Land cover variation in the forests surrounding Taevaskoja according to the MUC system and the Estonian vegetation classification

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Hypotheses

1. There are no large broadleaf trees at the measurement site.
2. The forest at the measurement site contains *Centaurea cyanus* (cornflower).
3. There are many plant species at the measurement site.
4. Orchids grow in the forest at the measurement site.
5. Blueberries (*Vaccinium myrtillus*) and lingonberries (*Vaccinium vitis-idaea*) can be found at the measurement site.
6. The vegetation at the measurement site is richer.
7. The forest at the measurement site contains *Cephalanthera rubra* (red helleborine).

Ground cover species richness

In the first area, there was no species diversity, as the herb layer consisted only of shrubs.
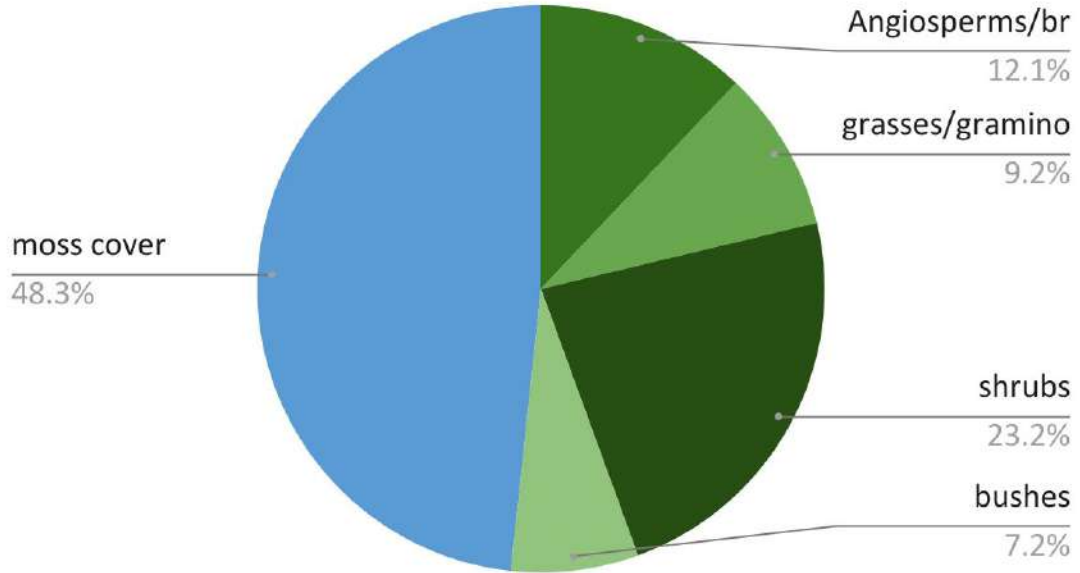
Ground cover (research area 1)

grasses/gramino
0.4%

shrubs
48.9%

moss cover
50.7%
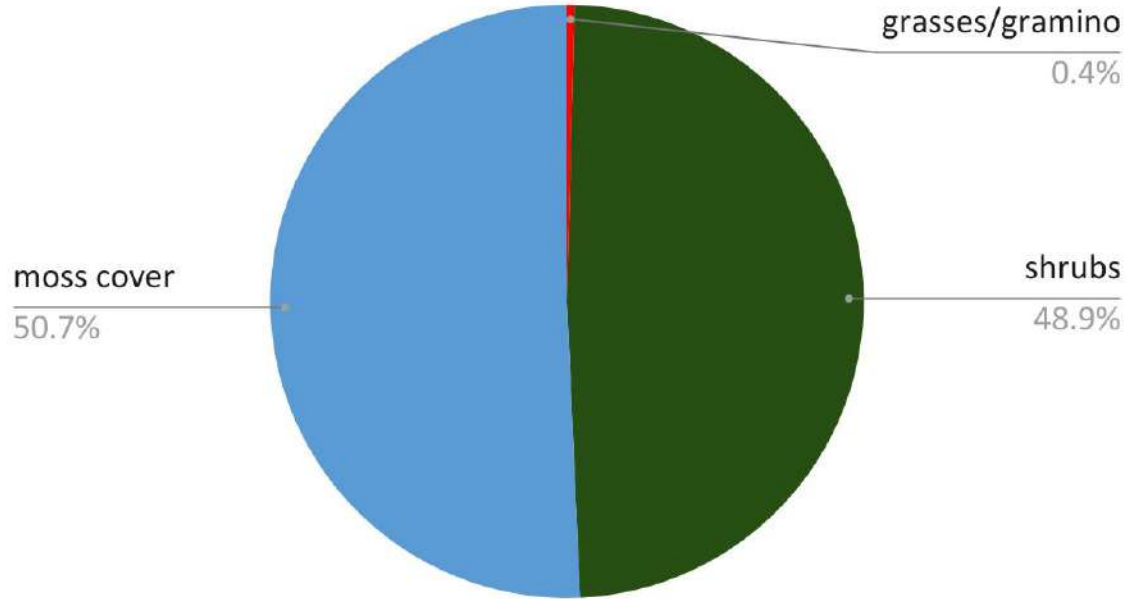
Ground cover species richness

