

Green moving corridors under wide electric powerlines

Action A6: Preparation of plans to maintain habitat network within managed forests

Deliverable: Forest plans for Estonian sites (DA6c)

31.03.2025



Flying Squirrel LIFE (LIFE17 NAT/FI/000469)

The project has received funding from the LIFE Programme of the European Union. The material reflects the views by the authors, and the European Commission or the CINEA is not responsible for any use that may be made of the information it contains.

Introduction

Habitat fragmentation is one of the biggest threats to the Estonian flying squirrel (FS) population. While the isolation caused by clear cutting based forestry recovers itself over time, the isolation caused by infrastructure objects (roads, power lines etc.) does not recover naturally.

The inventories of FS habitats have shown that in the border area with Russia FS tended to spread along a relatively narrow land strip between water bodies (Narva River and Lake Peipsi) and wide electric powerline corridors. This indicates that the powerline corridors could be a significant obstacle for FS to populate wider forested (and mostly protected) area in west and north from the powerline. Green corridors located at carefully selected locations could encourage FS to cross the powerline corridor as it prefers to move on tree branches and the foliage hides it from predators.

RMK made an agreement with powerline management company, designed and created two green corridors to improve the flying squirrel habitat connectivity. RMK will continue maintaining the moving corridors, which includes the replacement of planted trees (if necessary) and keeping the trees at safe height for the powerline. These green moving corridors are part of the wider network of moving corridors in the state forest that RMK established already in 2015.

The preparation and design of the corridors took place in 2023-2024 and planting of trees and bushes in spring 2024.

