

Assessment of lichen species in the project LIFE FOR SPECIES and the Red List of Estonian lichens

Polina Degtjarenko, Daugavpils Universitāte & University of Tartu

Reto ķērpju sugu noteikšana un aizsardzība

16.06.2022, Sigulda

LIFE FOR SPECIES « Apdraudētas sugas Latvijā: uzlabotas zināšanas un kapacitāte, informācijas aprīte un izpratne» (Nr. LIFE19 GIE/LV/000857)



Red Data Book of Estonia

- The first Estonian Red Data Book was started (1975) by Eerik Kumar (Nature Conservation Commission of the Estonian Academy of Sciences)
- In 1979, book (in 4 copies) was completed, contained data on 259 species
- The second was in 1988; lichens (40 species) were included for the first time
- Third – 1998: conventional system of threat categories (Extinct or probably extinct, Endangered, Vulnerable, Rare, Care demanding, Indeterminate)
- 1998 > 1318 species or infraspecific taxa were included

Red list of Estonia

- 2008 > IUCN system of categories and strictly established criteria were applied for the first time in Estonia
- The compilation took place during 2006-2008

Lichens in the Red List of Estonia (2008)

Folia Cryptog. Estonica, Fasc. 44: 113–120 (2008)

Lichens in the new Red List of Estonia

Tiina Randlane¹, Inga Jüriado¹, Ave Suija², Piret Lõhmus¹ & Ede Leppik^{1,2}

¹Department of Botany, Institute of Ecology & Earth Sciences, University of Tartu, 38 Lai St., 51005 Tartu, Estonia.

E-mail: tiina.randlane@ut.ee

²Botanical and Mycological Museum, Natural History Museum of the University of Tartu,
38 Lai St., 51005 Tartu, Estonia

Abstract: The compilation of the current Red List of Estonia took place during 2006–2008; the IUCN system of categories and criteria (vers. 6.1), which is accepted worldwide, was applied. Out of the 1019 lichenized, lichenicolous and closely allied fungal species recorded in Estonia in 2006, 464 species (45.5%) were evaluated while 555 species remained not estimated – in the category Not Evaluated (NE). Of the evaluated species, 213 were assigned to the so-called red-listed categories: Regionally Extinct (RE), Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) and Data Deficient (DD). 113 of them were classified as threatened (belonging to the categories CR, EN, VU). 251 species were assigned to the category Least Concerned (LC). The full enumeration of the red-listed lichens of Estonia with appropriate category and criteria is presented.

Red List of Estonian lichens (2008):main results

- In total, from 1019 species (year 2006) > 464 species (45.5%) have been evaluated while 555 species remained not evaluated
- All lichenicolous fungi (137) remained in the category NE as the distributional data of these taxa are extremely scarce, with two exceptions – *Athelia arachnoidea* and *Vouauxiella lichenicola* (both were assigned to the Category LC)
- The species (altogether 48) which had been included in the list of Estonian lichens based on literature data only, without any known herbarium material, were also assigned to NE by choice

Red List of Estonian lichens (2008):main results

- Of the **464** evaluated species, 251 species were assigned to the category LC
- 213 were assigned to the so-called red-listed categories (RE, CR, EN, VU, NT, DD) while 113 species were classified as threatened (belonging to the categories CR, EN, VU)

Table 1. Distribution of lichen species in the respective categories of Red List of Estonia 2008 (for the abbreviations of categories see Material and Methods)

Categories	RE	CR	EN	VU	NT	DD	LC	NE
No of species included	29	13	32	68	42	29	251	555
% from all evaluated species	6.3	2.8	6.9	14.6	9.0	6.3	54.1	—

Red List of Estonian lichens (2019 -2023)

Red List of Estonian lichens: revision in 2019

Piret Lõhmus¹, Liis Marmor², Inga Jüriado¹, Ave Suija^{1,3}, Ede Oja¹,
Polina Degtjarenko^{1,4}, Tiina Randlane¹

¹University of Tartu, Institute of Ecology and Earth Sciences, Lai 40, 51005 Tartu, Estonia.

