

A natural community is a group of native plants and animals that interact with each other and their environment in ways not greatly altered by modern human activity. On the presettlement landscape, they were distributed according to climate, soil, and landform patterns. Natural disturbances such as fires, drought, windstorms, and floods helped to shape them.

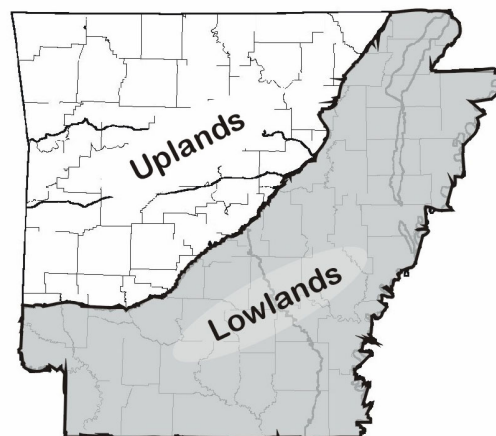
## Upland Hardwood Forest

What is “hardwood”? The distinction between hardwood and softwood actually has to do with plant reproduction. All trees reproduce by producing seeds, but the seed structure varies. Hardwood trees are **angiosperms**, plants that produce seeds with some sort of covering. This might be a fruit, such as an apple, or a hard shell, such as an acorn.

Softwoods, on the other hand, are **gymnosperms**. These plants let seeds fall to the ground as is, with no covering. Pine trees, which grow seeds in hard cones, fall into this category. In conifers like pines, these seeds are released into the wind once they mature. This spreads the plant's seed over a wider area.

For the most part, angiosperm trees lose their leaves during cold weather while gymnosperm trees keep their leaves all year round. So, it's also accurate to say evergreens are softwoods and deciduous trees are hardwoods.

**Uplands**—You can separate Arkansas into two main regions by drawing a line from the northeast corner to the southwest corner diagonally across the state. To the northwest of this line are the **uplands**, and to the southeast are the **lowlands**. Most of the upland region has mountains that were formed hundreds of millions of years ago. Usually rock is close to the surface. The character of the lowlands is very different. This region has hills in places, but mostly the land is low, flat, and wet. Sand and clay were deposited here by the gulf of Mexico and by many rivers. These materials have not been cemented together into hard rock. The dry, rocky slopes of the uplands and the low, wet flats of the lowlands support very different plants and animals.



The way people use these places are very different too. The uplands have never been very good farmland because of the steep slopes and shallow soils. The large farms in the state are in the lowlands.

### Species Key - *binomial nomenclature*

The standard convention used for naming species is called *binomial nomenclature*. As the word “binomial” suggests, the scientific name of each species is the combination of two names: the genus name and the species name. The names are usually derived from Latin, although some are from ancient Greek, local languages, and often from the name of the person who first described (discovers) a species.

The value of the binomial system includes:

- The same name is used in all languages
- Every species can be clearly identified with just two words
- The system has been adopted internationally in botany (since 1753; zoology (since 1758), and bacteriology (since 1980).

### More Information



- Vocabulary words
- Resources
- Framework correlations

## Vocabulary Words

Why is the little fish in the poster in a box?

The Yellowcheek darter is shown approximately life-size in the box on the poster. If it had been drawn in proportion to the stream, it would not be visible.

Canopy – the uppermost spreading branchy layer of a forest

Deciduous – falling off or shedding seasonally

Ephemerals – lasting a very short time

Fauna – the animal life of a region

Flora – the plant life of a region

Mast—nuts accumulating on the forest floor and often serving as food for animals.

Migrant – an animal that shifts from one habitat to another

Neotropical – relating to the biogeographic region that includes South America, the West Indies, and tropical North America

Predator – an animal whose food is primarily obtained by killing and consuming other animals

Regeneration – the process of producing new growth

Suppression – the act of stopping or restraining from the usual course of action

Understory – a layer of low vegetation in a forest

## Additional Information and Activities

Continue exploring **scientific names and binomial nomenclature**. One interesting rule to note: animal names allow genus and species to repeat the same word; plant names do not. Species names can also be further subdivided into subspecies (3 names are called *trinomial nomenclature*). Animals can only be divided into subspecies, with 3 names; but plants can be divided into subspecies, variety, and subvariety. Look at some of the names in the Species Key on the poster and discuss the relationships between the scientific names and common names

Examples:

*Triunguis* “tri means three” in Three-toed Box Turtle.

White oak is *Quercus Alba*

Black oak is *Quercus veluntina*

Cardinal Flower is *Lobelia cardinalis*

Cooper’s Hawk is *Accipiter cooperii*

**Species names** are important in the science of *taxonomy* (classifying organisms). The Linnean system we use today was developed more than 200 years ago by the Swedish botanist Carolus Linnaeus. Explore his work with students and look at its overall organization, using examples from the poster:

Bobcat—*Felis rufus*

- **Kingdom** - *Animalia*—animals
- **Phylum** - *Chordata*—vertebrate
- **Class** - *Mammalia*—mammal
- **Order** - *Carnivora*—meat eater
- **Family** - *Felidae*—all cats
- **Genus** - *Felis*—small cats
- **Species** - *rufus*—reddish fur

Explore additional aspects of taxonomy and observation skills by challenging students to find representatives from each of the five classes of vertebrates in the poster (reptile, bird, mammal, fish, amphibian).