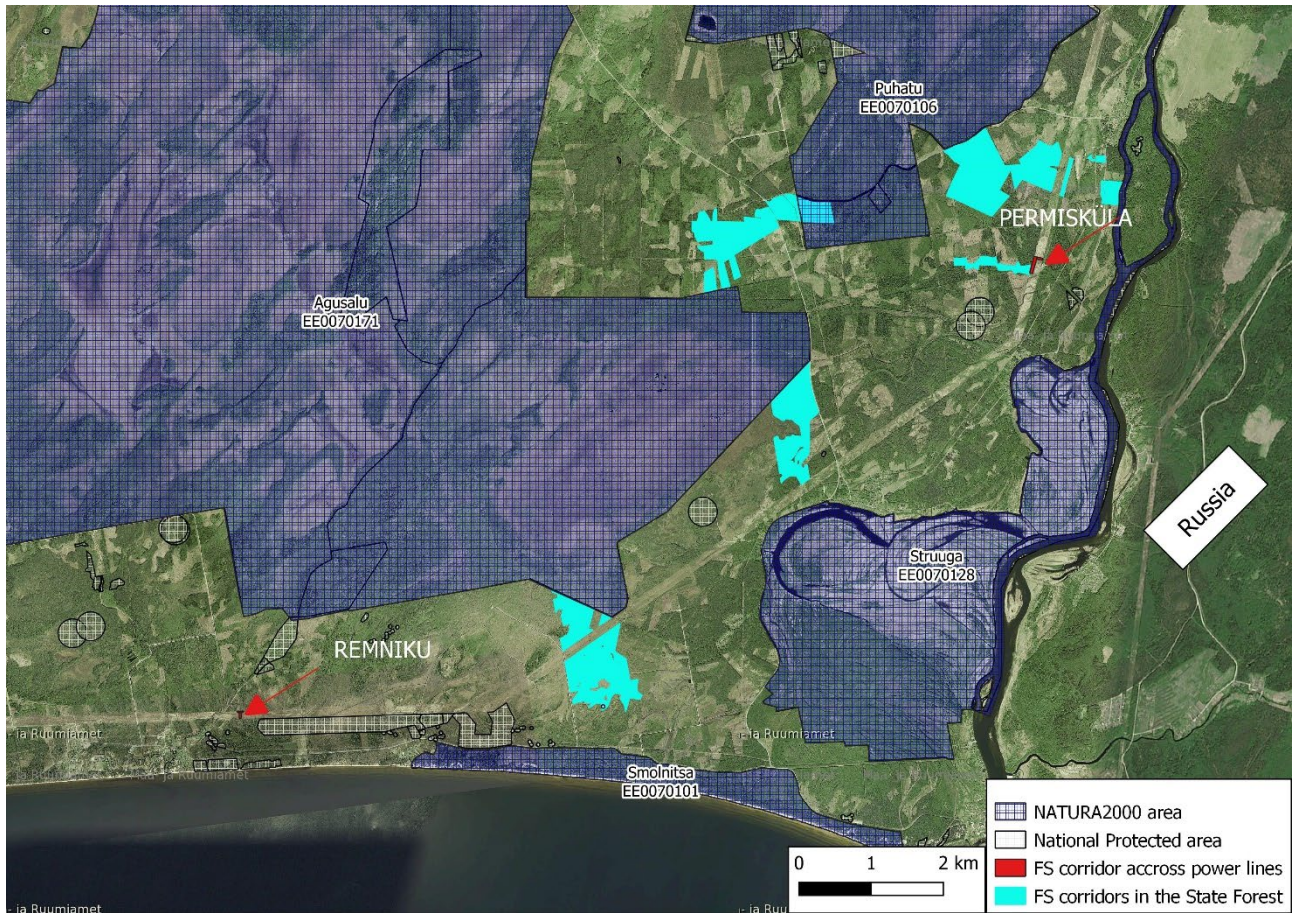


Figure 1. Location of green moving corridors across wide electric powerline in North-East Estonia.

Mihkel Järveoja

nature conservation projects coordinator

State Forest Management Centre





Flying Squirrel LIFE (LIFE17 NAT/FI/000469)

Project site: Permisküla

Summary of the following actions:

A6 Preparation of plans to maintain habitat network within managed forests

C2 Maintaining habitat network in managed forests

D1 Monitoring

Project site: **Permisküla**

Municipality, region: **Alutaguse, Ida-Virumaa**

Country: **Estonia**

Size of the project area (ha): **0,24**

Responsible organisation(s): **Estonian State Forest Management Centre (RMK)**

Was action implemented as planned in the proposal? **Yes**

Was action implemented in the same location than described in the proposal? **Yes**

Was C-action implemented according to the A-action's plan? **Yes**

General description of the area

The project site is a 120 m wide open area under a high-voltage power line (a power line corridor – PLC). It is assumed that the PLC could be a significant obstacle for flying squirrel to populate wider forested area in west from the PLC. In recent inventories (2022-2024) several new marks of flying squirrel were found east from PLC. This indicates that the project site is located on the most likely path flying squirrel uses when migrating from Russia to Estonia. Seven known flying squirrel sites are located within 4 kilometers distances from the project site. The project site is located near larger Natura 2000 areas and is parts of flying squirrel moving corridor network in the State Forest, which grants the connections to neighbor flying squirrel sites located west from PLC.