In the second area, there were many more different plant species than in the first.
Most of the plant species were shrubs.

Ground cover (research area 2)

- Angiosperms/br 12.1%
- grasses/gramino 9.2%
- moss cover 48.3%
- shrubs 23.2%
- bushes 7.2%

GLOBE Protocol Selection

a. There were many hypotheses about the plants growing at the study sites. We found that the best method was the land cover protocol.

c. We used the GLOBE land cover protocol.

d. We used a 50-meter measuring tape and the same length of rope to mark the diagonals. Flags were placed at the ends of the diagonals and also in the center, where we took the coordinates. We measured the canopy coverage of trees with a densiometer and the tree heights with a clinometer.

Research area 1

The MUC code for the first research area is 0192 (Figure 4). Explanation of the MUC code: dense closed forest, evergreen coniferous forest, round crowns.

The forest type is a bog forest.

Research area 2

The MUC code for the second research area is 0193. Explanation of the MUC code: dense closed forest, evergreen coniferous forest, conical crowns.

The forest had less light, and the trees grew more densely.
The tree layer was dominated by spruces.

Hylocomium splendes

research area 1

joonis 1

Pleurozium schreberi

It is found in most drier forests, less often in moist, boggy, and swamp forests.

Dicranum scoparium

It is found in spruce forests and mixed spruce forests.

Research area 1 - species

Tree Layer: Scots pine, birch, Norway spruce.

Shrub Layer: Absent.

Bush Layer: Blueberry and lingonberry.

Herb Layer: One species: hairy woodrush.

Research area 2

The MUC code for the second research area is 0193. Explanation of the MUC code: dense closed forest, evergreen coniferous forest, conical crowns.

The forest had less light, and the trees grew more densely. The tree layer was dominated by spruces.
The forest type is a broadleaf forest.

Research area 2

Tree Layer: Norway spruce, Scots pine, birch, maple.

Shrub Layer: Spindle tree, rowan, common honeysuckle.

Bush Layer: Blueberry, lingonberry.

Herb Layer: 8 different species, with the most common being lily of the valley, hare's-foot fern, and wood sorrel.

Polytrichum commune

Carpet moss is found in forested areas becoming boggy, and less commonly in bogs.

2. uurimisala liigirikkus

Puurinne: harilik kuusk, harilik mänd, arukask, vaher.

Põõsarinne: paakspuu, pihlakas, harilik kuslapuu.

puhmarinne: mustikas, pohl.

