

Flying squirrel inventory methods

Summary of a guide "Liito-orava, tietoa lajista ja kartoituksesta (2020)" (in Finnish), produced in the Flying Squirrel LIFE project (LIFE17NAT/FI/000469) via a co-operative process between project beneficiaries lead by the Finnish Association for Nature Conservation.

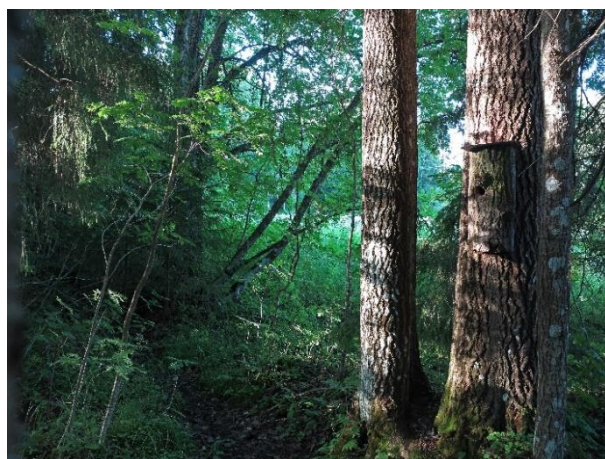
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The Siberian flying squirrel (*Pteromys volans*) is strictly protected and considered as vulnerable (VU; High risk of endangerment in the wild) within the European Union. Therefore, flying squirrel inventories are an important part in land-use planning and forestry.

Flying squirrels are nocturnal in their activity and sleep the days in their nests. Each individual have several separate nests in use, typically either in cavities of large aspens (*Populus tremula*) made by woodpeckers or in twig dens in spruces (*Picea abies*) made by common squirrels (*Sciurus vulgaris*), but they may also nest in nest boxes or buildings. Average home range size is eight hectares for females and 60 hectares for males.

Flying squirrels favor old mixed forests with large spruces and deciduous trees. Spruces give shelter for the flying squirrel, while aspen and other deciduous trees are important food sources. The diet of flying squirrels consists of leaves, catkins, buds and seeds.



Flying squirrels favor forests with large spruces and deciduous trees. Flying squirrels may also use nest boxes as safe nesting places. Photo: Benjamin Pöntinen

The flying squirrel is a nocturnal and silent rodent, which makes it rather difficult to directly observe. Therefore, the most accurate sign of the occurrence of the flying squirrel are fecal pellets accumulating under large trees. Pellets are about a rice grain in size and have typically a yellowish color in winter and spring. In summer and autumn, pellets are darker and more difficult to find.

The flying squirrel inventory is usually carried out by a biologist or nature surveyor. Beginners should consult a specialist to confirm the findings. Recommended tools are a pencil, a notebook and a camera or smart device. The most suitable inventory season is from February to May. Flying squirrels must not be unnecessarily disturbed during the breeding season (often 1st April - 31st July).



Before the inventory, it is recommended to search data from old inventories and observations (e.g. Finnish Biodiversity Information Facility, <https://laji.fi>) and look for maps and aerial photos from the area.

In the field, start from the edge of the forest by checking the largest trees. Pay special attention to trees with cavities and twig dens. Save your observations directly on your GPS or smart device (<https://laji.fi/en>). It is also reasonable to send the observation data to the local ELY-Centre (Centre for Economic Development, Transport and the Environment, <https://www.ely-keskus.fi>).



Pellets of a flying squirrel. Photo: Vesa Hyyryläinen

Nests and pellets found in inventories can be used to determine the breeding sites, resting places, core areas and foraging areas of the flying squirrel.

Important concepts

Breeding sites and resting places

Basically, the breeding site of the flying squirrel is a site where the flying squirrel breeding occurs, and a resting place is where flying squirrels spend their daytime. The deterioration and destruction of breeding sites and resting places of the flying squirrel is prohibited in the European Union under the Habitats Directive (Article 12, Annex IV). The breeding site and resting place of a flying squirrel consists of the nest trees and surrounding trees that provide shelter and food.

Core area

Core area is the area where the flying squirrel spend most of its time. Core areas cover appr. 10% of the home range. Core area is usually larger than the area covered by the breeding sites and resting places.

Foraging area

Foraging area consists of one or several groups of deciduous trees close to the nest tree.

Home range

The home range of a flying squirrel consists of several breeding sites, resting places, core areas, foraging areas and movement corridors between them.



Potential habitat

Potential habitat is a forest with no observations of the flying squirrel but which, however, fulfils the habitat needs of the flying squirrel.

Movement corridor

The flying squirrel needs moving corridors when moving between the breeding sites or foraging places. Flying squirrels move effectively from tree to tree by gliding when the average tree height in forests reaches 10 meters and the distance between trees remain within a gliding distance of a 20-30 meters.

Legislation

The Siberian Flying squirrel is protected under the Nature Conservation Act (38§) and listed in Annex IV of the EU Habitats Directive (92/43/EEC). Therefore, the deterioration and destruction of breeding sites and resting places of the flying squirrel is prohibited in the European Union.

If the property owner or holder of special rights incurs significant inconvenience due to a prohibition laid down in Natural Conservation Act (49 §), the owner is entitled to full compensation from the State (53§). The demarcation of protected area requires a case-by-case expert and an interpretation by the authorities (ELY-Centre).



Guide "Liito-orava, tietoa lajista ja kartoituksesta (2020)" (in Finnish):
<https://www.sll.fi/app/uploads/2020/06/Liitis-kartoitusopas-A5-WEB-aukeamat.pdf>

Flying Squirrel LIFE project:

<https://www.metsa.fi/projekti/liito-orava-life/>

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