

## These Animals Play it Cool When Fire Sweeps Through the Woods

(bolded words in text indicate key words and concepts)

### Student Information:

Fire plays an important role in longleaf pine forests. Most critters in this forest have developed ways to escape the flames.

### Teacher Information:

Like most people, you were probably raised on the words of Smokey Bear. Because of his message, most people have grown up believing that all fires are devastating and must be kept out of the woods. And who can forget the horrifying scene from Walt Disney's *Bambi*, where fire almost consumes Bambi and friends? In longleaf pine forests, little of the message by Smokey or Disney holds true. In fact, fire is an essential element in regulating many processes, maintaining biodiversity and perpetuating the longleaf pine forest. These fires are unlike the dramatic fires we have been seeing in the western United States. Instead, fires in longleaf pine forest are small fires that creep along the forest floor; burning only the dried grasses, fallen **pine needles**, pine cones, etc (called **detritus**).

Most critters in the longleaf pine forest have developed mechanisms to cope with the frequent fires of this forest. The gopher tortoise plays a key role in helping animals escape fire. Although greatly exaggerated for this picture, numerous insects, reptiles and mammals use the **burrow** of the gopher tortoise as **refuge** during a fire. In particular, we see the southern toad, eastern hog-nosed snake (also called spreading or puff adder), the eastern coachwhip, oak toad, cotton rat, eastern slender glass lizard (also called glass snake), five-lined race runner lizard, box turtle, velvet ant (also called cow killer), gopher frog, cottontailed rabbit and even the wily Virginia Opossum (also called the grinner) heading to the gopher tortoise burrow to escape the fire.

Many of these critters may use this cool burrow as a year-round residence while others use it only temporary. In fact, over 120 different species of animals and insects depend on the gopher tortoise directly or indirectly. For this reason, the gopher tortoise is considered a **keystone species** of longleaf pine forests. Specific **food web** dynamics (**trophic levels**) can be observed exclusively in these burrows. For example, the gopher tortoise cave cricket (like the gopher tortoise scarab beetles) eats the fiber-rich **dung** (also called **scat**) of the gopher tortoise. In turn, the giant wolf spider (not pictured) eats the cave cricket. Field mice both live in the burrows and use it to cache food stores (like seeds and acorns). The eastern diamondback rattlesnake **preys** on the field mouse and, in turn, is preyed upon by the eastern indigo snake. The gopher tortoise tick (not pictured) is a **parasite** (harmful to its host) and **endemic** (meaning found exclusively) to gopher tortoises. Note that gopher tortoises are not found throughout the entire **range** of longleaf pine forests.

**White-tail deer**, mourning doves and **bobwhite quail** simply run or fly ahead of the flame front. Insects like the tiger swallowtail and cloudless sulfur butterflies, as well as red-winged grasshoppers either fly ahead of the flame front or fly up to the safety of the tree crown. Birds such as the great crested flycatcher take advantage of this smorgasbord of insects. The fox squirrel simply climbs up a tree and moves to the safety of the canopy while the fire passes. Some plants of the longleaf pine forests like wiregrass or native legumes (not pictured) depend on fire to help stimulate the flower production they need to reproduce.

**Key Words and Concepts:** bobwhite quail, burrow, detritus, dung, endemic, food web, keystone species, parasite, pine needles, prey, range, refuge, scat, trophic levels, white-tail deer.