

Communication

New and noteworthy lichens from Lithuania

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Abstract

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Four species of lichens were reported as new to Lithuania: *Flavoplaca arcis*, *Kuettlingeria teicholyta*, *Ramalina europaea*, *Xanthoria calcicola*. Of these, two calcicolous lichens, *Kuettlingeria teicholyta* and *Flavoplaca arcis*, were recorded for the first time in the Baltic States. Two species, namely *Cladonia turgida* and *Peltigera aphthosa*, previously considered extinct, were re-found after more than 50 years in Lithuania. The conservation value of some of the listed species was discussed.

Keywords: Baltic States, calcicolous, epiphytic, human-made substrata, lichenised Ascomycota, terricolous.

INTRODUCTION

The lichen biota of Lithuania is relatively well studied, with 755 species of lichen-forming, lichenicolous and allied fungi listed in the last updated checklist published a few years ago (Motiejūnaitė, 2017). Several more species have been added by various authors (Zhurbenko & Pino-Bodas, 2017; Knudsen & Kocourková, 2020; Yatsyna et al., 2020; Suija et al., 2023; Motiejūnaitė, 2024). Recent field work by the author, revisions of herbarium specimens and reports by several lichen collectors have resulted in finds of lichen species new to Lithuania or in the rediscovery of lichens considered extinct in the country. This article presents information on four lichen species new to the country, while the status of two species previously regarded as extinct is revised.

MATERIALS AND METHODS

Lichens were identified by routine methods using dissecting microscopy and standard chemicals. For some specimens of *Ramalina europaea*, thin-layer chromatography was applied (methods after Orange et al., 2001). The cited collections are stored in the Herbarium of Nature Research Centre, Vilnius (BILAS), except for several cases, where a lichen was only recorded but not collected (these cases are stated in the text). The identification of uncollected specimens of *Peltigera aphthosa* was based on a careful examination of high-quality photographs provided by the information provider, while uncollected specimens of *Ramalina europaea* were examined *in situ* by the author of the study.

The nomenclature of the listed species mainly follows Index Fungorum (2024). For each species, the locality, substrate, habitat, date of collection or recording, and the name of the collector (or the information provider), if other than the author of the paper, is given. New records are accompanied by notes on morphology and distribution, rediscovered species are accompanied by a discussion of their previously known distribution in Lithuania, and data on distribution in the Baltic States are given. Illustrations for *Flavoplaca arcis*, *Kuettlingeria teicholyta* and *Xanthoria calcicola* are provided (all photos were made *in situ* by the author of the paper, using camera Olympus TG5).

RESULTS

Cladonia turgida Ehrh. ex Hoffm.

This lichen was known from the southern and south-eastern regions of Lithuania; the latest collections were in 1961 (Motiejūnaitė, 1992; Motiejūnaitė & Skirsgilienė, 1997), and it was thought to be extinct (Rašomavičius, 2007). Although the herbarium material of this species is fragmentary, and its actual distribution and frequency in Lithuania are challenging to assess, it seems that *Cladonia turgida* was not as rare in the past as it is now. The species is also known from Latvia (Āboliņa et al., 2015) and Estonia (Randlane & Saag, 1999). The status of *Cladonia turgida* in Latvia is unknown, while it seems to be declining in Estonia as well (T. Randlane, pers. comm.). The species distribution is mainly montane-boreal.

Material examined. Lithuania, Anykščiai district, Šilagaliai, Šimonys forest, 55°40'31.6" N, 25°11'56.8" E, among terricolous mosses in pine stand, 13 November 2022, leg. R. Gaidienė.

Flavoplaca arcis (Poelt & Vězda) Arup, Frödén & Søchting (Fig. 1)

The species is characterised by yellow to orange yellow blastidiate thallus and distinctly lobate marginal areoles (Vondrák et al., 2009). The Lithuanian specimen was not very well developed, but still had a few distinctly lobate areoles at the thallus margin. Areoles in the centre of the thallus were either smooth, flexuose, with blastidia at the edges, or entirely blastidiate. Apothecia were present and quite abundant;

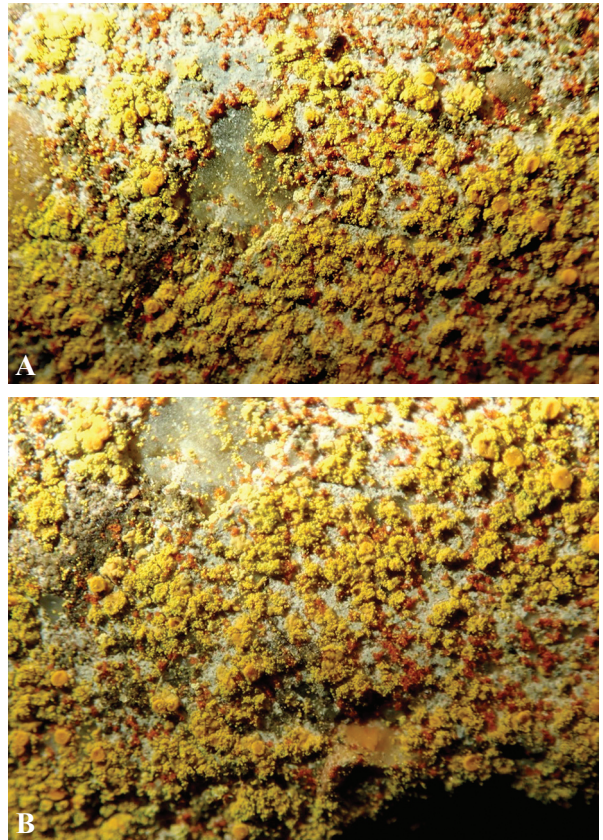


Fig. 1. *Flavoplaca arcis*. The margin of the thallus with few distinctly lobate areoles (upper right) (A); the central part of the thallus with flexuose areoles, blastidiate at the edges and entirely blastidiate areoles (B). Photos by J. Motiejūnaitė.