E-mail: piret.lohmus@ut.ee

²E-mail: liis.marmor@gmail.com

³University of Tartu, Natural History Museum, Vanemuise 46, 51014 Tartu, Estonia

⁴Swiss Federal Research Institute WSL, Biodiversity and Conservation Biology, Zürcherstrasse 111,
8903 Birmensdorf, Switzerland

Abstract: The second assessment of the threat status of Estonian lichens based on IUCN system was performed. The main basis for choosing the species to be currently assessed was the list of legally protected lichens and the list assigned to the Red List Categories RE-DD in 2008. Species that had been assessed as Least Concern (LC) in not evaluated. Altogether, threat status of 229 lichen species was assessed, among them 181 were assigned to the categories (CR, EN, VU), while no species were assigned to the LC category. Compared to the previous red list the deteriorated for 58% and remained the same for 32% of species. In Estonia, threatened lichens inhabit mainly particularly dry boreal and nemoral deciduous stands), alvar grasslands, sand dunes and various saxicolous habitats the most frequent threat factors were forest cutting and overgrowing of alvars and dunes (main threat factor for species, respectively).

New assessment of Least Concern lichens in the Red List of Estonia: are common species still common?

Tiina Randlane, Inga Jüriado, Polina Degtjarenko & Andres Saag

University of Tartu, Institute of Ecology and Earth Sciences, J. Liivi Str. 2, 50409 Tartu, Estonia.

E-mail: tiina.randlane@ut.ee

Abstract: The threat status of 161 lichenized species that were considered common in Estonia was assessed in 2021. For most of these species, it was the second Red List assessment using the IUCN system (the first such evaluation was performed in 2008). The main data sources for species occurrence were the records reported in 100 study sites located throughout the country during 2020, and the PluToF biodiversity database. 125 species remained, according to the new assessment, in the category Least Concern (LC) and their populations are not under threat in Estonia at present. Two species were placed in the category Not Applicable (NA) because of systematic revisions while 33 species were assigned to the categories Endangered (EN), Vulnerable (VU) or Near Threatened (NT); one further species received the status Data Deficient (DD). Thus, the threat status has changed for 22% of the studied species that had generally been considered common in Estonia. The reasons for this change are variable but there is clear evidence that 26 species have already become or will probably become more threatened in the future.

- SLTOM19051 "Conservation status of Estonian forest lichens" (1.01.2019–31.05.2021)
- SLTOM21504 "The assessment of threat and conservation status of not yet evaluated lichens in Estonia (1.11.2021–16.06.2023)"

LIFE FOR SPECIES « Apdraudētas sugas Latvijā: uzlabotas zināšanas un kapacitāte, informācijas aprīte un izpratne» (Nr. LIFE19 GIE/LV/000857)



Red List of Estonian lichens: revision in 2019

213 were assigned to the so-called red-listed categories (RE, CR, EN, VU, NT, DD)

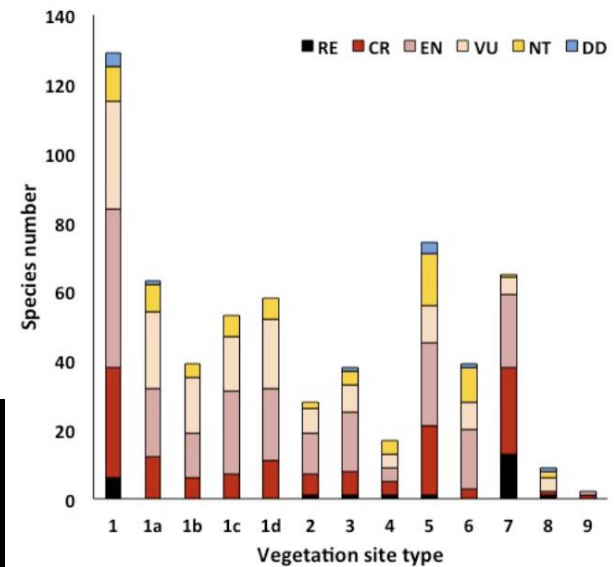


Fig. 2. Distribution of evaluated lichen species (categories RE–DD) among inhabited habitats, based on vegetation site type classification by Paal (1997): 1 – forests (all site types together and more specifically forest of 1a – alvar, boreal heath and dry boreal; 1b – fresh boreal and dry boreo-nemoral; 1c – fresh boreo-nemoral; 1d – floodplain, paludified and drained peatland); 2 – wooded meadows; 3 – parks; 4 – yards, roadsides, waste grounds; 5 – eutrophic alvar grasslands; 6 – quarries (mainly limestone) and dunes; 7 – outcrops (lime- and sandstone) and erratic boulders; 8 – mires; 9 – fresh waterbodies. Note that one species can inhabit several suitable habitats.

