

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.

## Glade

Glades occur as rocky, open areas with exposed rock and little or no soil. Glades have no canopy or significant shrub layer, however, the herbaceous communities on these sites are highly diverse and variable. A single glade can even have several “microhabitats” that often include a number of species considered to be sensitive or rare in Arkansas.

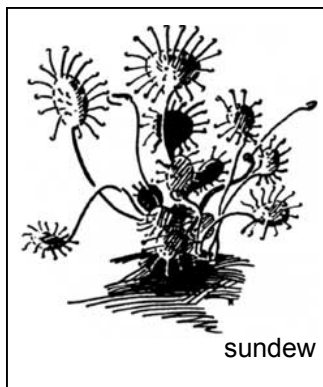
Variations in glades are related to soil depth and the type of bedrock (sandstone, limestone, dolomite, shale) that lies beneath. Glades with deeper soils are more prairie-like with dominant plants such as little bluestem and milkweed. Sites with very thin soils are dominated by plants such as broomsedge and lichens.

Even though glades are characterized as dry, they often have pockets of water or water sources (places where water contained in the ground oozes slowly to the surface and forms a pool) nearby that support species such as sphagnum moss.

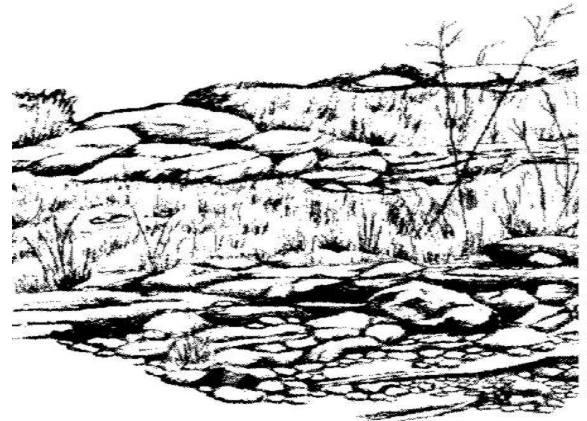
Other factors, such as the water chemistry, fire history or the presence of certain invertebrates support unusual insectivorous plants such as sundews and bladderworts.

Glades support species that can not be found in any other type of ecosystem, therefore many of them are rare.

Animals living in glades are adapted to survive through avoidance or tolerance of the intense radiation (directly from the sun, and indirectly, by conduction from the substrate rocks and soil); extremes in temperature; and dry soil.



Several of the animals common to Arkansas’s glades are more usually associated with the arid southwest region of the U.S. Like these deserts, reptiles can sometimes dominate the vertebrate fauna.



### 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

In World War II, children in the United States were encouraged to collect milkweed pods and turn them in to the government, where the fluffy silk was used to stuff life vests and flying suits. .

Arid – lacking moisture, especially having insufficient rainfall to support trees or woody plants.

Bedrock – solid, unweathered rock lying beneath surface deposits of soil.

Dolomite – carbonate rock composed chiefly of the mineral dolomite, similar to limestone but somewhat harder and heavier.

Gorge – to eat greedily; to fill to the point of distension.

Herbaceous - without woody stems; describes plants or plant parts that are fleshy and wither after each growing season.

Limestone - sedimentary rock formed from the skeletons and shells of ocean organisms that consists chiefly of calcium carbonate.

Margin – a fairly narrow line or space forming a boundary; an edge and the area immediately adjacent to it; a border.

Nectaring – drinking or consuming nectar.

Sandstone – a sedimentary rock formed by the consolidation and compaction of sand

Shale - a dark fine-grained sedimentary rock composed of layers of compressed clay, silt, or mud, having the property of splitting into thin layers parallel to its bedding planes.

## 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:

The species name *striatus* for the Eastern chipmunk refers to its strips.

The coyote genus name is *Canis* which refers to its relationship to all canines such as dogs.