Action A6

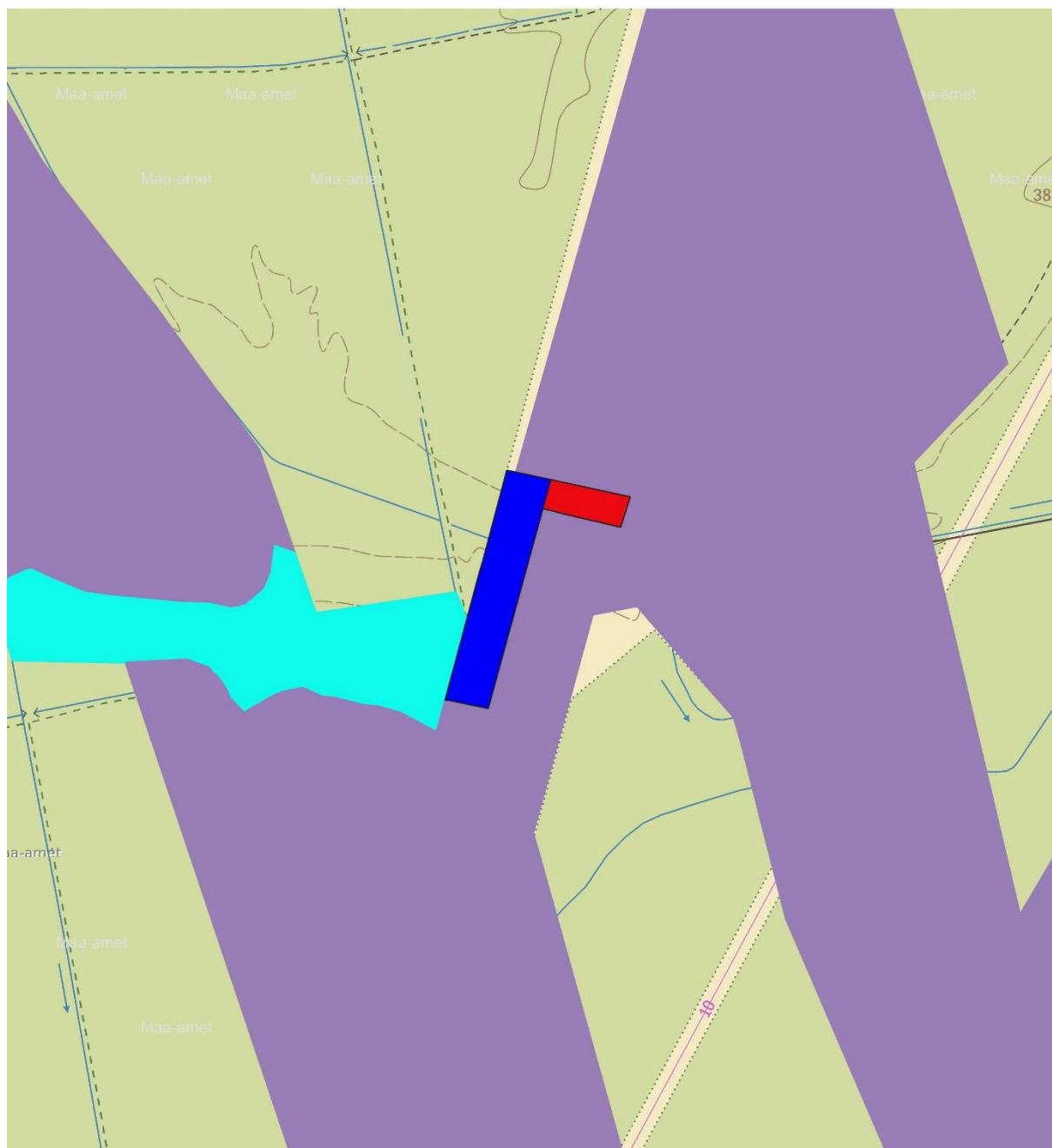
The aim of the forest management plan was to support the flying squirrel movement across the PLC in the east-west direction in the place where flying squirrel has most likely crossed the PLC already before as seen from the distribution pattern (and history) of flying squirrel habitats. RMK ordered an expert opinion from landscape architecture company for the corridor design. As agreed by RMK and power line company (Elering), the maximum height of trees and shrubs directly under the power line (22 m to both sides from the axis of the powerline) could be 3 m. In the immediately adjacent area (22-40 m to both sides from the axis), the maximum allowed tree height was 10 m. The width of the corridor was 30 m. RMK is obligated to keep the height of the trees at or below the maximum allowed height.



Site map

Project site: EE - Permisküla (relevant to actions A6, C2)

1: 5000



LEGEND

- Project site - FS moving corridor under power line
- Connection to the state forest (managed by RMK's own cost)
- Moving corridor network for FS in the state forest
- State forest





Action C2

Planting of low-growing trees and bushes were the selected forestry measures on the project site. The planting of low-growing shrubs and trees were carried out in 2024 according to the plan created in action A6, with some deviations in tree and shrubs species and numbers. Total number of 283 trees/shrubs were planted (3 *Salix fragilis*, 17 *Sorbus aucuparia*, 26 *Prunus padus*, 23 *Frangula alnus*, 14 *Juniperus communis* L., 200 *Salix viminalis* cuttings). Around the corridor were installed 16 wooden marking poles with 6 metal info signs.

