Protected liverwort *Odontoschisma denudatum* (Mart.) Dumort. ecology in substrate and forest stand scale in Southcentral Latvia coniferous forests: case study

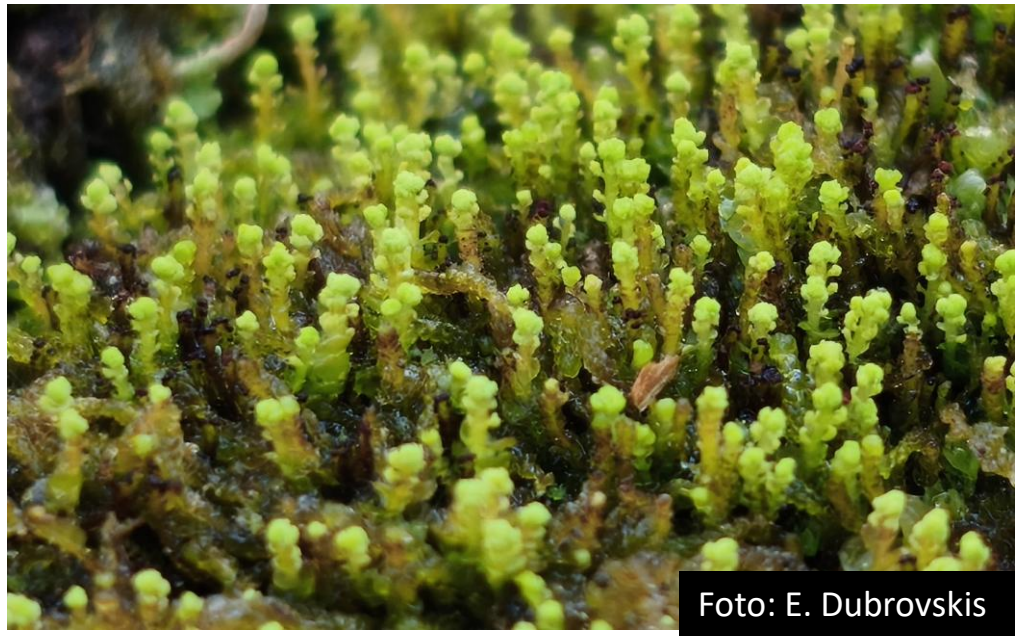

Foto: E. Dubrovskis

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Background (I)

- **Bryophytes are important forest elements in temperate zone**
- **Their role is not only related to nutrient cycling, preservation of water, but they are also important indicators of forest natural value**
- **Especially sensitive are liverworts, due to their evolutionary history, sensitivity to disturbance and changed conditions and their fragile biology (sensitivity to exposure, dryness).**

Background (II)

- ***Odontoschisma denudatum*** **is protected liverwort growing on logs in old-growth coniferous forests and black alder swamp forests.**
- **We are lacking the knowledge of *O. denudatum* ecology that would help us to plan sustainable forestry and nature conservation**