Rohurinne: 8 erinevat liiki, neist arvukamad olid piibeleht, jänesekapsas, kattekold

Taimede ladinakeelsed nimetused

Samblad: kaksikhammas- *Dicranum scoparium* laanik- *Hylocomium splendes*

palusammal-*Pleorozum schreberi* karusammal-*Polytrichum commune*

Puhmad: mustikas- *Vaccinium myrtillus* pohl- *Vaccinium vitis-idaea*

Rohttaimed: metskastik- *Calamagrostis arundinacea*, kattekold- *lycopodium annotium*, piibeleht- *convallaria majalis*, karvanepiiphein- *luzula pilosa*, jänesekapsas- *oxalis acetosella*, leseleht- *maianthemum bifolium*, laanelill- *trientalis europaea*, kilpjalg- *pteridium aquilinum*

Põõsad: paakspuu- *frangula alnus*, pihlakas- *sorbus aucuparia*, harilik kuslapuu- *lonicera xylosteum*

Taimede ladinakeelsed nimetused

Puud: harilik kuusk - *Picea abies,* harilik mänd - *Pinus sylvestris*, arukask - *Betula pendula*

Panime veel tähele: Seened

Torikulised - *Polyporaceae*

pilvik - *Russula*

kärbseseen - *Amanita*

kukeseen- *Cantharellus cibarius*

Loomad: konn, ämblikud, sipelgad

Goodyera repens

- **Habitat:** In dry and boggy coniferous and mixed forests.
- It belongs to the III conservation category.
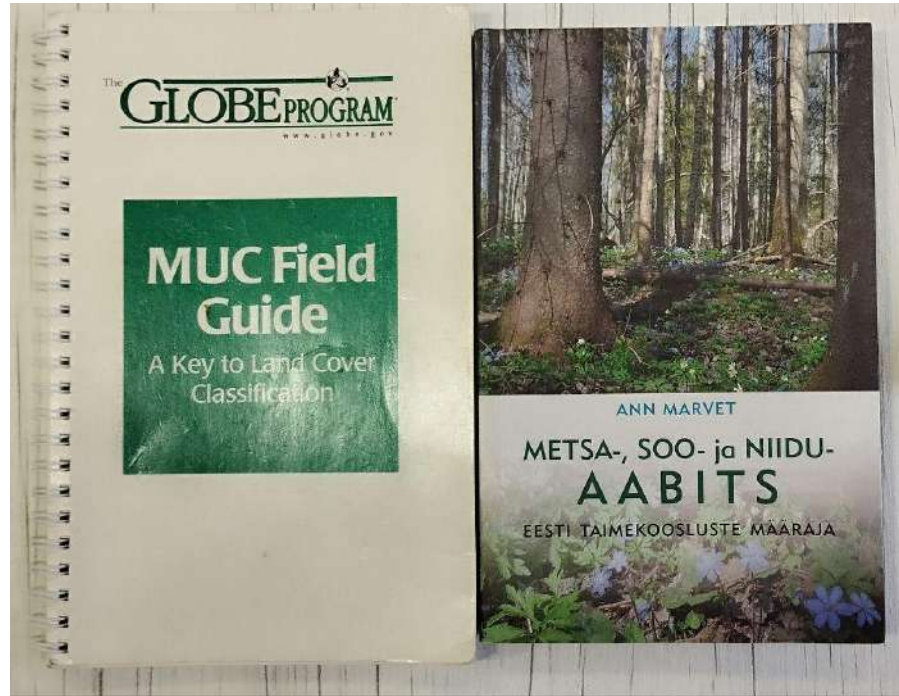
Discussions and Conclusions

- The plants observed in the first site included species such as kilpjalg (tortoise plant), palusammal (sphagnum moss), pohl (lingonberry), and piibeleht (lily of the valley), which are typically found in dry habitats. In contrast, the remaining herbaceous plants were typical of moderately moist environments. There were no species present that prefer very wet conditions or are found in boggy areas.
- Conclusion: At the first research area, the herbaceous vegetation was sparse, indicating that the soil is likely poor and dry. In contrast, the second research had a more average density of herbaceous plants, suggesting that the soil there is more fertile and moist. Additionally, a greater variety of species was found in the second location.
- In conclusion, next year, we could conduct a more detailed soil study in our research areas to better understand the soil composition and its impact on plant growth.

References

https://bio.edu.ee/taimed/

https://orhidee.ee/

Eesti taimede kukeaabits
2018, Toomas Kukk

Thank you