LATVIJAS VALSTS
KOKSNES ĶĪMIJAS
INSTITŪTS

Latvian State Institute of Wood Chemistry
Registration No. 90002128378
Address: Dzerbenes street 27, Riga LV-1006, Latvia
Phone: +371 67553063, E-mail: kki@kki.lv

State Research Programme "Research and Sustainable Use of Local Resources for the Development of Latvia 2023-2025"

Project No. VPP-ZM-VRIIILA-2024/2-0002 "Innovation in Forest Management and Value Chain for Latvia's Growth: New Forest Services, Products and Technologies (Forest4LV)"

WP1 "Forestry Data"

"Recommendations for ensuring a favourable conservation status of a protected species in commercial pine forests"

Salaspils, 2025

SRP
State Research
Programme

FOREST4LV

Latvian State Institute of Wood Chemistry
Registration No. 90002128378
Address: Dzerbenes street 27, Riga LV-1006, Latvia
Phone: +371 67553063, E-mail: kki@kki.lv

Description of the situation. The recommendation is based on an assessment of the spatial location and ecological relationships of the liverwort Odontoschisma denudatum, a species for which micro-reserves are to be established according to the regulations of the Cabinet of Ministers. Based on the summary of the deposits (Figure 1), it can be concluded that the species is relatively evenly distributed in the forests of Latvia, although there is a tendency for deposits to be more frequent in Kurzeme, where the climate is more oceanic. The number of deposits of the species is lower in areas with lower forest cover and more intensive agriculture (for example, the Zemgale and Lubāns plains). The dynamics of the discovery of the species' deposits (comparing the updated distribution map with the one used in the previous study; Mežaka et al., 2021) strongly correlated with the results of the nature census conducted by the DAP, indicating that the frequency of the species' deposits depends on the intensity of research (taking into account the low visibility of the species), and to a lesser extent on the availability of habitats and a specialized set of conditions, indicating the ecological plasticity of the species. Spatial clustering analysis showed that three deposit areas can be distinguished in Latvia, indicating the existence of three metapopulations.

A local study in stands on the Zemgale Plain indicated low requirements of the species for substrate (crystal) dimensions and stand characteristics (Figure 2), indicating a relatively non-specific selection of microhabitats in stands with appropriate moisture conditions. It should be noted that a weak relationship with stand age was observed regardless of stand area, indicating the suitability of small-scale habitats for the existence of the species in Latvian conditions, contributing to the functioning of ecological corridors. No relationship was observed with the species cover for microrelief and depression characteristics. Previous studies, in turn, have indicated the importance of the presence of optimally distributed litter, which is as long as possible, for the existence of the species (Mežaka et al., 2021). Compared with this study, the number of registered deposits has increased several times as a result of the specific species management, which was facilitated by the results of the "Nature Census" project, indicating the incompleteness of the previous study (pilot study).

Latvian State Institute of Wood Chemistry
Registration No. 90002128378
Address: Dzerbenes street 27, Riga LV-1006, Latvia
Phone: +371 67553063, E-mail: kki@kki.lv

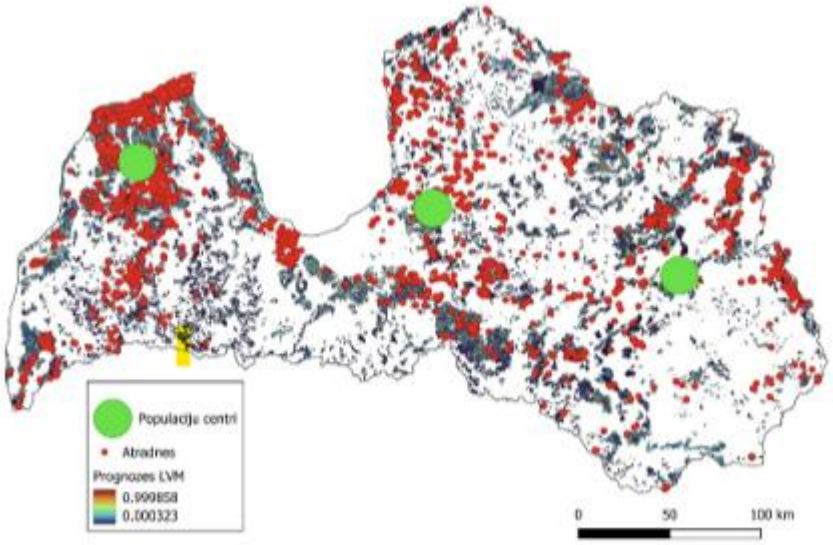

Figure 1. Odontoschisma denudatum occurrences in Latvia by 2025 (red dots), the midpoints of the spatial distribution of occurrences (green circles), as well as the predictions of the species' probability (background color) in state forests (excluding protected areas).