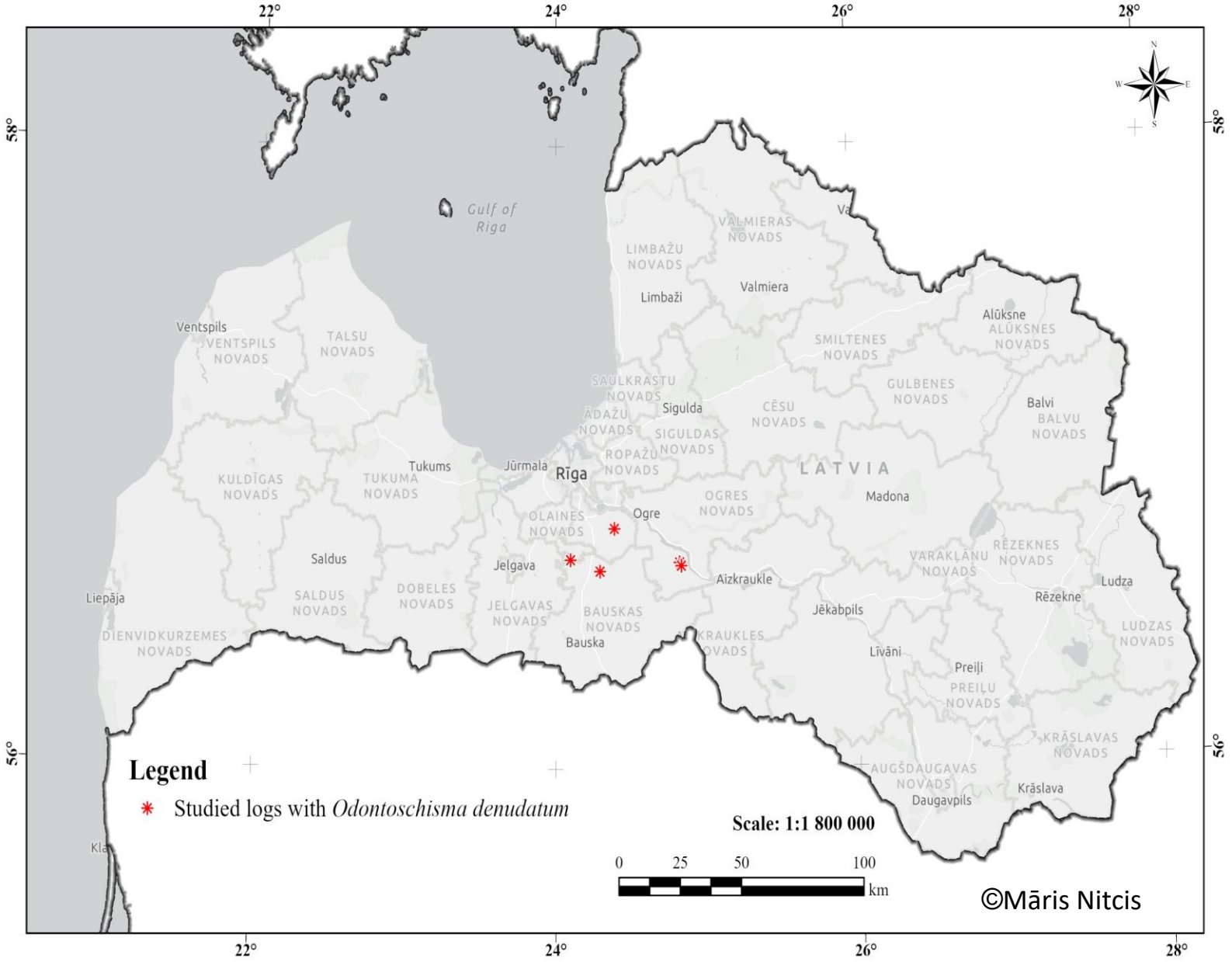
Aim

- Characterize *Odontoschisma denudatum* abundance in relation to log and forest stand characters in coniferous forests of South-Central Latvia

