

Tree Squirrels in Mississippi

The eastern gray squirrel and fox squirrel are rodents belonging to the family *Sciuridae*. We think the gray squirrel, *Sciurus carolinensis*, and the fox squirrel, *Sciurus niger*, came to North America from the Old World by way of the ancient land bridge across the Bering Straits (which now separates Alaska from Siberia). Today we find squirrels in Europe, Asia, Africa, North America, and South America.

The gray squirrel is often called "the cat squirrel" because of its "cat-like" call. The fox squirrel is sometimes called "red squirrel." But that is confusing, because there is the "red squirrel," *Tamiasciurus sp.*, of the western states. The fox squirrel probably got its name because its color is similar to that of a fox.

The gray squirrel has a head and body 8 to 10 inches long, with a hairy tail of 7 to 10 inches. Some gray squirrels have weighed up to 1½ pounds, although they average just slightly over 1 pound. Mostly they are grayish, but some are black or albino. Although color phases may vary, Mississippi has only one subspecies of the gray squirrel, *S. carolinensis*. In Mississippi most black squirrels are fox squirrels, although you may find some black "gray squirrels." These are common in some northern states.

The fox squirrel is larger than the gray squirrel, weighing about ½ to 2½ pounds. It reaches a body and head length of 10 to 15 inches and has a tail length of 9 to 14 inches. It has a black-brown-orange color combination, which makes up a common grizzled rusty color. We see two subspecies of the fox squirrel in Mississippi. One, *S.n. bachmani*, has the black mask and white nose, ears, and paws of fox squirrels common to uplands across Mississippi.

The other, *S.n. subauratus*, lives at the western border of Mississippi along the Mississippi River. The subspecies *S.n. subauratus* has two color phases. One is a glossy black phase, and the other color is a grizzled rusty phase, often lacking the black mask and white appendage coloration characteristic of the upland fox squirrel, *S.n. bachmani*.

Fox squirrels in Mississippi have two distinct color variations. One is the white nose and ears common on fox squirrels of the pinelands, and the other is the glossy black fox squirrels common to the Mississippi River Delta. The black squirrel is a color phase of our Delta fox squirrel.

At times, the question arises as to whether a squirrel is a gray or fox. The gray squirrel normally has white tips on the long tail hairs, while the fox squirrel's tail is tipped with rusty orange or dark hairs. A gray squirrel's head is more rounded than a fox squirrel's, and its ears are long and more pointed. Color of the paw sole also varies between gray and fox squirrels. Gray squirrel's paw sole color is pinkish, while paw sole color of the fox squirrel is black.

Some of the most distinguishing characteristics between gray and fox squirrels are in the skeletal features. The gray squirrel has a smaller skeleton and tiny teeth in front of the premolars of the upper jaw. After cooking, the bones of gray squirrels are white, while fox squirrel bones are pinkish-orange.

Family Life

Research indicates two major breeding and rearing seasons, although some young are raised throughout the year in Mississippi. The first litter of young is normally born

from January through March, and the second litter follows from June through August.

Studies also found spring-born females are likely to bear a spring litter the following year and skip the summer breeding period. A summer-born female normally does not breed in the spring but has a litter the following summer. Most adult females raise two litters per year. The summer rearing season is usually more successful.

Mating habits indicate gray squirrels are promiscuous, while fox squirrels prove to be monogamous (having one mate). The gestation period is 45 days for fox squirrels and 44 days for the gray squirrel. A normal litter contains about three young. Male squirrels usually do not participate in family affairs after mating.

Spring breeding depends heavily on the quantity and quality of food available in autumn and winter. Often a good mast crop is followed by a good squirrel crop. This is one reason there are ups and downs in squirrel numbers.

The blind, deaf, and hairless litter is born in trees, either in hollowed den trees or in nests built of leaves and twigs. Gray squirrels weigh about ½ ounce at birth, are half an inch long with no teeth, and have closed ears and eyes. Fox squirrels when born are pinkish-purple, and their "vibrissae," or whiskers, stand out.

Late in the fifth week, the baby squirrel has a full coat of new body hair. At about 6 weeks of age, it wanders about the den, eating young leaves and buds. The mother starts weaning the young in the seventh week and continues until the squirrels are about 10 to 12 weeks old. The average lifespan for squirrels in the wild is about 18 months.

Parasites and Diseases

Squirrels are usually hardy little animals, and parasites and diseases worry hunters probably more than the squirrels. Botfly larvae (or "wolves") may be the most common pest in the South but seldom occur in the North. Mange, or "scabies," is a skin condition that causes bald spots on squirrels. It normally occurs more in late winter and early spring and is not as severe in healthy animals with a good food supply. Squirrels also commonly have ticks, fleas, chiggers, and warty growths (fibroma), but these usually aren't serious.

Occasionally we find rabbit fever, tapeworms, roundworms, internal protozoa, and other rodent pests. Of the predators, owls, hawks, snakes, foxes, and bobcats are the most pronounced, but they have never proven destructive to a squirrel population and should be kept to prevent overpopulations and diseases. Man, through habitat destruction, has been a more serious enemy than any disease, parasite, or natural predator.

Habitat and Food

The gray squirrel's habitat needs often differ from the fox squirrel's by requiring denser and larger acreages, away from forest openings. In Mississippi, the fox squirrel is more commonly found on the ridges and in predominantly pine woodlands. The gray squirrel occurs more frequently in the stream or branch bottoms in Mississippi.

Both squirrel species have similar feeding habits. The more desired food (hardwood mast) is important to successful squirrel production. Oaks, beech, and hickories are extremely important food sources for squirrels and offer a high carbohydrate content. Preferred spring and summer foods include ash, elm, gum, holly, hackberry, ironwood, magnolia, maple, mulberry, and pine. Squirrels eat some leaves, and they love buds in early spring. They also eat insects, eggs, seeds, and forbs (weeds).

Common trees and their relative food values to squirrels

<i>Tree</i>	<i>Value of Fruit</i>	<i>Value of Buds</i>
Ash		Medium
Beech	High	
Black cherry	High	
Dogwood	Medium	
Elm	Low	Medium
Gums:		
black,	High	
Tupelo	High	
Gum: red	Low	Medium
Hackberry	Medium	
Hickory	High	
Locust	High	
Magnolia	Medium	
Maple	Medium	Medium
Oaks:		
white,	High	Medium
red,	High	Medium
water	High	Medium
Pine	Medium	
Red mulberry	High	
Sweetbay	Medium	
Sweet pecan	High	
Sycamore	Low	
Willow		Medium
Yellow poplar	Low	Medium

Squirrels fare best in large acreages of mixed hardwoods that are nearing or at maturity. You cannot keep these conditions indefinitely because of different tree environments and changing forest conditions. Recommended timber management practices include the following:

1. Leave as many large mast-producing trees as possible when cutting.
2. Keep fire out of hardwood bottoms.
3. Control cattle and hogs on forest land.
4. Encourage plants such as cherries, huckleberries, dogwood, persimmon, haws, poison ivy, rattan, muscadine, and grapes.
5. Leave several den trees per acre.
6. Build artificial nest boxes for squirrels. (See MSU-ES Publication 884, "Building Homes for Squirrels.")



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Information Sheet 635

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture.
Published in furtherance of Acts of Congress, May 8 and June 30, 1914. **JOE H. MCGILBERRY**,
Director (POD-02-05)