

## Flying Squirrel LIFE



## Excursion Report Estonia 3.-5.5.2022

Project Action F2, October 2022

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Would a flying squirrel get out from its cavity now?  
Photo: Eija Hurme



# Aim of the Excursion

- Flying squirrel (*Pteromys volans*) lives only in Finland and in Estonia in the European Union
- Excursion was targeted to project personnel. It is a good way to
  - Exchange knowledge between 14 Finnish and 4 Estonian project partners
  - See habitats of flying squirrels in North-East Estonia (Ida-Virumaa)
  - See examples of project activities



Photo: Arto Griinari Vastavalo.fi



JYVÄSKYLÄ



KUOPIO



KUOPION  
LUONNONTIETEELLINEN  
MUSEO



Suomen  
luonnonsuojeluliitto



METSÄKORRALDUSE  
BÜROO



KESKKONNAAMET



Elinkeino-, liikenne- ja  
ympäristökeskus



metsäkeskus





# Excursion program



- Three days 3.-5.5.2022 in Estonia:
  1. **Office day**/Monitor visit: meeting day in Tallinn & travel to North-East Estonia (Ida-Virumaa)
  2. **Forest day**/Monitor visit and excursion: visiting Species Protection Sites with old aspens, managed forest site in a limited management zone & nest boxes supporting safe nesting and moving connections
  3. **Forest day**/Excursion: visiting Lake Peipsi, Iisaku Nature Centre, a recreation forest area in Iisaku village & return to Tallinn
- This report focuses on two forest days 4.-5.5.2022
- The event was warmly and effectively hosted by Estonian Environmental Board (Keskkonnaamet)

Main range of the flying squirrel in Finland and Estonia.  
Map: Metsähallitus

**Excursion was related to an official Monitor Visit of the Flying Squirrel LIFE project**  
30 representatives participated the event, covering the majority of partner organizations



LIFE Program supports the Natura 2000 network for nature protection in the European Union

Photo: Anna Tuominen

7.12.2022



# In Estonia, flying squirrel is critically endangered

- Main reason for this unfavourable situation is loss and fragmentarion of suitable habitat
- Flying squirrel is listed in the EU's Habitats Directive II and IV(a)
  - Each breeding site and resting place is strictly protected: they must not be deteriorated or destructed
- In Estonia, Species Protection Sites are delineated by the Environmental Agency. Species Protection Sites are surrounded with a buffer of Limited Management Zone
  - All known flying squirrel locations are inventoried annually
  - During the Flying Squirrel LIFE project, also potential forests have been inventoried and new occupied forests are found





# Forest day 1: Species Protection Site

- Species Protection Site often include many nesting trees and no forestry measures must be done there
- Most important areas where flying squirrels are present in North-East Estonia, are mature forests with many large aspens
- Typically, flying squirrel forests have a special atmosphere and structure based on large trees and variation of tree species
  - For the flying squirrel, spruces are important trees for shelter and deciduous trees are used for food

Searching for flying squirrel's droppings under large aspens in a typical forest site for the species.

Photo: Eija Hurme





Teele Paluots/Metsakorralduse büroo (left) and Liisa Rennel/Estonian Environmental Board (right) searching for polypores.  
Photo: Eija Hurme

## Things to consider:

- Continuity of aspens as well as availability of different ages and structures in forests is important also to many other forest species than flying squirrel
- It has been considered that flying squirrel could have potential as an umbrella species: saving habitat networks for flying squirrel may offer habitats for other demanding forest species as well
- It takes decades for trees to gain maturity: time scale for functional habitat network is also important



# Forest day 1: flying squirrel friendly forest management

- Aim: improve forest structure for the future by supporting mixed forests while also reaching forestry goals of the landowner
- Action chain A6-C2-D1
- Volunteer private forest owners
- In 2022: total of 22 site plans ready & careful cuttings ready in 4 sites as planned

Teele Paluots/Metsakorralduse buroo (left) and Liisa Rennel/Estonian Environmental Board (second left) explaining the forest plan to Anne Grönlund/ELY centre of North Savo, Anne Laita/City of Jyväskylä and Tea Heikkinen/Finnish Forest Centre (right).

