

The Flying Squirrel

Submitted to: The Northwest Wildlife Preservation Society

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Source: Ontarios Niagra Escarpment Monitoring Program homepage:
<http://www.escarpment.org/Monitoring/flyingsquirrels.htm>

*I realize there may be a copyright restriction on using photos, but wasn't sure which sites would be restricted so I thought it'd try because this picture was particularly cute!

Summary

There are 25 sub-species of flying squirrels that live in North America and two main types: the northern and southern varieties. The northern flying squirrel lives throughout most of Canada, except for the central prairies and the extreme north. The Southern variety lives in very small, scattered pockets of southeastern Canada. Since its habitat is already very fragmented, it is particularly at risk to habitat loss. The northern variety will be focussed on here because this is the type found in the Pacific Northwest.

For detailed range maps of all sorts of flying squirrel sub-species, see the Grey-Bruce Northern Flying Squirrel research project homepage listed in the bibliography.

Characteristics

The scientific name for the northern flying squirrel is *glaucomys sabrinus*. Glaucomys means silver or grey, mys means mouse, and Sabrina is Latin for river nymph. They are often noticed in riparian areas, which are areas near streams and rivers. Their colors range from tan to cinnamon and they have a white belly. They are approximately 30 centimeters long and weigh about 139 grams. They are also nocturnal, which means they mostly come out at night and they sleep during the day. Their big black eyes help them to see better at night, and their call is a squeaky ‘pisp pisp pisp’ noise.

You might be surprised to find that, despite their name, the flying squirrel does not really fly at all! Its front and back legs are connected with a thin layer of furry skin that allows them to glide downward from branch to branch. This membrane is called the patagium, and it hangs down like a robe when the animals are sitting. When they fly, the membrane catches the air and acts like a kind of built in parachute. They can glide for up to a maximum of 90 meters, and can make turns in the air using their large, fluffy tails to steer. As they reach their destination branch they use their forelimbs to grab onto it.

Flying squirrels are omnivores, which means they will eat almost anything. Some of their favorite foods include maple sap, moths, junebugs, nuts, berries, seeds, bird eggs, buds, flowers, and lichens. They sometimes store food in the ground for winter. They also eat truffles, which are a special type of fungi that live underground. These fungi play an important role in the forest ecosystem by recycling nutrients from decomposing matter and supplying it to plant roots in the soil. At the same time, the fungi depend on the plants for their own survival. This symbiotic relationship allows the fungi to help keep the soil healthy, which in turn keeps all of the plants and trees functioning well. As the squirrels dig them up, transport them to storage sites, and eat them, they help the fungi reproduce by spreading spores around the forest. The fungi are reliant on animals such as the flying squirrels to spread their spores through feces and on their fur. The soil, the truffles, the plants and the squirrels all rely on each other for survival. This is an example of how different parts of the forest ecosystem are interdependent, and a good reason to keep forests in tact; if even a small part of the system is removed, this change can affect the forest in complex and often unpredictable ways.

Habitat

Old growth forests make the best habitats for the squirrels because they are dense, allowing for easier ‘flights’ between trees. The thick old growth canopy allows flying squirrels to hide from predators that might be flying overhead. The squirrels tend to live in coniferous rather than deciduous areas because the bumpy bark on coniferous trees is easier for them to climb around on. The squirrels are quite hardy and can survive in second growth forests as well, but their densities have been found to be considerably higher in old growth forests, presumably due to the higher availability of both food and nesting sites.

Old growth forests provide the best variety of tree types, ages and structures, for both nest sites and nesting materials. The squirrels need this variety because they may build their nests both inside and outside of trees. Snags, partially dead trees, understory, and decomposing logs are their main nesting sites. Cavity nests in tree trunks are used during breeding season. The squirrels do not make their own cavities, and therefore rely on cavities that have already been made by species such as woodpeckers or that have been hollowed out by bugs. They construct their outside nests with materials such as bark, twigs, leaves, lichen, moss, old mans beard and witches broom.

In the winter, ground nests are used so that the squirrels can be close to their food stores. Ground nests also tend to be warmer where snow can be used for insulation. Both types of nests are normally south-facing, presumably to take advantage of maximum sunlight. They have also been seen 'keeping warm' by cuddling together in witches brooms, which are bunches of thin branches often found on spruce trees. Flying squirrels sometimes share their nests with other squirrels, and seem fairly transient, treating tree cavities like 'hotels' rather than permanent houses. They may even change trees up to 20 times in one year!

