

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.

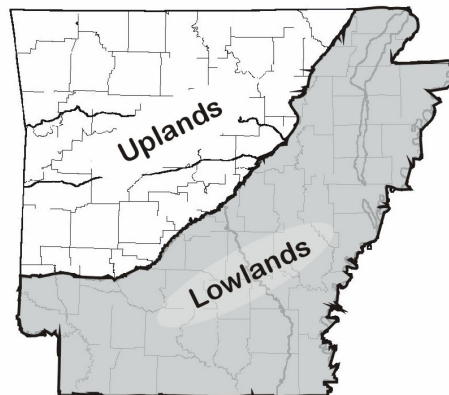
Bottomland Hardwood Forest

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.

Bottomlands—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 or bottomlands**. 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

Cypress Trees & Knees

The bald cypress is called "bald" to distinguish it from other types of cypress trees in other parts of the world, which are true evergreens. The bald cypress is deciduous and sheds its needles each year.

Earlier theories suggested that cypress knees helped the tree with gas exchange.

New thinking suggests they help to stabilize the tree in wet soggy soils.

Alluvial – Materials transported and deposited by the action of flowing water, such as clay, silt sand and gravel.

Floodplain – level land that may be flooded by water.

Groundwater - water below the earth's surface.

Groundwater recharge – the process by which rainwater and other water on the earth's surface soak through the soil to reach the groundwater areas below the earth's surface.

Margin – edge or outside limit

Saturated – full of moisture

Wetland - An area that is regularly saturated by water and has vegetation that is adapted for life in wet conditions (swamps, bogs, marshes).

Worried about cottonmouth snakes? More people in the US died last year from falling off furniture than from snakebite.

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:

Royal Fern is *Osmunda regalis*

Overcup oak is *Quercus lyrata*

Nuttall oak is *Quercus texana*

Giant Cane is *Arundinaria gigantea*

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:

Cottonmouth—*Agkistrodon piscivorus*

- **Kingdom** - *Animalia*—animals
- **Phylum** - *Chordata*—vertebrate
- **Class** - *Reptilia* —Reptiles
- **Order** - *Squamata*—lizards & snakes
- **Family** - *Viperidae*—pit vipers
- **Genus** - *Agkistrodon*—copperheads & cottonmouths
- **Species** - *piscivorus*—cottonmouth

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

Common names—don't forget the fun of also exploring the origins of common names for plants and animals.

Nuttall oak is named for Thomas Nuttall, an early botanist who explored Arkansas in 1818. He discovered and named several new species in our state and gave us some of the earliest written descriptions of the land.



T. Nuttall

The prothonotary warbler gets its name from the yellow robes worn by early official in the Catholic church called "prothonotaries".

Linnaeus (mentioned earlier) actually named the pileated woodpecker, substituting the word "pileated" for an earlier description which called the bird "crested".

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

Additional Information and Activities

Presumed Extinct

In some cases, scientists know the exact moment the last member of a species dies, such as the passenger pigeon (Sept 1, 1914). But other cases, animals, such as the ivory-billed woodpecker, Carolina parakeet, and Bachman’s warbler, are presumed to be extinct if there have been no verified observations in the wild, despite intensive search efforts. The Carolina parakeet, the only North American member of the parakeet family, has not been seen in Arkansas since 1888.

Rare Species

Plants and animals that are in danger of becoming extinct are technically considered “species of special concern”. Natural Areas owned and managed by the

Arkansas Natural Heritage Commission (ANHC) protect these plants and animals. A complete list of Arkansas’s rare species can be found on the ANHC website along with a Rare Element Search Engine to research the status of plants and animals in the poster.

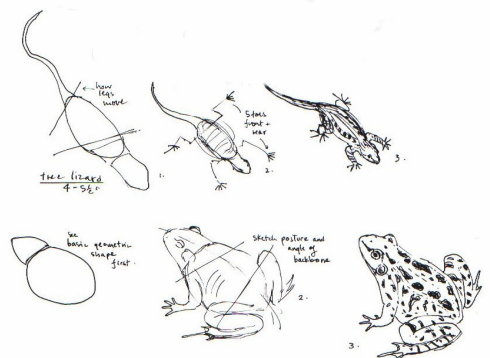
Maps and driving directions to all the protected natural areas managed by the ANHC are also available on the website. Lorance Creek Natural Area in central Arkansas has a trail and boardwalk to take you into a bottomland hardwood forest. Virtual tour of some sites are also available on the website.



www.naturalheritage.com

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.



Giant Cane is also sometimes called “switch cane”. Dense tall patches of the plant are called “canebreaks”. It is a very nutritious natural forage for cattle, rich in phosphorus, calcium, and protein.

Resources

Books

- Arkansas and the Land by Thomas Foti & Gerald Hanson
- Leapfrogging Through Wetlands by Margaret Anderson
- Wading Into Wetlands by National Wildlife Federation
- WOW! The Wonders of Wetlands by Britt Eckhardt Slattery
- Swamp Life by Theresa Greenaway

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
Arkansas Game & Fish Commission—endangered animals in Arkansas
- <http://www.mawpt.org/default.asp>
Ark Multi Agency Wetlands Planning Team—special teacher’s section
- <http://www.nwf.org/education/>
National Wildlife Federation—information for educators
- <http://www.epa.gov/owow/wetlands/>
EPA wetlands site –special teacher and student sections

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