Photo: Eija Hurme



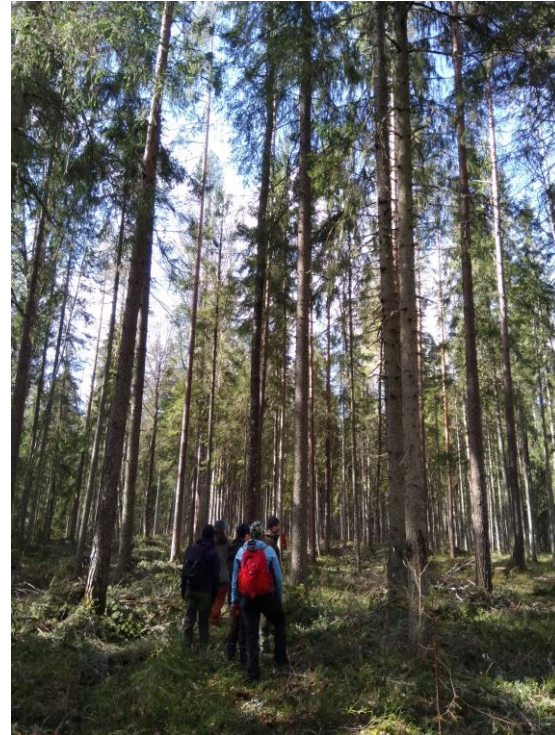


## Things to consider:

- Limited Management Zones are buffers for Species Protection Sites
- With careful planning, some forestry activities may be done in limited management zones
- Approval of EEB is needed, also landowner's perspective is heard
- Forest constructors need to learn new practices related to selective cutting methods

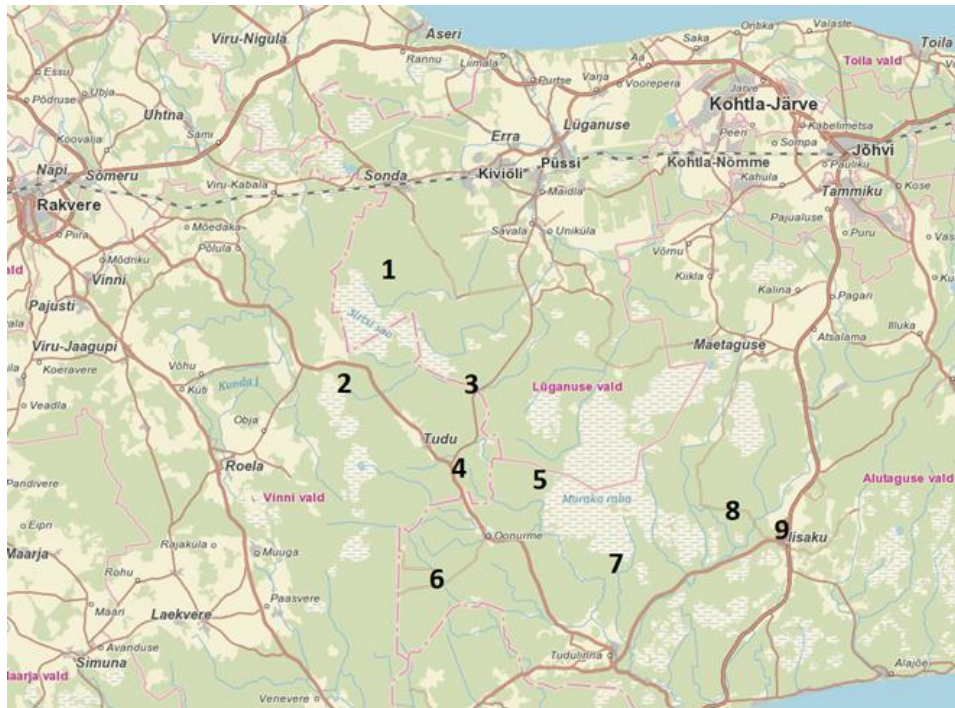
Arpo Kullerkupp/Erametsaliit (left) and Liisa Rennel/Estonian Environmental Board, among others evaluating selective cuttings.  
Photo: Eija Hurme

**Careful selective cuttings maintain moving connections between breeding sites and nesting places, and may even improve future forest structure**



Photos: Eija Hurme





Locations of groups of nest boxes in North-East Estonia.  
Map: Estonian Environmental Board

## Forest day 1: Nest boxes

- Flying squirrels need forested moving connections, but some connections may lack safe nesting sites
- Aim: 250 nest boxes on state-owned lands to support functional habitat network
  - Action chain A9-C4-D1
- Flying squirrels prefer safe nesting sites such as cavities in mature aspens (*Populus tremula*)
- In North-East Estonia, deciduous trees are abundant as well as woodpeckers, which make cavities



## Things to consider:

- Accepting nest boxes may take time until flying squirrels get familiar with them
- Monitoring will be done annually, also trail cameras are used
- Based on first monitoring experiences, many species can use nest boxes
  - Cavity nesting birds, wasps
- Condition of nest boxes will be checked regularly and repaired when needed

One of the 250 nest boxes put up for the flying squirrel in Estonia in the project.

