



## AN EDUCATIONAL GUIDE TO THE *Southern Illinois Oak-Hickory Forest* Poster

*This poster depicts an upland oak-hickory forest* in the Shawnee Hills of southern Illinois about the first week of May. The leaves are unfolding on the trees, a big flight of migrant songbirds has arrived, and the earliest spring wildflowers have gone to seed while many others remain in full bloom. The site is within a closed-canopy forest near sandstone bluffs and outcrops. The forest opens into a grassy, abandoned crop field at the upper right. A small pond has been dug at the lower right to provide water for wildlife. Numbers in parentheses refer to the numbered key on the poster.

### Interpreting Features of the *Southern Illinois Oak-Hickory Forest* Poster

Layers of iron-cemented sand form dark lines within the sandstone creating unique designs as shown here. Plants like columbine (16), shooting star (13), ebony spleenwort (12), serviceberry (8) and red cedar (7) grow in crevices of the rock. The red cedar was spread to fields in the upper right of the poster by seeds dropped in waste deposits of birds that ate its fruits. The Christmas fern (10) grows on rocks and takes its name from its evergreen leaves, which are beautiful at Christmas time. The thin soil on top of bluffs and rocks is home to plants like low-bush blueberry (9) and

blackjack oak (1). Animals, such as the northern fence lizard (30), scamper over the rock in search of insects and other food, while the turkey vulture (52) nests within a small cavelike opening in the bluff.

The white oak (3) is one of the most common trees in the upland forest. It gets its name from its pale gray to almost white bark. Its acorns and those of other oaks and hickories provide abundant food for the gray squirrel (34), white-tailed deer (33) and wild turkey (50). The red-bellied woodpecker (44) and white-breasted nuthatch (45) are searching for insects, insect eggs and larvae beneath loose slabs of bark. Notice the cavity in the white oak that provides a den for the squirrel.

Red oaks (4) have darker and somewhat thinner bark than white oaks, which makes them more easily injured by fire. The large cavity in this tree is a result of a wildfire many years ago that scarred the trunk and allowed a trunk-rotting fungus to enter the tree. The shagbark hickory (5) gets its name from the shaggy bark on its trunk. This bark provides daytime roosting and nursery habitat for the Indiana bat (36).

The Cooper's hawk (51) is in pursuit of two brown-headed cowbirds (54). Small birds are the principal



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food of Cooper's hawks. The great crested flycatcher (49) is chasing flying insects while the ruby-throated hummingbird (39) takes a meal of nectar from a columbine flower. The great horned owl (53) and whip-poor-will (40) are night-feeding, or nocturnal, birds. The former eats mainly mice, while the latter catches insects in flight.

Most of the smaller birds are resting and feeding after their previous night's migration flight. The wood thrush (48), Kentucky warbler (42) and scarlet tanager (46) will nest here, while the Blackburnian warbler (41) and rose-breasted grosbeak (43) will continue migration to breeding grounds farther north. Males of all the birds are in their most brilliant breeding plumage to attract mates. The male wild turkey (50) is at his colorful best as he gobbles and struts to attract hen turkeys for mating.

The doe deer (33) is pregnant and will give birth to a pair of fawns in about three weeks. One of her fawns from last year is still with her and can be seen in the distance. The gray fox (35) is eyeing the gray squirrel (34), a potential meal just out of reach. The opossum (37) is searching for worms and salamanders to eat near the pond. The white-footed mouse (38) is making a meal of old wild grapes from the previous summer.

The eastern box turtle (31) is about to consume a morel mushroom (20). The black rat snake (29) will eat bird eggs. The black rat snake is one of the best climbers of our native snakes. The ground skink (32) has just emerged from the leaves where it forages for food and hides to escape predators.

The wildlife pond is small and has no fishes in it. It was constructed by wildlife managers as a watering hole for game animals, but it is an ideal breeding habitat for amphibians like the American toad (27), which is trilling to attract a mate at the pond's edge, and the spotted salamander (26) and spring peeper (28). Amphibians lay their eggs in the pond, and without fishes to eat the eggs or tadpoles that hatch from them, they have a high survival rate. The slimy salamander (25) is the typical salamander of upland oak-hickory forests. It lays eggs under logs and leaves. The embryos of the eggs go through the tadpole stage within the egg membrane and "hatch" without ever having been in water. The slimy salamander is adapted to the upland forest environment where natural ponds are scarce.

The common whitetail dragonfly (23) shown is a male since females lack the white abdomen. This species lays its eggs in the pond where its aquatic nymphs prey on small animal life on the bottom. The

cornfield ant (22) is picking up a seed from the bloodroot (19) and will take it back to its den. The bloodroot is an early blooming wildflower and is already shedding seed. Each seed has white spongy tissue attached to it that ants like to eat. They carry the seeds back to their den and when the edible tissue is consumed, the seed is discarded in the den, in effect planted by the ant. Many woodland wildflowers "use" ants to disperse and plant their seeds in this manner.

### Suggested Activities

1. Fire is a natural event in most forest ecosystems. Fire can recycle nutrients back into the soil. From an ecological standpoint, fire is neither "good" nor "bad." Fire occurs naturally through lightning strikes and is sometimes started by people, either intentionally or accidentally. Have students research and discuss the possible benefits and negative impacts that fire can have both on the environment and society. What is a prescribed fire? (Prescribed fires are those lighted by trained fire personnel.) Why would an area undergo a prescribed fire? (Personnel prepare an area for reforestation, to enhance wildlife habitat, protect native species, control insects or disease and reduce future fire

hazards.) What time of year are these fires lit? (Prescribed fires are lighted mostly in the spring.)

2. An ecosystem is a system of interrelationships among organisms, and between organisms and the physical environment. Have students identify organisms in the poster and what their relationship is to other species. Discuss which human actions have harmful effects on these ecosystems and whether or not those actions have short-term or long-term consequences.
3. Instruct students to carefully observe all aspects of the poster for one minute. Then cover the poster and have them list as many species as they can remember from the poster. Have students sketch their favorite species or write a story about a visit to an oak-hickory upland forest. Why is this forest important to both humans and the species that inhabit it?
4. Discuss ways we utilize forests in today's society. List 10 uses for forests or timber near your area. Do these uses affect the environment? If there is a negative impact, what kind of things can be done to improve the situation?