Red List of Estonian lichens (in progress, 2022)

- At least 880 species (including NE) > 23 RE, 94 CR, 142 EN, 123 VU, 87 NT, 303 LC, 31 DD
- In total 359 species assigned to threatened categories (CR, EN, VU) or NT and 303 are LC
- 142 species need to be evaluated (spring 2023)

Next Steps

- Complete assessment for other species
- Update of categories of legally protected species (revision, changes of categories, complement)
- University of Tartu, Environment Agency, Environmental Board, Ministry of the Environment

Species conservation in Estonia

- In total, 51 lichenized fungi are protected by law Estonia (2004)
- Three protected category of species (I, II, III)
- Protection category I includes species that are rare and at risk of extinction due to human activities and occur in a few and isolated habitats
- All known habitats of species in Category I speices should be protected (as a protected area, protected individual natural objects or permanent habitats)
- Only 1 lichenized fungi belong to category I

Flavocetraria cucullata



Species conservation in Estonia

- Protection category II includes species present in a very limited area or in a small number of habitats that may be at risk of extinction if risk factors persist
- At least 50% of the known habitats of category II species should be protected.
- In total, 32 species of lichenized fungi belongs to Category II
- Examples...



Solorina saccata



Xanthoparmelia mougeotii

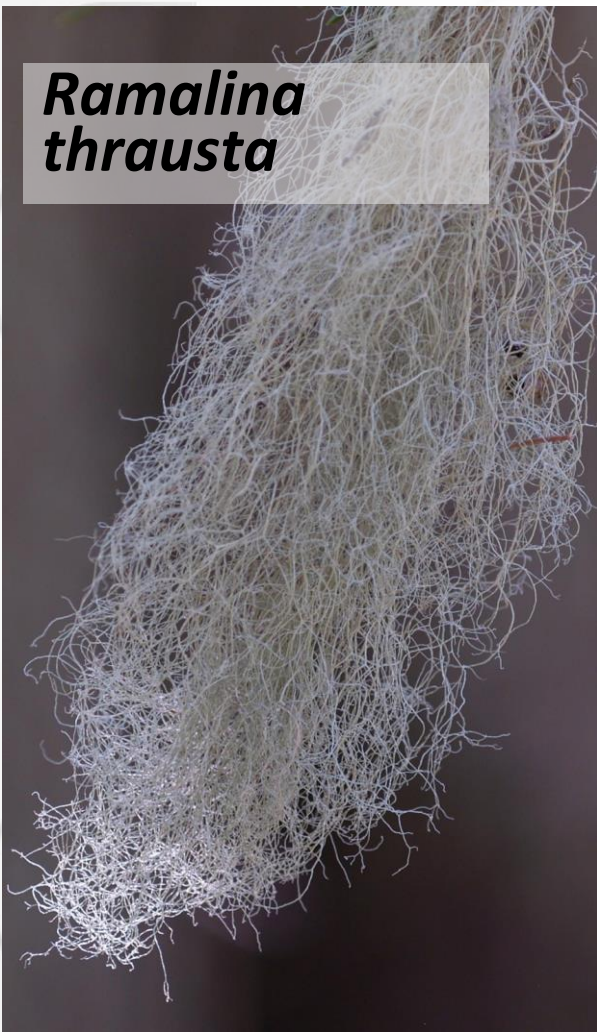


Peltigera collina

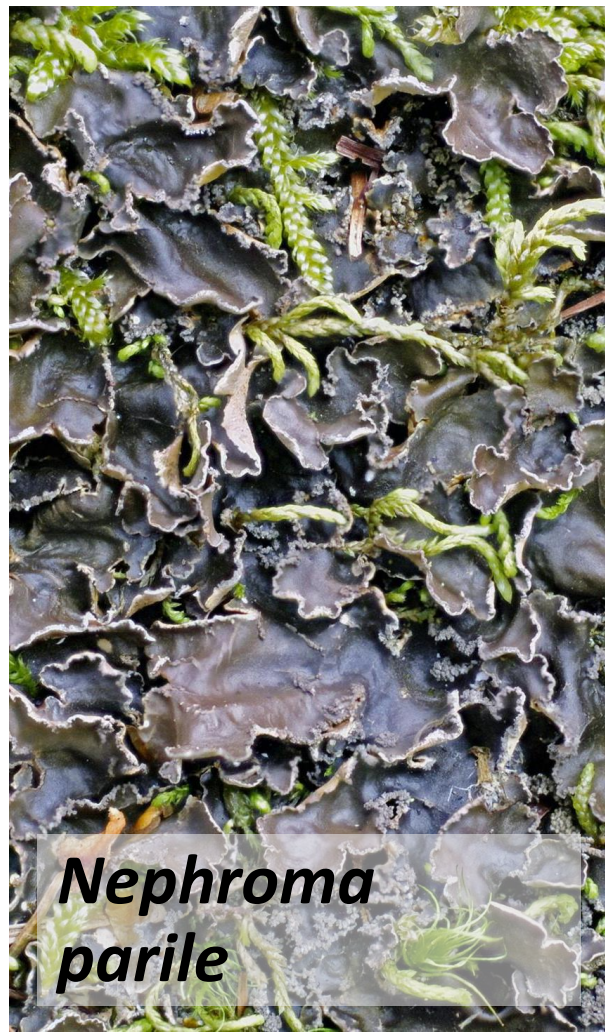
Species conservation in Estonia

- Protection category III includes species that are still relatively common today, but their number may decline drastically if the risk factors persist
- At least 10% of the known habitats of Category III species should be protected