The cedar waxwing is *Bombycilla cedrorum*

**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:

Timber Rattlesnake—*Crotalus horridus*

- **Kingdom** - *Animalia*—animals
- **Phylum** - *Chordata*—vertebrate
- **Class** - *Reptilia*—reptiles
- **Order** - *Squamata*—snakes and lizards
- **Family** - *Viperidae*—snakes
- **Genus** - *Crotalus*—rattlesnakes from the Latin *crotalum* or “rattle”
- **Species** - *horridus*—specifically the timber rattlesnake—refers to the “horrible” venom

Explore additional aspects of taxonomy and observation skills by challenging students to find representatives from the four classes of vertebrates in the poster (reptile, bird, mammal, amphibian), or to identify vertebrate and invertebrates.

**Common names**—don’t forget the fun of also exploring the origins of common names for plants and animals. For example, the word “chipmunk” comes from the Native American Algonquian word “atchitamun” which means “one who descends trees headlong.”

The name “yucca is derived from “yuca,” a Carib Indian name for the cassava or tapioca plant of the euphorbia family. The connection with starchy cassava roots is that yucca buds and young flower stalks are also roasted for food.

Milkweed gets its name from the profuse, milky white sap that flows from any broken part.

The term “wort” in the name pipewort comes from the Anglo-Saxon word “wort” which means “plant.”

Students can research the origins of other names. A web source is “Animal Diversity Web” <http://animaldiversity.ummz.umich.edu/site/index.html>.

## Additional Information and Activities

### Real Animals & Cartoons

The roadrunner and the coyote in the glade are a good starting point for a discussion about the differences between cartoon animals and real animals. Younger students can be encouraged to research the real animals, then compare and contrast them to the cartoon characters. Older students and even adults may not be aware of how their attitudes about nature are influenced by things they have seen in cartoons. Even Disney movies inaccurately convey the message that predators (wolves, bears) are “bad” and cute furry animals (rabbits, mice) are “good”. Older students can search out additional examples watching cartoons for false information.



### Counting Tarantulas

In 2004, the ANHC launched its first “citizen science survey”, asking the general public to report sightings of the native Texas brown tarantula. Since this is the only tarantula species known to occur in Arkansas and the only big, hairy spider, citizens around the state did a great job of spotting them. This was the first survey of its kind for the state and in addition to new details about tarantulas, the locations are also providing ANHC staff with clues about possible locations for rare glade habitat.

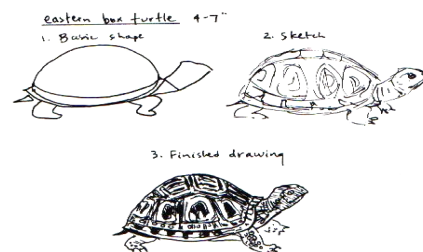


Details and downloads about tarantula and the survey can be found on the ANHC website at

<http://naturalheritage.com/biota-survey/tarantula/>

### 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.



The Eastern collared lizard, sometimes called the “mountain boomer”, is one of the few lizards that run upright, using only its hind legs.



## Resources

### Books

Arkansas and the Land by Thomas Foti & Gerald Hanson

Roadrunner's Dance by Rudolfo Anaya

Lizards for Lunch: A Roadrunner's Tale by Conrad J. Stora,

Young Naturalist Guide to Butterflies by Latimer, Nolting, and Wright

An Interview with Harry the Tarantula by Leigh Ann Tyson

The Tarantulas (Wildlife, Habits, and Habitats) by Carl R. Green

The Field Guide to Wildlife Habitats of the Eastern U.S. by Janine M. Benyus

### Websites

<http://www.naturalheritage.org>

Arkansas Natural Heritage Commission—lesson plans, books, rare species info, maps

<http://educators.fws.gov/>

U.S. Fish & Wildlife Service—federal lists of endangered species, information for educators

<http://www.mawpt.org>

Multi agency wetlands planning team site — look in “classification of wetlands—slopes -sandstone glades”

### 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