



Northern Flying Squirrel

Glaucomys sabrinus coloratus

History and Status

Biologists first discovered the northern flying squirrel in North Carolina in the early 1950s. The animal was already known from a wide area of northern North America as a common inhabitant of coniferous and mixed coniferous-deciduous forests. The squirrel was found in three areas of the southern Appalachians: Mount Mitchell, Roan Mountain and the Great Smoky Mountains. While biologists thought the squirrel likely occurred on high mountains throughout the region, it was not until the federal government declared the Carolina northern flying squirrel an endangered species in 1985 that funds became available to study its distribution. Subsequent studies found the species in five other mountain ranges.

Description

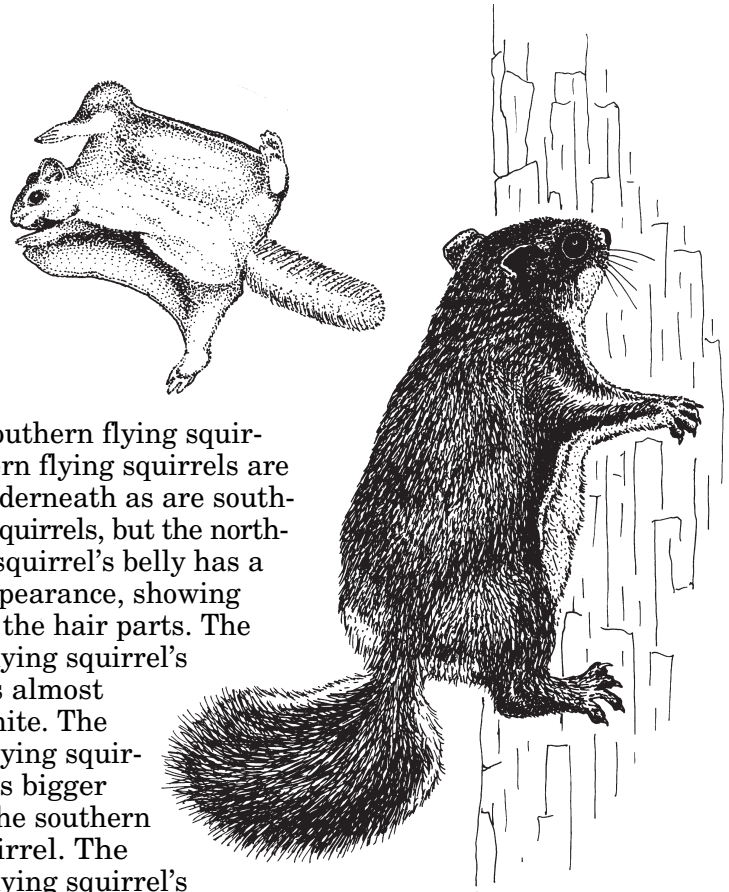
Northern flying squirrels are beautiful mammals indeed. Their fine fur and large eyes add to their attractiveness. Flying squirrels have brownish upper parts and white or creamy-white underparts. The most distinctive traits of flying squirrels are a loose fold of skin that stretches from their front to their back feet and a long, heavily furred tail with a flattened appearance. The fold of skin, or patagium, is so large that you can see it even when the animal is sitting on the ground.

While the northern flying squirrel resembles the common southern flying squirrel (*Glaucomys volans*), close inspection reveals important differences. The northern flying squirrel is much larger

than the southern flying squirrel. Northern flying squirrels are whitish underneath as are southern flying squirrels, but the northern flying squirrel's belly has a mottled appearance, showing gray when the hair parts. The southern flying squirrel's belly fur is almost entirely white. The northern flying squirrel also has bigger feet than the southern flying squirrel. The southern flying squirrel's hind foot is usually less than 1¼ inches long, while the northern flying squirrel's hind foot is longer, often over 1½ inches long.

Habitat and Habits

The northern flying squirrel dwells on North Carolina's highest mountains. Here it finds the cool, wet northern coniferous and deciduous forest that it prefers. Home is an old woodpecker hole or some other tree cavity. The squirrel builds a distinctive nest of fine shredded yellow birch bark. Other squirrels shred bark for their nests, too, but usually mix in other plant material such as sedges, ferns and mosses. The northern flying squirrel also constructs stick nests in the dense foliage of conifer limbs. The lining of these nests, however, is shredded birch bark. An individual squirrel may build two or three nests and often shares nests with other squirrels.



