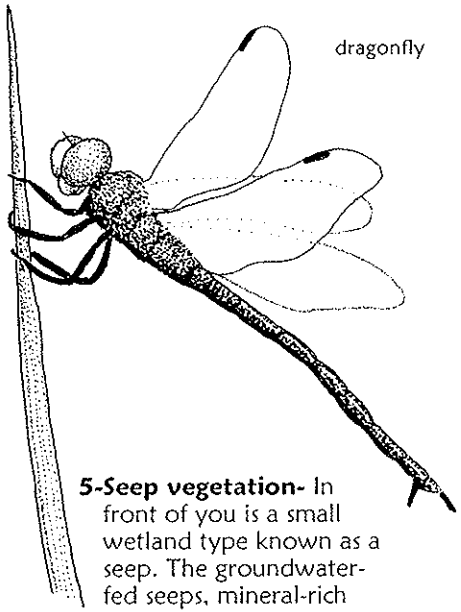
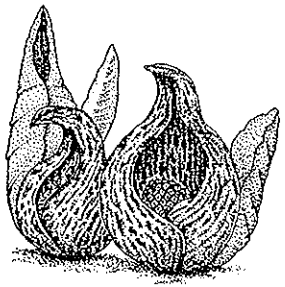
4-Old creek bed- Here you can see a trace of the former channel of William's Creek which once meandered through the floodplain. It was replaced by a ditch to facilitate drainage of surrounding farmland.

The animal life found in running water of a stream is entirely different form that found in the still water of a pool. Each situation offers different challenges to survival. The **running water** of a stream is cooler and better aerated, offering more life-giving oxygen. But the force of the running water itself poses many challenges. Organisms may be dislodged from their territory and tumbled downstream. At these times they are extremely vulnerable to predation. For this reason, many stream dwellers are flattened and have hooked appendages for living among the rocks found in riffles. In a **still pool** the biggest challenge may be a lack of oxygen. The organisms overcome this by having a means of breathing atmospheric oxygen from the air.



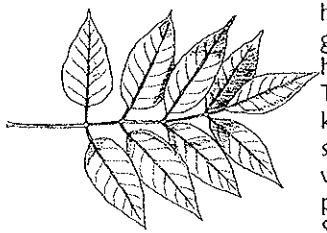
dragonfly

5-Seep vegetation- In front of you is a small wetland type known as a seep. The groundwater-fed seeps, mineral-rich and temperature-moderated, support some of the most interesting plant and animal communities in Indiana. Found on this small seep are grass-like sedges, skunk cabbage, marsh marigold, water hemlock and queen-of-the-prairie. Interesting animals found here are dragonflies, salamanders, and frogs.

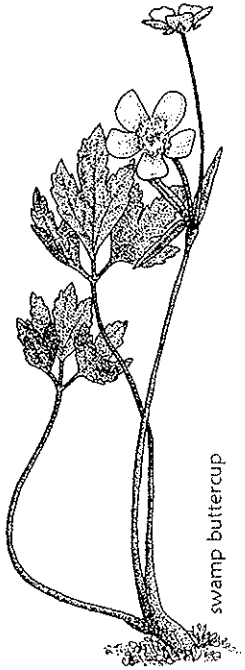


skunk cabbage

6-Big ash- Another large open-grown tree. Why were these trees not cut when much of the floodplain forest has been harvested? Open-grown trees, in general, have little value as lumber. The many limbs (hence knots) found along the squat trunk render their wood poor quality. The presence of the large Shumard's red oak, the bur oak, and this ash, all very old and all open-grown, may have marked where an old (Indian?) trail wound through this bottomland along William's Creek.



7-Seep hydrology- The wetland plants growing here indicate the presence of a small groundwater seep, or spring. A **seep** is where groundwater reaches the surface, bubbling out. this water flows underground through glacial till (gravel deposited by the last glaciers). As it passes through the glacial till, the water picks up many minerals such as magnesium and calcium. This gives spring water its healthful properties. The presence of a groundwater seep was an essential consideration when deciding where to locate a village or homesite to early pioneers, and the Native Americans before them. Rivers were not utilized as a reliable source of drinking water. The association between rivers and pathogens was apparently well established even before modern science. Even today, groundwater remains one of our purest sources of drinking water.



swamp buttercup

Thanks for coming! We sure hope you enjoyed your visit. For more information on nature preserves please write or call us.

Division of Nature Preserves
402 W Washington St Rm W267
Indianapolis IN 46204
317-232-4052