Action D1

Flying squirrel inventory was carried out in the surrounding areas of the corridor in spring 2024 before planting. The results of the inventory assured the relevance of the planned actions. In autumn 2024, the survival of the planted bigger trees and shrubs was estimated: 21 out of 83 were dead. The survival will be monitored again in spring 2025.

Monitoring after the project

RMK will maintain the moving corridors after the end of the project as stated in the agreement with Elering until agreed otherwise. The maintenance includes the replacement of planted trees (if needed) and keeping the trees at a proper height. The moving corridors in PLC are part of the wider network of moving corridors in the state forest that RMK has established already in 2015. To monitor the usage of the corridors by FS is difficult. Since FS most likely will use the corridors only for crossing the PLC (they will not spend much time in the corridor), the probability of finding any signs of FS will be vanishingly small. However, RMK will continue monitoring the FS corridor network in the state forest (the continuity of the FS monitoring is ensured by RMK's FS strategy) and the positive effect of PLC crossing corridors can be seen from its results.

Outcomes of the actions

Management aims to maintain ecologically functional network for the flying squirrel habitats by connecting them with moving corridors. Ecological functions may be categorized to flying squirrel moving habitats.



Project site information	Area (ha)	Flying squirrel habitat (ha) *	Moving habitat (ha) **	Future habitat (ha) ***	Combination of flying squirrel conservation & recreation (ha) ****
Total project site area	0,24	-	0,24	-	-
Breeding sites and resting places	-	-	-	-	-
Feeding areas	-	-	-	-	-
Thinning	-	-	-	-	-
Selection cutting	-	-	-	-	-
TOTAL	-	-	-	-	-

* - **** see legend in the front page

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Flying Squirrel LIFE (LIFE17 NAT/FI/000469)

Project site: Remniku

Summary of the following actions:

A6 Preparation of plans to maintain habitat network within managed forests

C2 Maintaining habitat network in managed forests

D1 Monitoring

Project site: **Remniku**

Municipality, region: **Alutaguse, Ida-Virumaa**

Country: **Estonia**

Size of the project area (ha): **0,24**

Responsible organisation(s): **Estonian State Forest Management Centre (RMK)**

Was action implemented as planned in the proposal? **Yes**

Was action implemented in the same location than described in the proposal? **Yes**

Was C-action implemented according to the A-action's plan? **Yes**

General description of the area

The project site is a 120 m wide open area under a high-voltage power line (a power line corridor – PLC). It is assumed that the PLC could be a significant obstacle for flying squirrel to populate wider forested area in north from the PLC. In recent inventories (2022-2024) several new marks of flying squirrel were found south from PLC. Six known flying squirrel sites are located within 4 kilometers distances from the project site. The project site is located near larger Natura 2000 areas and is parts of flying squirrel moving corridor network in the State Forest, which grants the connections to neighbor flying squirrel sites located north from PLC.