Northern flying squirrels are nocturnal. Their day begins just before dusk. Eating is often the squirrels' first nightly activity. They do not keep food in their nests, however, and take off from their nest right at dark to a favorite feeding area. Flying squirrels can travel quickly. They sail from the tops of trees by spreading all four legs and gliding to the ground or the base of nearby trees. The tail is an effective rudder for steering.

The northern flying squirrel eats many different kinds of foods. Some of its favorite foods are fungi, and not just the familiar mushroom. Other kinds of fungi called mycorrhizal fungi



Range Map:
Rare ■

grow in association with plant roots in forests. Their fruiting bodies are called *truffles* and are found underground. Mycorrhizal fungi depend on animals like the northern flying squirrel to disperse their spores in the forest. So the northern flying squirrel spends a fair amount of time on the ground smelling out and digging up truffles. This squirrel also likes to eat certain kinds of lichens it finds growing on trees.

In spring, female northern flying squirrels give birth to two to four young. Occasionally the young are born during summer. The young squirrel is quite helpless at birth and depends completely on its mother's care. Eyes open when the squirrel is about a month old. Nursing stops about a month later. Young northern flying squirrels apparently stay with their mother for some time after weaning, gradually becoming more independent. It is not uncommon to find an adult female in early fall with almost fully grown, but immature, squirrels.

Range and Distribution

The northern flying squirrel is found across Canada and the northern United States, its range extending southward in the great mountain chains of North America. Disjunct, or separated, populations occur in the Rocky and Appalachian mountains. North Carolina is the southern extent of this species in eastern North America. In North Carolina the squirrel is isolated in small populations on the highest mountains. It had a wider range at these latitudes tens of thousands of years ago during glacial times.

People Interactions

Most North Carolinians never see the northern flying squirrel because it lives in the high mountains. Like its cousin, the southern flying squirrel, it sometimes moves into houses where it can

cause considerable damage to insulation, wiring and wallboard. As vacation and retirement homes are built higher and higher on mountain slopes, residents may become a bit more familiar with this nighttime squirrel.

We have affected the squirrels' habitat in several ways. Logging and subsequent fires during the early part of this century changed large areas of high elevation forests in the Black Mountains and Great Balsam Mountains. These forests are still recovering from that disturbance. The balsam woolly adelgid, an insect pest, has infested and killed most of the mature Fraser fir stands in North Carolina. Fortunately for the squirrel, it can also live in northern hardwood, red spruce, and Canada hemlock forest. Air pollution has affected North Carolina's mountain forests, but its effect on the northern flying squirrel is not known. The squirrel feeds on fungi that efficiently transport nutrients and heavy metals. It also feeds on lichens, some of which are very sensitive to air pollution.

References

Hall, E. R. "American Flying Squirrels," in *The Mammals of North America* (John Wiley & Sons, 2nd ed., 1981).

Handley Jr., C. O. "A new flying squirrel from the southern Appalachian mountains," *Proceedings of the Biological Society of Washington*, 1953, vol. 66, pp. 191-194.

Weigl, Peter D. 1990. "Fly By Night Refugees," *Wildlife in North Carolina* (February 1990).

Credits

Written by Allen Boynton.

Illustrated by J.T. Newman.

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NORTHERN FLYING SQUIRREL

Classification

Class: Mammalia

Order: Rodentia

Average Size

Length: 10 $\frac{3}{4}$ to 12 $\frac{1}{4}$ in.

Weight: 3 $\frac{1}{2}$ to 4 $\frac{1}{4}$ oz.

Food

Fungi, particularly mycorrhizal fungi, lichens, conifer and hardwood seeds, fruits, insects, tree buds, and some animal matter.

Breeding:

Gives birth to litters of 2 to 4 young following a gestation of 37 to 42 days. One litter per year, usually in May or June, but sometimes later.

Young:

Weigh about $\frac{1}{4}$ of an ounce and are about 2 $\frac{3}{4}$ inches long at birth. Eyes open on day 32, weaning occurs at about 2 months.

Life Expectancy:

Some northern flying squirrels live for 5 or 6 years, but most do not live that long.