9/9/2002

Shrader-Weaver Nature Preserve

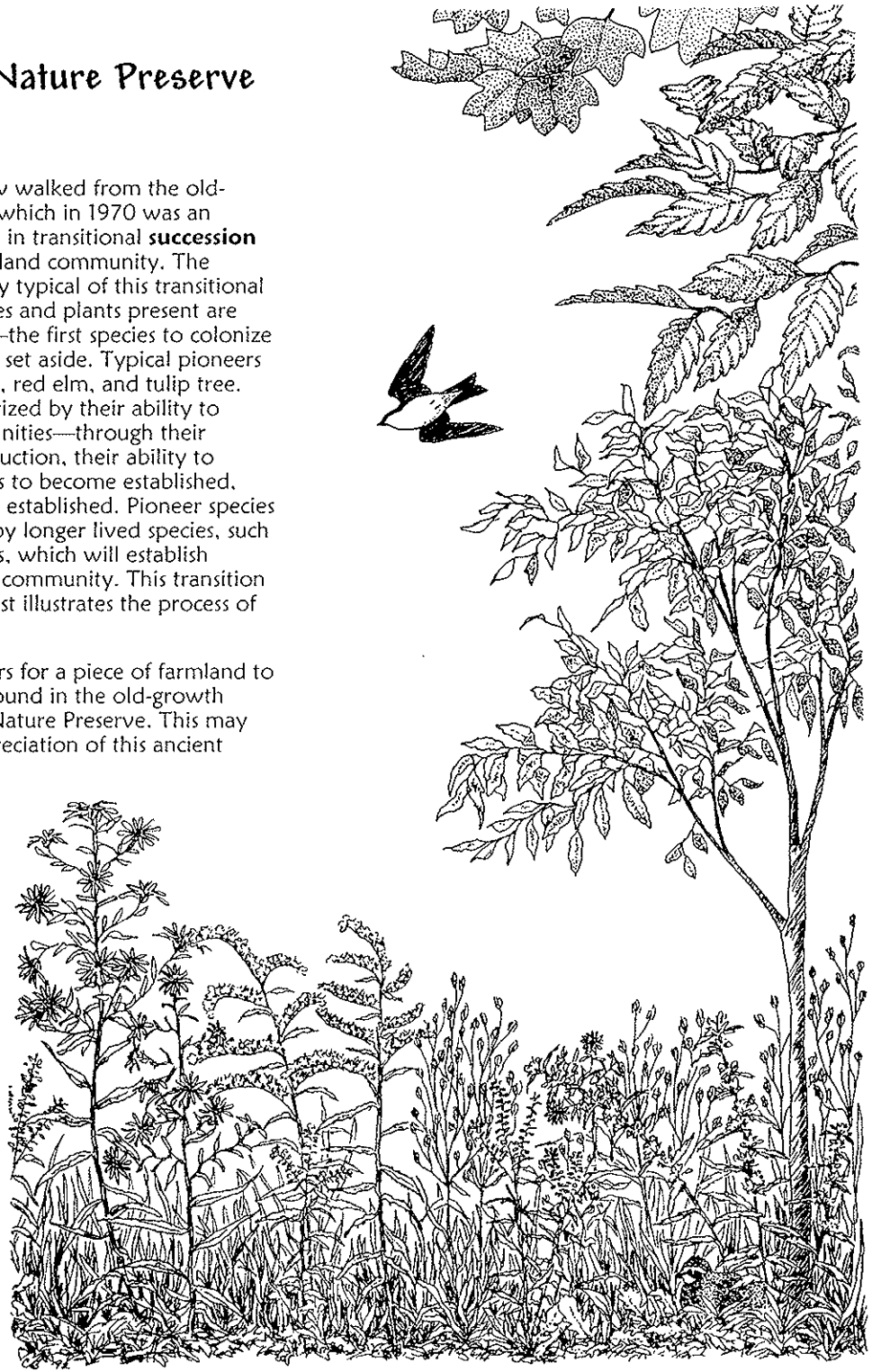
Succession Trail

Welcome to Shrader-Weaver Nature Preserve

1-Succession- You have now walked from the old-growth woods into an area which in 1970 was an agricultural field. This area is in transitional **succession** from an old field to a woodland community. The vegetation before you is very typical of this transitional community. Most of the trees and plants present are known as **pioneer species**—the first species to colonize an old field once it has been set aside. Typical pioneers are sumac, box elder, cherry, red elm, and tulip tree. Pioneer species are characterized by their ability to rapidly exploit new opportunities—through their enormous powers of reproduction, their ability to widely disperse to new areas to become established, and their rapid growth once established. Pioneer species will eventually be replaced by longer lived species, such as oaks, beeches, and maples, which will establish dominance and stabilize the community. This transition from old field to climax forest illustrates the process of **natural succession**.

It may take hundreds of years for a piece of farmland to return to the climax forest found in the old-growth section of Shrader-Weaver Nature Preserve. This may help you gain a greater appreciation of this ancient woods.

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.

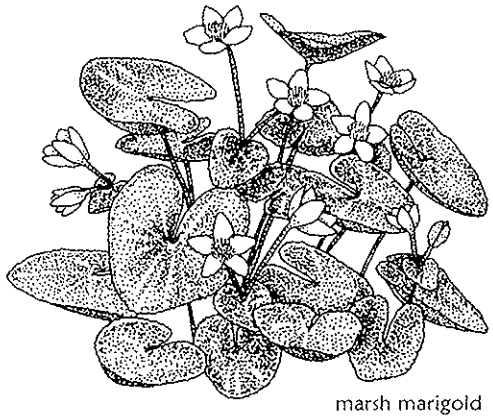


2-Shumard's Red Oak- This ancient oak is a relict of the original forest type found here. Shumard's red oak differs from the more common northern red oak by having more deeply cut leaves and smaller, shallower acorn cups.

Although the bottomland area you have entered has had timber removed in the past, it was never entirely cleared for cultivation. An experienced naturalist can "read" a site's history by closely observing tree size, form, and species present. Contrast the **disturbed woods** here with woodlands found on other portions of the preserve.

3-Bur Oak- This "mega-oak" is over 5 feet in diameter! From its short, stout trunk and the many wide spreading branches, we know that it grew in an open setting. Contrast this tree with those found in the old-growth forest. Plants, like animals, must adapt to the set of circumstances that they find themselves in, if they are to survive. In the deep forest, trees must invest energy into a tall trunk in the attempt to outcompete adjoining trees for limited sunlight. Trees grown in an open setting are not subject to this competitive pressure, and do not waste energy on costly tall trunks. They immediately begin to branch out to maximize their leafy surfaces (where energy is formed through photosynthesis), resulting in the enormous, round crown characteristic of these open-grown specimens.

By looking at the size and shape of this tree, we can surmise that, roughly 200 years ago, the area around this tree was quite open.



marsh marigold