Action A6

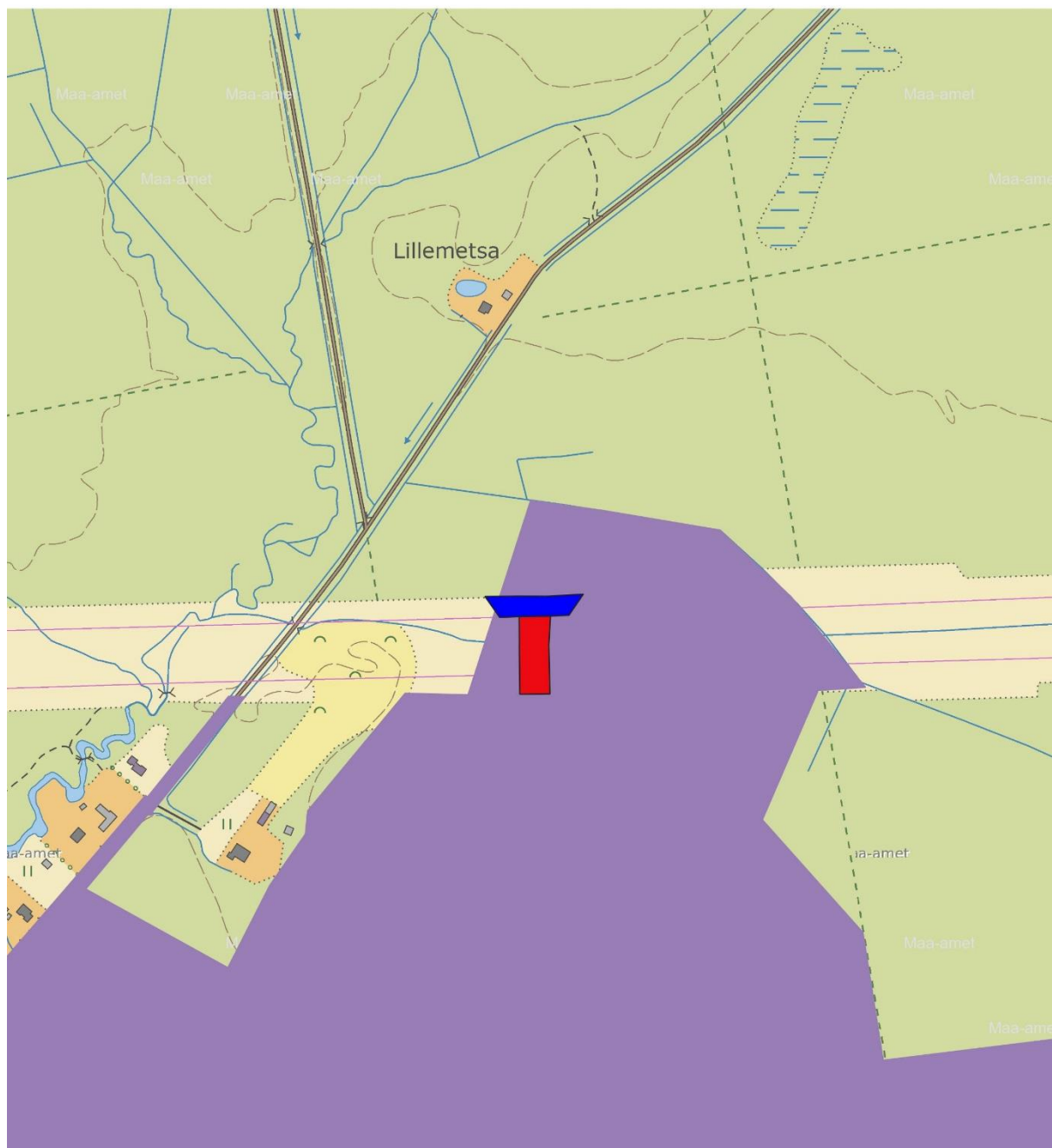
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Project site: EE - Remniku (relevant to actions A6, C2)

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LEGEND

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-  Connection to the state forest (managed by RMK's own cost)
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Action C2

Planting of low-growing trees and bushes were the selected forestry measures on the project site. The planting of low-growing shrubs and trees were carried out in 2024 according to the plan created in action A6, with some deviations in tree and shrubs species and numbers.

Total number of 265 trees/shrubs were planted (7 *Salix fragilis*, 14 *Sorbus aucuparia*, 27 *Prunus padus*, 17 *Frangula alnus*, 200 *Salix viminalis* cuttings).

Around the corridor were installed 16 wooden marking poles with 6 metal info signs.

Action D1

Flying squirrel inventory was carried out in the surrounding areas of the corridor in spring 2024 before planting. The results of the inventory assured the relevance of the planned actions. In autumn 2024 the survival of the planted bigger trees and shrubs was estimated: 7 out of 65 were dead. The survival will be monitored again in spring 2025.

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