- In total, 18 species of lichenized fungi belong to Category III
- Examples...

*Ramalina
thrausta*



*Nephroma
parile*



*Thelotrema
lepadinum*



Next Steps

- Update of categories of legally protected species (revision, changes of categories, complement)
- Environmental Board, Ministry of the Environment
- Proposal from experts (70-100 and changes in the current species list), conservation measures (what to do and what not to do)
- Procedure (up to 1 year, Ministry of the Environment, Estonian Environment Agency) > economic impact analysis (EIA)
- EIA > where? For example how many territories are located outside of protected area...
- Selection...
- 2024

Red List of Latvian lichens (2021-2024)

<https://docs.google.com/spreadsheets/d/1w5BdQP-zZEsdz5IZeLPD-suEqxrGsmobybFFLrhncuY/edit#gid=0> several examples!

GeoCAT <http://geocat.kew.org/>

Complete and standardized distribution data is very important!

Paldies par uzmanību!

Materiāls sagatavots Eiropas Komisijas LIFE projekta “Apdraudētas sugas Latvijā: uzlabotas zināšanas un kapacitāte, informācijas aprīte un izpratne” (projekta Nr. LIFE19 GIE/LV/000857 - LIFE FOR SPECIES) ietvaros. Projekts tiek īstenots ar Eiropas Savienības LIFE programmas un Valsts reģionālās attīstības aģentūras finansiālu atbalstu.

Šis materiāls satur tikai projekta LIFE FOR SPECIES īstenotāju viedokli, Eiropas Klimata, infrastruktūras un vides izpildaģentūra un Eiropas Komisija nav atbildīgas par šeit sniegto informāciju un tās iespējamo izmantojumu.

LIFE FOR SPECIES « Apdraudētas sugas Latvijā: uzlabotas zināšanas un kapacitāte, informācijas aprīte un izpratne » (Nr. LIFE19 GIE/LV/000857)



Valsts reģionālās
attīstības aģentūra



LATVIJAS
UNIVERSITĀTE



Dabas aizsardzības
pārvalde



Latvijas Kultūras
mantojuma valsts aģentūra