Lifecycle

Breeding territories are different sizes for male and female squirrels; the females average around 3 hectares and the males average around 12 hectares. Female ranges never overlap with those of other females. Territories are identified by scent and are chosen based on how much food there may be, and where or whom their mate is. Flying squirrels breed during the spring months, and have their babies around May or July. Like many other rodents, flying squirrels are born hairless and blind. The average litter size is 1-4, and they have only one litter per year. Their average lifespan is approximately 4 years, and predation is usually the cause of death. However, their natural breeding cycle allows populations to be restored within three years.

Threats

Flying squirrels are normally hunted by owls, hawks and other birds of prey, and by carnivorous mammals such as martens, bobcats and weasels. However, housecats seem to be the biggest threat to the animals. Habitat loss due to clearcutting is also problematic; while they can survive in second growth forests, clearcuts and partially rejuvenated sites leave little in the way of nesting sites or food for them. Because they are omnivorous their survival is not particularly limited by food, but they seem to require a broad variety of nesting sites throughout the year.

Why should we help and what can we do to help?

A key ecological role that flying squirrels maintain is their ability to spread fungus spores. The fungi are crucial to the forest ecosystem because they decompose matter and allow nutrients to get to plant roots. Another ecological role that they play is that they are prey to many other species - but housecats are not a natural predator, so keep your cats indoors at night!

One of the best ways to learn about flying squirrels is to observe them up close. Flying squirrels may come to bird feeders at night, but if you want to see them, using a flashlight might scare them away. Instead, put a red light by the bird feeder so as not to bother them. You can also support their habitat by building nest boxes. Using the websites below might help you find out where flying squirrels have been seen recently, so check them out - seeing one may be as simple as taking a walk through the forest!

Certain subspecies of flying squirrels are listed as endangered in some areas, but the northern flying squirrel is not technically at risk in Canada. Still, flying squirrels are only one of hundreds of species that survive best in old growth environments, so it is important to participate in conservation efforts to save such forests. Since they use tree cavities made by other species, saving potential nest sites such as snags and trees with cavities is a particularly good thing to support where partial clearcuts are threatened or exist, or on your own property. There are many things that are not known about the northern flying squirrel, so saving their habitat can help scientists, ecologists, wildlife managers and the public in general understand more about them. Supporting non-profit organizations is one way to ensure that research efforts towards forest conservation can continue.

See the Canadian Wildlife Federation's 'wild about gardening' webpage listed in the bibliography for detailed instructions on how to build nest boxes.

Other Interesting Facts

- In some places, flying squirrels are also called "fairy diddles!"
- Flying squirrels are said to be quite sociable and make good pets - but make sure you learn about them first! (use the information in the bibliography below)
- After landing on a tree, the squirrels will usually scurry to the opposite side before going down the tree. This is probably a way of keeping out of sight of predators.
- The truffles that the squirrels eat are underground, and the squirrels are thought to rely on smell to find them, but it is possible they may remember where they are located through other indicators, such as decaying wood.

Bibliography

Alaska Department of Fish and Game

<http://www.adfg.state.ak.us/pubs/notebook/furbear/nfsquir1.php>

Canadian Museum of Nature Homepage

<http://www.nature.ca/notebooks/english/flysquir.htm>

Canadian Wildlife Federation 'Wild About Gardening' Homepage.

http://www.wildaboutgardening.org/en/features/section2/flying_squirrel/flying_squirrel.htm

Flying Squirrel Central

<http://www.isidore-of-seville.com/flyingsquirrel/2.html>

Contains lots of informative links to flying squirrel sites, photos, and other information resources, including how to keep them as pets.

Gerrow, Shawn 1994. Flying Squirrels – Elusive Forest Friends. *Conservation*. 17:4

Nova Scotia Department of Natural Resources Homepage

<http://www.gov.ns.ca/natr/wildlife/conserva/17-04-1.htm>

Glaucomys.org: Grey-Bruce Northern Flying Squirrel Research Project Homepage

<http://www.glaucomys.org/rangemaps.html>

Contains a detailed assortment of range maps for all sorts of sub-species of flying squirrels.

Mount Allison University Homepage

<http://www.mta.ca/~kvernes/mammalweb/fsquirrel/fsquirrel.htm>

Weaselhead.org

<http://weaselhead.org/profile/index.php?s=567>

Ontario's Niagra Escarpment (ONE) Monitoring Program Homepage

<http://www.escarpment.org/Monitoring/flyingsquirrels.htm>

Wikipedia: the Free Encyclopedia

http://en.wikipedia.org/wiki/Flying_squirrel

Contains a link for each key word in the description of the squirrels.