**Common names**—don’t forget the fun of also exploring the origins of common names for plants and animals. For example, the ovenbird got its name because someone thought its nest resembles the cooking pot called a Dutch oven.



Bloodroot got its name from the bright red juice which oozes (or “bleeds”) from its thick, tuberous roots. This juice has been used as dye and body paint for centuries.

Students can research the origins of other names or create new names based on information about the plant or animal.



bloodroot

**Additional Information and Activities**

**Migration—Math & Mapping**

The American Redstart in the poster is a neotropical migrant (see Vocabulary Words). Most birds spend the winter in the Greater Antilles islands (Cuba, Haiti, Puerto Rico, Jamaica, and the Dominican Republic). Banded American Redstarts have been documented to travel as fast as 160 km in one day, or actually one night, since most migration occurs at night.

Students can explore the Greater Antilles islands on maps and compute the distance to Arkansas or the distance to USA mainland (the distance the birds would fly over water). This distance can then be used to determine how many days (at 160 km/day) it would take the birds to reach Arkansas in the spring migrations.

**The Cooper's Hawk was named for William Cooper, the father of James C. Cooper, an early California naturalist and founder of Cooper Ornithological Society.**

**Correlations to Arkansas Science Frameworks**  
 The posters and notes can be used to supplement Strand 2 - Life Science Systems  
 L.S.2.4; L.S.2.5; L.S.2.8; L.S.2.9; L.S.2.11; L.S.2.12  
 Strand 3 - Connections & Applications in Life Sciences  
 L.S.3.2; L.S. 3.3

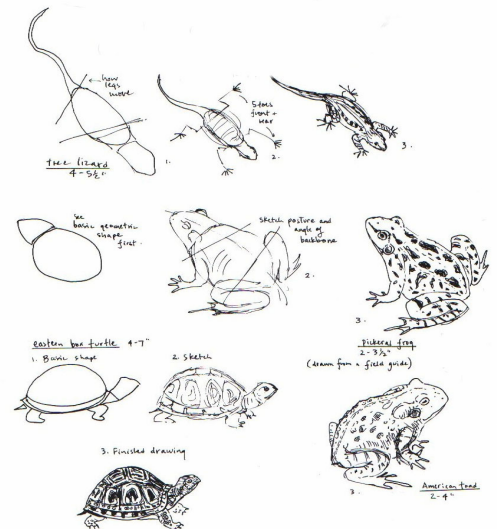
**Rare Species**

Some of the plants and animals in the poster are rare in Arkansas, or technically considered “species of special concern”. The Ozark big-eared bat is the most endangered mammal in Arkansas. Only about 1200 of these animals exist today in a few caves in Missouri, Oklahoma, and Arkansas. Natural Areas owned and managed by the Arkansas Natural Heritage Commission (ANHC) include caves protecting these bats. A complete list of Arkansas’s rare species can be found on the ANHC website at <http://naturalheritage.com/program/rare-species/>

Students can use these plant and animals lists as well as the Rare Element Search Engine (also found on [naturalheritage.com](http://naturalheritage.com)) to research and report on the status of plants and animals in the poster.

**Art and Nature**

The illustrations on the posters were done by Missouri artist Linda Ellis, who has also illustrated technical publications for the Missouri Botanical Gardens. The natural world is a wonderful art subject for students, whether it’s sketching in a journal, as illustrated below, or more formal drawing, painting, or sculpture. Students can also explore other cultural representations of nature through history and early nature artists such as John James Audubon.



**Resources**

**Books**

- [Arkansas and the Land](#) by Thomas Foti & Gerald Hanson
- [Forest Explorer: A Life-sized Field Guide](#) by Nic Bishop
- [One Day in the Woods](#) by Jean Craighead George
- [Ancient Forests: Discovering Nature](#) by Anderson, Field, and Stephenson
- [In the Forest \(Wild Wonders Series\)](#) by Ann Cooper and Dorothy Emerling

**Websites**

- <http://www.naturalheritage.org>  
*Arkansas Natural Heritage Commission—lesson plans, books, rare species info, maps*
- [http://www.agfc.state.ar.us/critters/endangered\\_species.html](http://www.agfc.state.ar.us/critters/endangered_species.html)  
*Arkansas Game & Fish Commission—endangered animals in Arkansas*
- <http://educators.fws.gov/>  
*U.S. Fish & Wildlife Service—federal lists of endangered species, information for educators*
- <http://www.nwf.org/education/>  
*National Wildlife Federation—information for educators*