State forest registry and Latvian State forest data were used

Methodology

- 25 stands;
- data used from 18 stands:
  - 25 logs analyzed



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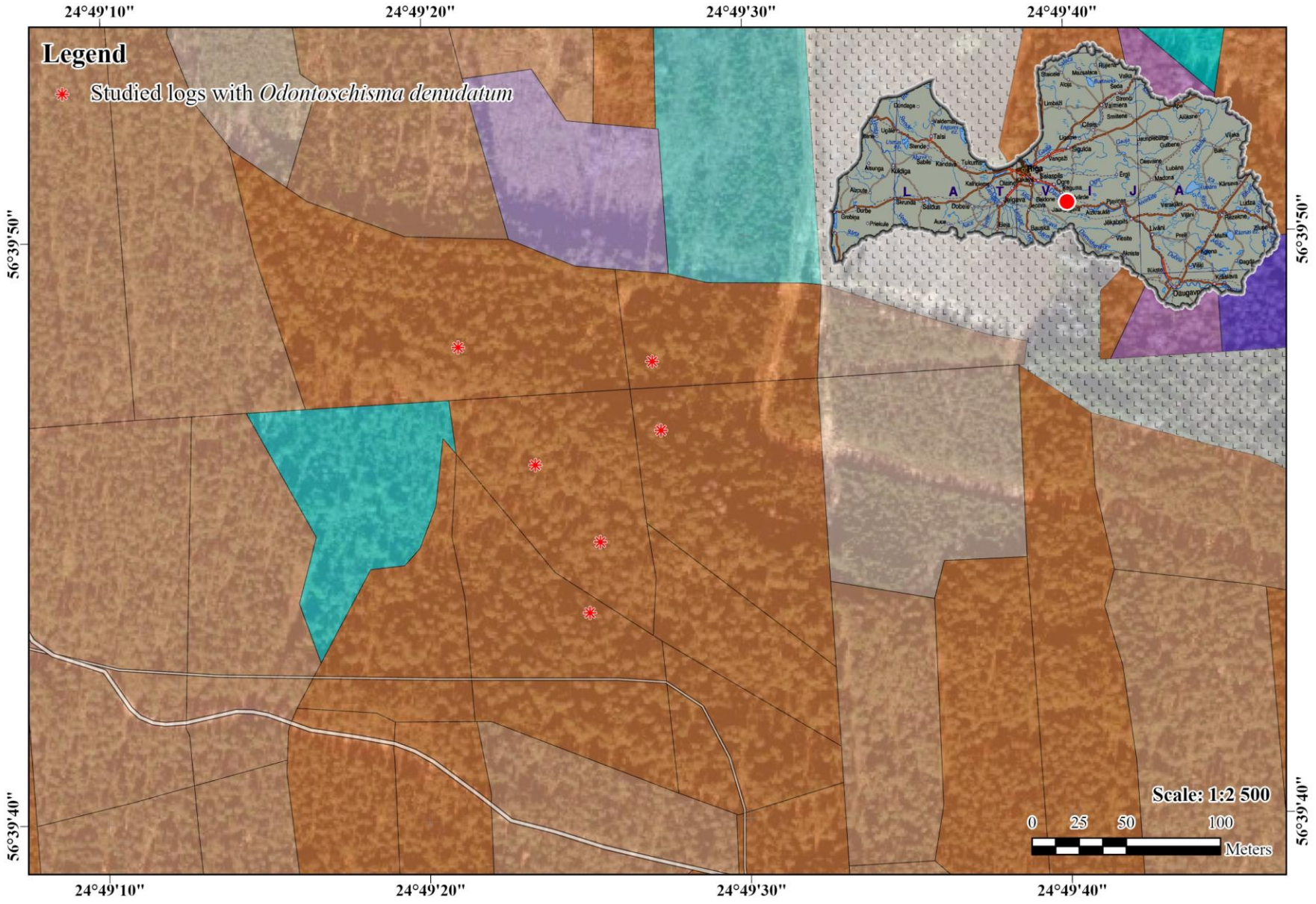
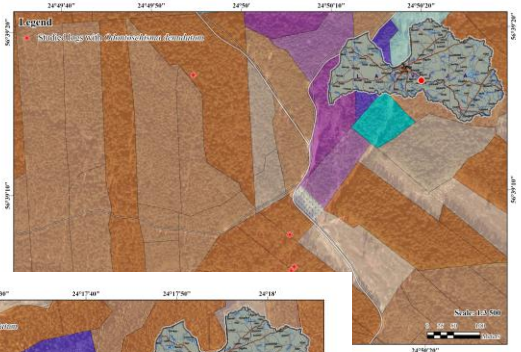
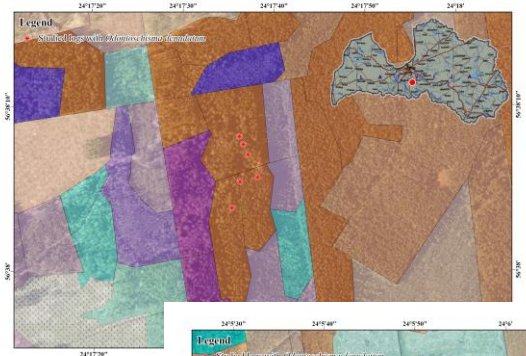
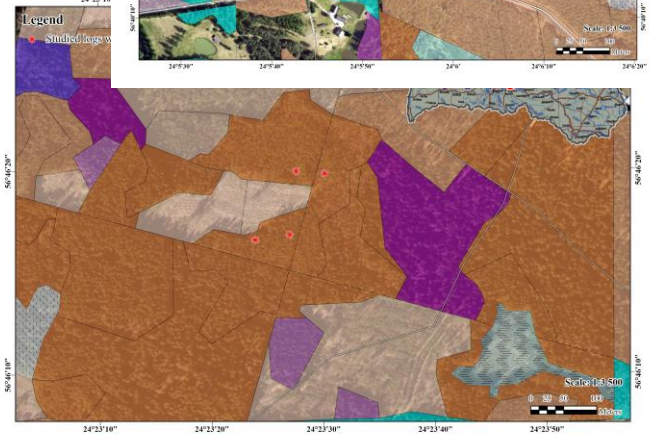