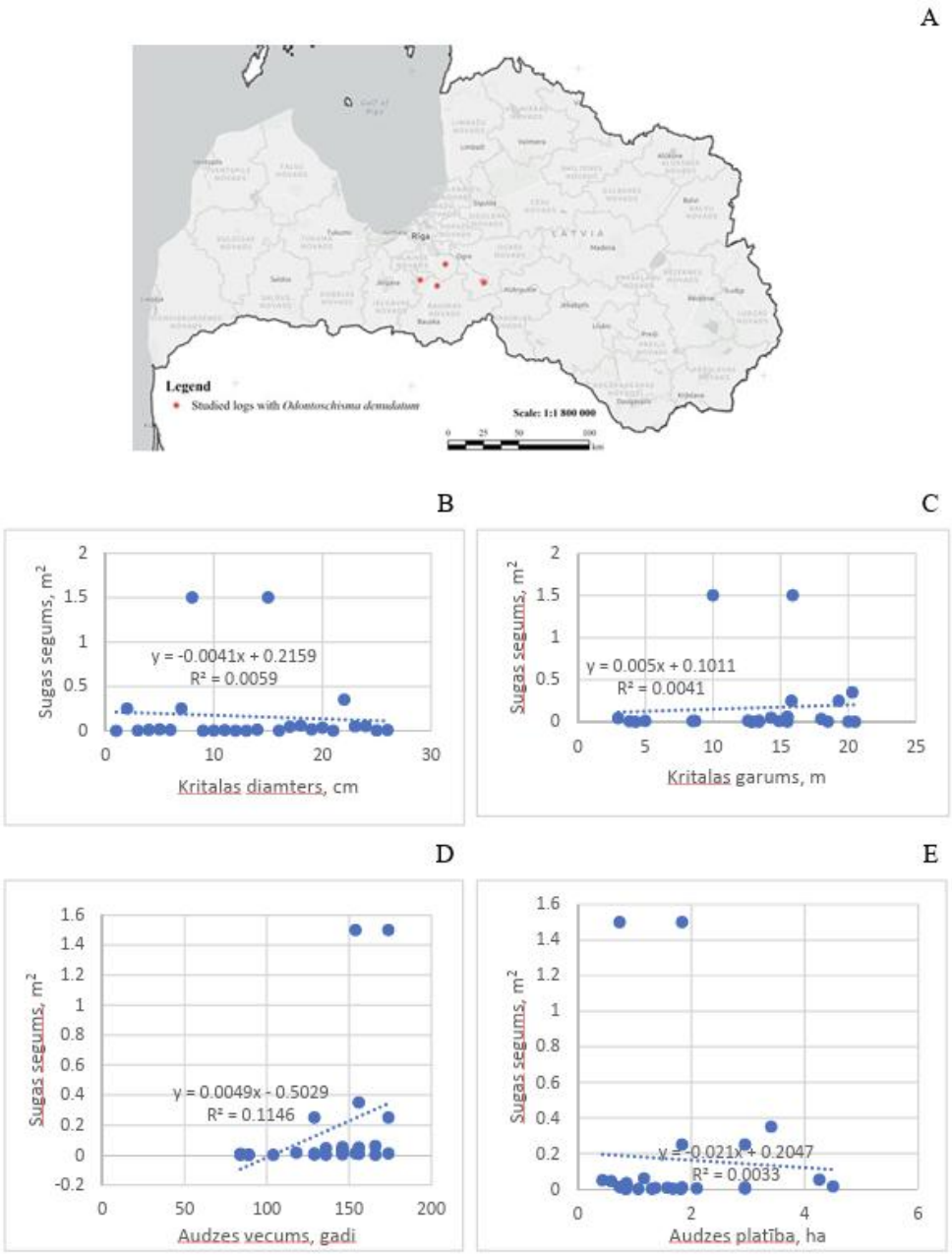

Figure 2. Relationships between Odontoschisma denudatum cover and specific microhabitat (coniferous litter at the 3rd decomposition stage) dimensions (B, C) and stand age and area (D, E) in pine stands on the Zemgale Plain.

Latvian State Institute of Wood Chemistry
Registration No. 90002128378
Address: Dzerbenes street 27, Riga LV-1006, Latvia
Phone: +371 67553063, E-mail: kki@kki.lv

Recommendation. In order to ensure a favourable conservation and protection status for the species, it is recommended to voluntarily promote ecological corridors in commercial forests, ensuring the previous management practices that have ensured the successful existence of the species, thus ensuring the connectivity of metapopulations for the exchange of genetic material. Taking into account the species' preference for stands of older age classes, as well as the age-dependent risks of natural disturbances to stands, the promoted ecological corridors should have a dynamic structure (maintaining the current spatial density of stands significant for the species), balancing conservation and commercial interests and thus ensuring sustainability. In order to promote the functionality of such ecological corridors, the current forestry practices should be maintained in them, as well as more conservative/historically used forestry approaches (felling planning based on the age of the main felling, allowing for dispersions in the presence of overgrown stands within the boundaries of two age classes). Given that the species was not demanding on substrate with specific dimensions, as well as substrate quantity, the presence of dead wood primarily in stands that are included in an ecological corridor, which is generally consistent with current forestry practices, is desirable for a favourable conservation status. At the landscape level, the presence of older (overgrown) and extensively managed/unmanaged stands is desirable, which in the current situation is ensured by the network of micro-reserves, etc. existing IĀDT, thus promoting the TRIAD nature conservation concept at the landscape level (Blatter et al., 2023).

Literature

Mežaka A., Svilāne I., Nitcis M., Gerra-Inohosa L., Jansone D., Dubra S., Jansons Ā., Liepiņa L., Strazdiņa L., Auniņš A. 2021. Pilotpētījums kailās apaļlapes Odontoschisma denudatum (Mart.) Dumort populācijas stāvokļa novērtējumam Ziemeļkurzemē un AS "Latvijas valsts meži" valdījuma zemēs. Noslēguma atskaite. DU, LVMI "Silava", LU. Blattert C., Eyvindson K., Mönkkönen M., Raatikainen K.J., Triviño M., Duflot R. 2023. Enhancing multifunctionality in European boreal forests: The potential role of Triad landscape functional zoning. J https://doi.org/10.1016/j.jenvman.2023.119250.