadpoles and frogs.

17► Bird Calls: Depending on the time of year, Bryan Woods provides shelter and food for many species, as well as a stopping place for a number of migrants. Some of the year-round birds include: blue jays (Jay! Jay!), chickadees (chickadee dee dee), crows (caw!), mourning doves (mournful cooing), cardinals (cheer cheer cheer), and various woodpeckers.

18► Soil Moisture-Environmental Gradients: Observe the change in tree and shrub species with the increase in soil moisture. American beech, sugar maple, several species of hickories, white and bur oaks, white ash, and spicebush tend to grow intermingled on moist (mesic) sites. Red maple, pin oak, and swamp white oak associate with each other on the wetter soils. In the depression the extreme conditions of very wet, poorly aerated soil is tolerated only by the buttonbush.

Long Trail

12► Pawpaw: This tree grows best in small openings or along the forest edge where there is more light. The purplish-red blossoms turn into large, banana-like fruits. These green and fleshy fruit are often difficult to find because pawpaw are not prolific fruiters, and the fruit is enjoyed by many animals.

13► Dead Trees: Notice the dead trees scattered throughout the forest. Many insects, including ants and termites, lay their eggs in these trees. Upon hatching, the larvae cut tunnels through the wood exposing more surface area to attack by fungi and other decomposers. This greatly speeds up the process of recycling which eventually returns the trees' nutrients to the soil for re-use by other plants.

14► Glacial Remains: These boulders were left behind by the last glacier, but moved to this site by farmers clearing their fields. The varied color and texture indicates the different sources of the rock; the granite has a close knit crystalline structure of varied minerals, and the sandstone is evenly colored, grainy, and more easily crumbled. Eventually these rocks will erode, adding their minerals to the soil.

15► Disturbance: Surrounding this station is a disturbed area created by man's use of the fenced strip for grazing, equipment storage, and access along the fields. Notice the difference between the ground vegetation on the forest side and on the field side. Disturbance is not always bad; disturbed areas often provide more food for wildlife than undisturbed ones. But, if the disturbance is too severe or too frequently repeated, the production and growth of vegetation may be retarded.

16► Energy: The forest is a natural productive system. With the sun's energy and the earth's minerals the forest produces timber, food for wildlife, and many other products used by living organisms, including man.

17► Succession: Before 1971, the year this property was dedicated as a Nature Preserve, the area between where you are standing and the field was under cultivation. Since that time, the area has been colonized, first by annual weeds, and then by perennial "old field" herb species. At present, woody shrubs and saplings have established themselves and are gradually shading out the perennials. Eventually the site will develop into a mature forest dominated by black walnut, white oak, and hickories. This will create moist, shady conditions, allowing beech and sugar maple to become established and finally replace the oak and hickory forest. Each of the above plant groups changes the environmental conditions of the site in such a way that it allows the next group to become established and its own to be eliminated.

18► Vines: Notice the vine-covered trees. These grape vines can damage the trees they use for support by competing for sunlight and nutrients. Many of the support trees have been unable to survive due to the stress; however, the grapes provide food for birds, raccoons, and other animals.

19► Wind Throws: Trees blown down during storms were a normal occurrence

in presettlement times, but are more common now. When this entire area was forested winds could not build up as much speed before striking the woods and could not do as much damage. Large trees which stick up through the forest canopy are particularly vulnerable to wind damage.

20► Habitat and Niche: "Habitat" includes all of the atmospheric and soil conditions surrounding an organism. "Niche" refers to the organisms' role in its habitat. An example, located near this station, is the basswood, with its heart-shaped, toothed leaves. Its habitat is wooded areas with moist soils, and its niche is that of a canopy tree. If the habitat surrounding a species changes, the species must change its requirements in order to survive.

21► Awareness: Take 15 minutes to rest on this fallen white oak and look, listen, and smell the area that surrounds you. The log you are sitting on fell during the February 1991 ice storm.

22► Sugar maple: Although oaks and hickories are common in the canopy, the majority of the saplings and young trees around you are sugar maples. These are more shade tolerant than the oaks and hickories and may eventually replace them. The elimination of periodic fires may contribute to the change.



spicebush

Solomon's seal

wild ginger

mayapple

violet

Christmas fern

23► Species Diversity: Plants utilize horizontal distribution by growing in groups or as single individuals, and vertical distribution by how tall they grow—ground level, shrub, understory tree, and canopy tree. There is also seasonal distribution with some plants completing their life cycle in the spring, and others in the fall. Animals have a daily distribution. One example is the fox squirrel, which is active during the day, and flying squirrels, which are out at night.

24► Woodland Depressions: This open depression was formed several thousand years ago by the last glacial ice sheet to recede north across Indiana. An impermeable clay layer and flat topography has created a soil that is more poorly drained than the surrounding uplands. Standing water can be found in the depression during most of the year, creating good habitat for amphibians, and water insects.

This ends the self-guiding trail. We hope that it has given you a better understanding of our natural environment. Be sure to register, and if you do not wish to keep this pamphlet, please place it back in the registration box.

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