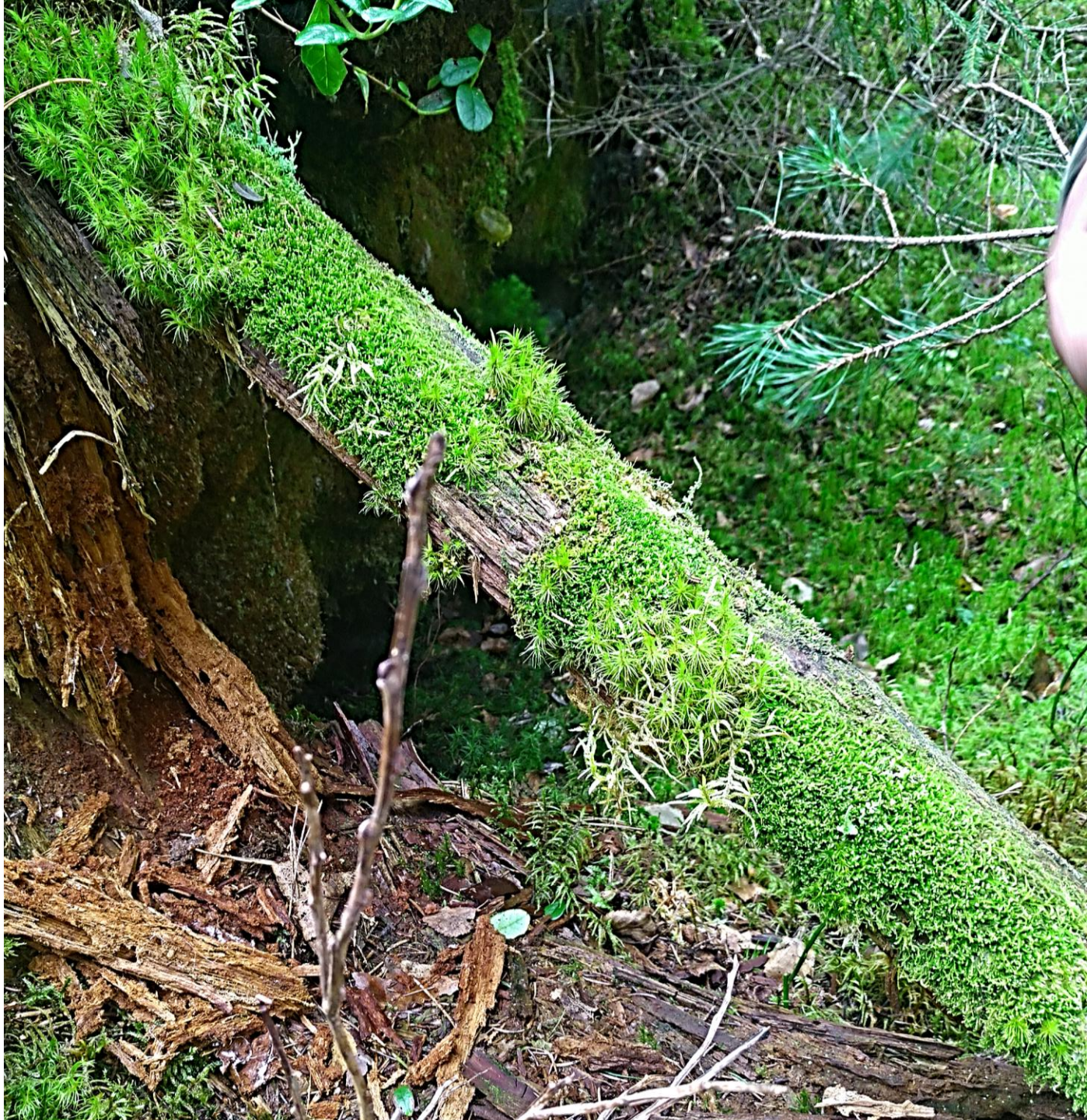
Results (I)