Photo: Eija Hurme



# Forest day 1: Various droppings found



Flying squirrel.  
Photo: Anni Koskela



Brown bear.  
Photo: Anni Koskela



Grey Wolf.  
Photo: Eija Hurme





## Things to consider:

- For humans, easiest signs of flying squirrels' presence in a forest are its typical droppings (yellowish pellets)
- Bases of large aspens and spruces are checked
- Best time is spring, when ground cover is not yet full and droppings accumulated during winter not yet decomposed

Some typical yellowish droppings at the base of an aspen tree.

Photo: Eija Hurme





Excursion participants enjoying the scenery of Lake Peipsi  
with a dog trainer Lea Tummeleht (left) & Luka.

Photo: Anna Tuominen

## Forest day 2: Lake Peipsi & “the dog method”

- The idea of teaching dogs to recognize odour of flying squirrel is started in Finland, and further developed in this project
- A report of dog assisted flying squirrel inventories is published in May 2022, Finland, in English. See project publications under Action A2:

<https://www.metsa.fi/en/project/flying-squirrel-life/flying-squirrel-life-project-publications/>



## Things to consider:

- It seems that trained dogs can locate traces of flying squirrels better than humans in some cases:
  - Single droppings or urine marks invisible to humans
  - Old traces (about 2-3 years old droppings can be detected)
  - Unoptimal season or weather (outside spring or rainy days)
- Hopefully scientific research on skills of nature detecting dogs follow

A dog trainer Lea Tummeleht and her young nature detection dog Luka familiarizing with new people.  
Photo: Eija Hurme



## Forest day 2: Iisaku Nature Centre

- Represents nature of East Estonia and focuses especially of Alutaguse National Park
- Environmental education going on
- An exhibition of the flying squirrel will be built during 2023 (EEB)

Info table outside Iisaku Nature Centre introducing Alutaguse National Park. The Centre is very ecologically built with solar energy systems and roof with vegetation. Photos: Eija Hurme





# Things to consider:

- New generations:  
**how to increase hope?!**
- Guidance for professionals – could it be partly connected with environmental education or nature centres?
- Continuity in resources to develop and carry on effective environmental education - how to ensure the future?

Glide illustration in the Iisaku Nature Centre.  
Photo: Eija Hurme





## Forest day 2: Local recreation area in lisaku

- In lisaku, flying squirrels are met closest to human inhabitation
- From a tower on a hill, some visitors have seen flying squirrels gliding from tree to tree
- Forest in the hill represent typical characteristics of preferred forests

Udo Timm (EEB) guiding the group to lisaku Hill recreation area close to Alutaguse National Park.  
Photo: Eija Hurme





## Things to consider:

- Functional habitat network is essential for the flying squirrel
- Functional moving connection mean at least 10-15 metres high forests
- Narrow connections or rows of trees are risky as they increase:
  - Predator pressure
  - A risk for trees to fall down during storms and then break a moving connection

A view from a tower in Iisaku Hill showing a perspective for forested moving connections at the spatial landscape level.

Photo: Eija Hurme





## Forest day 2: Overview

- In Estonia, deciduous trees are abundant: long growing season with fertile soil enable fast growth of trees
- Availability of suitable habitats – mature forests with large aspens – may be limited
- Fragmentation effects mean that even good habitat patches may become too small and isolated from each other
- Future continuity of habitat mean that there should be new suitable habitats growing: habitat continuity in time

Excellent guides Liisa Rennel (left), Tõnu Laasi (middle) and Uudo Timm (right), Estonian Environmental Board, planning a route.

Photo: Anni Koskela



# Excursion Experiences



Photos: Anni Koskela



Photos: Eija Hurme





## Things to consider:

- Excursions are found extremely useful!
- It is important that people from different backgrounds and skills meet and have time to discuss
- Seeing the actual nature with local experts opens thinking
- Discussing of different perspectives often increase understanding → co-operation may improve
- In Flying Squirrel LIFE, more excursions in Finland and Estonia will be arranged in 2023 and 2024

Anni Koskela (left) and Ilkka Immonen (right),  
Metsähallitus, measuring a local huge aspen.  
Photo: Anni Koskela





Project's car "Mud frog" getting ready to new adventures.  
Photo: Eija Hurme





- Project's main website in Metsähallitus, Finland (Finnish, English, Swedish and Estonian): <https://www.metsa.fi/en/project/flying-squirrel-life/>
- Flying squirrel expert Uudo Timm interviewed in Estonian TV with rare videos of gliding flying squirrels (17.5.2022): <https://etv.err.ee/1608600508/lendoravate-pulmad>
- European Union's LIFE Programme: [https://cinea.ec.europa.eu/programmes/life\\_en](https://cinea.ec.europa.eu/programmes/life_en)

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