- All *O. denudatum* records were found only in depressions and logs (mostly average or strongly decayed) that shows species relation to humidity related factors in a local scale

Results (II)

- Each studied log with *O. denudatum* was found in a depression that was evaluated during the field work in a forest and all sites were part of a bigger forest patch.

- Studied *O. denudatum* population cover varied 5-15 000 cm^2



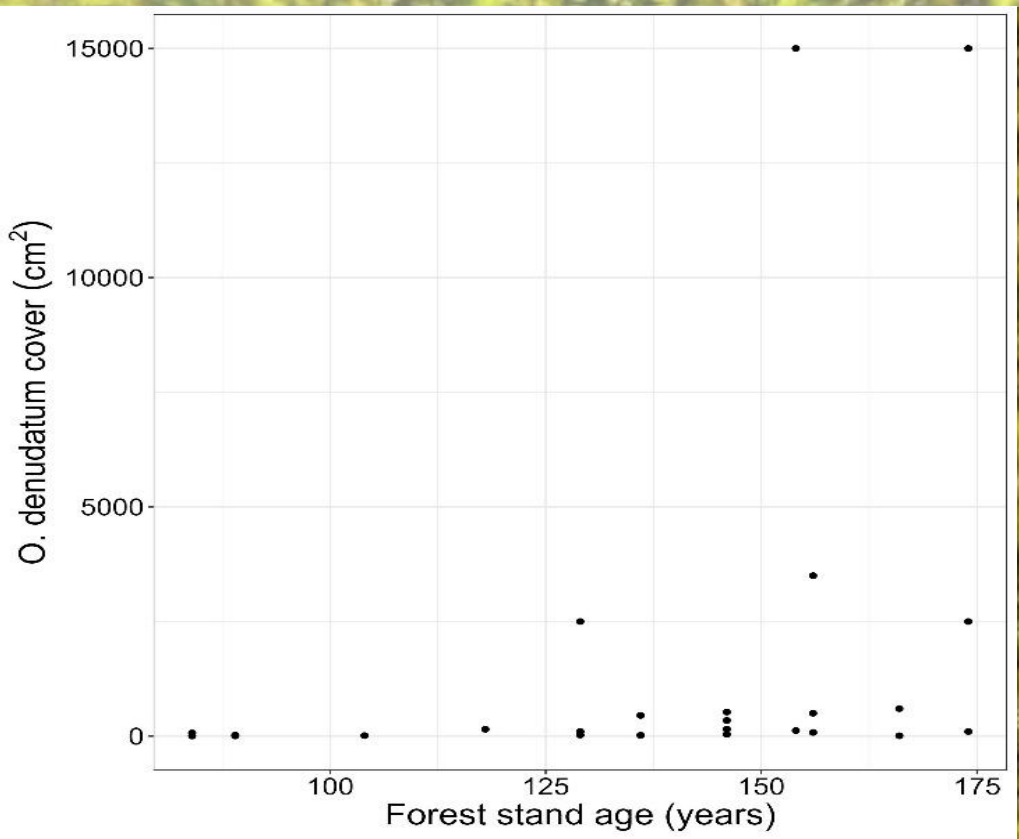
Results (III)

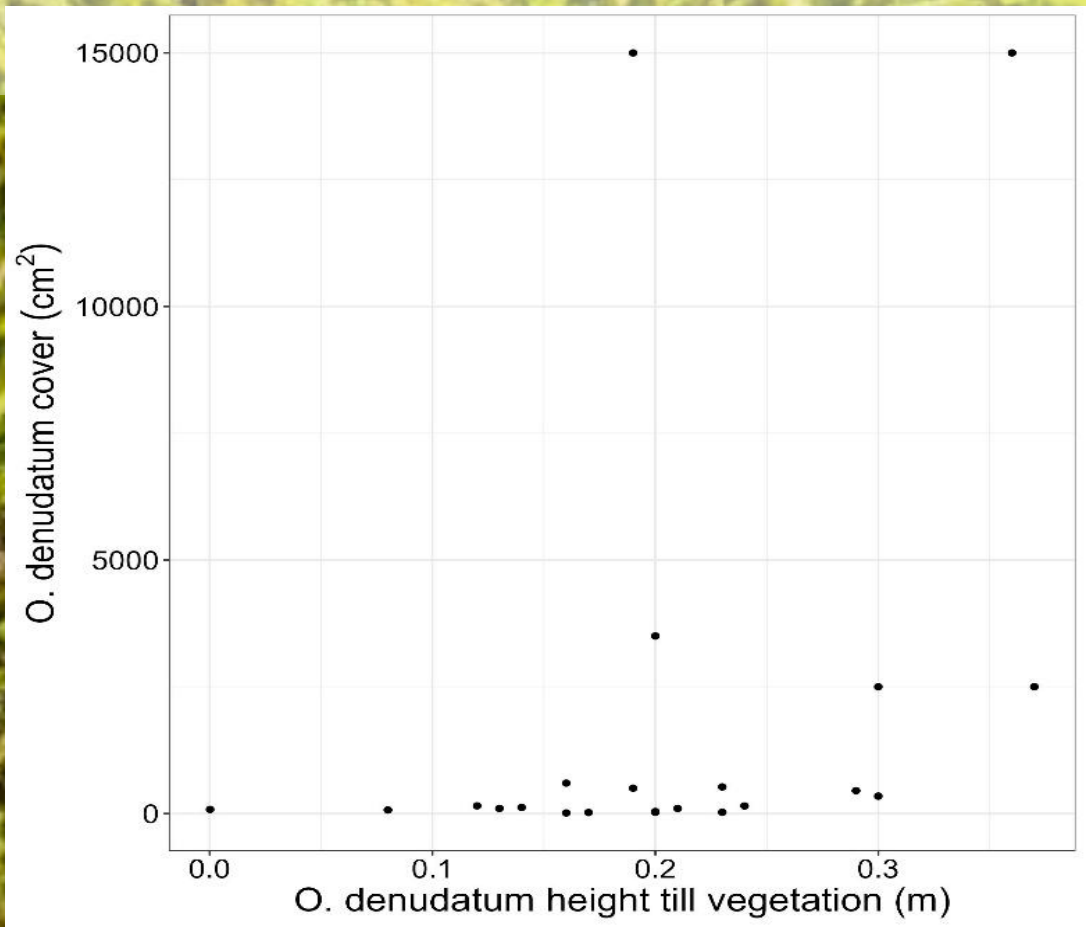
- Average studied log:
  - diameter - 16 cm;
  - length – 13.30 m;
  - height from understorey vegetation – 0.20 m.
- Studied forest stand age varied 84–156 years and area – 0.44-4.5 ha.

- *Odontoschisma denudatum* cover in relation to studied variables (GLMM results based on Anova (the best model) using glmer function with poisson family). Height till vegetation refers to height from studied *O. denudatum* population on a log (population central point) to understorey vegetation.

Analysis of Deviance Table (Type II Wald chisquare tests)

	Chisq	Df	Pr(>Chisq)
Height till vegetation	**4.48**	**1**	**0.03**
Forest stand age	**7.95**	**1**	**<0.01**





Conclusions

- *Odontoschisma denudatum* cover showed significant relationship with log scale (height till vegeation) and forest stand scale (age) variables that shows species sensitivity to variables in different scales
- As only 25 logs were studied, more data are needed for wider conclusions