their morphological and anatomical characteristics coincided with those provided by Arup (2006) and Vondrák et al. (2009). Anamorph was not observed. *Flavoplaca arcis* is widely distributed in Europe (Vondrák et al., 2009; GBIFa, 2024). However, it has not been recorded from other Baltic States.

Material examined. Lithuania, Vilnius district, by the road No 5229, between Pavarpiai and Adomaičiai villages, 54°58'13.2" N, 25°24.5' E, on the vertical concrete surface of a bridge over a nameless stream, 7 September 2023.

Kuettlingeria teicholyta (Ach.) Trevis (Fig. 2)

Thallus of *Kuettlingeria teicholyta* is grey to whitish grey, shortly lobed at the margins, with granular blastidia in central parts. It is found on calciferous, often human-made substrata in warm temperate areas (Fletcher & Laundon, 2009), northernmost localities being in southern Sweden (GBIFb, 2024). It should

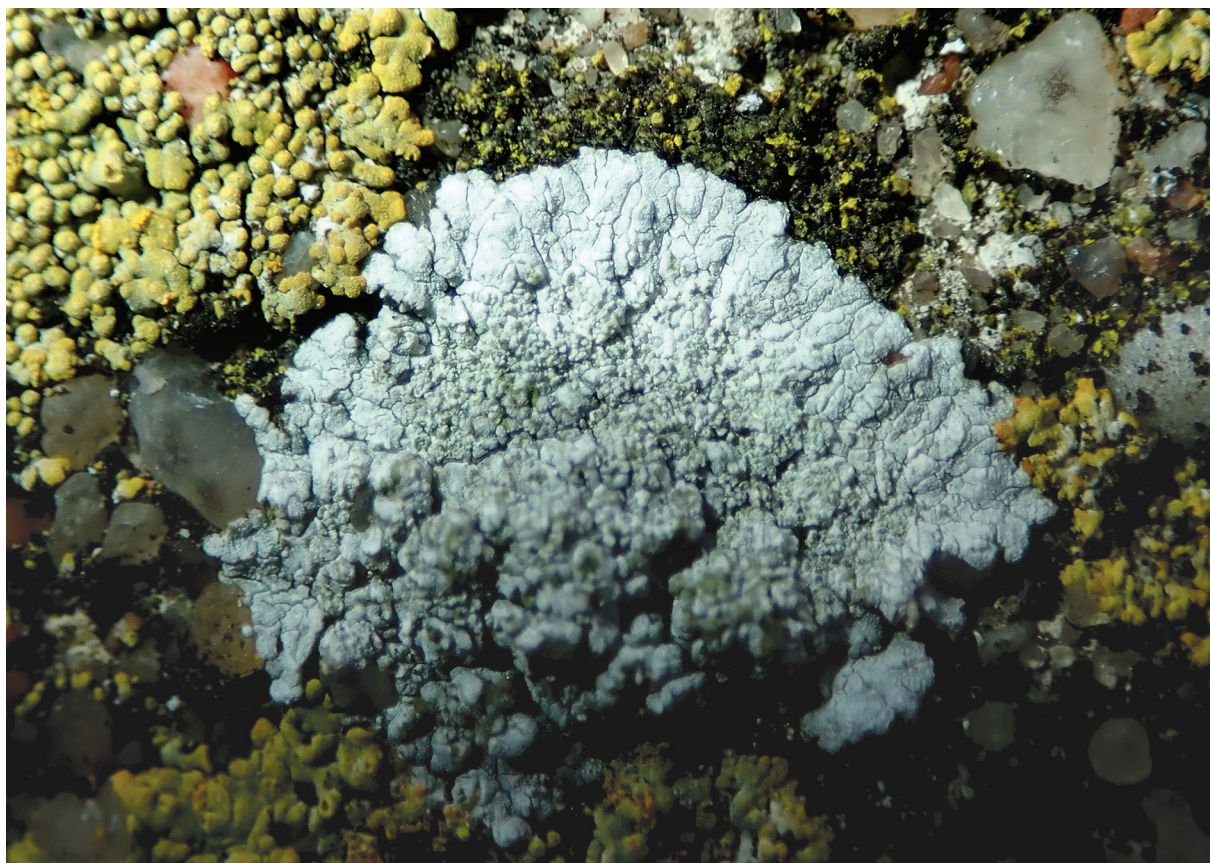


Fig. 2. Thallus of *Kuettlingeria teicholyta*. Photo by J. Motiejūnaitė.

be noted that the Lithuanian specimen was found on the grainy plaster of a fence built in the 1930s. Thalli of *Kuettlingeria teicholyta* were abundant, but none migrated onto the nearby modern concrete structures. Not known in Latvia and Estonia.

Material examined. Lithuania, Kaunas city, Tilžės Str. 18, 54°54'28.5" N, 23°52'47.1" E, on plastered brick fencing, 10 December 2023.

Peltigera aphthosa (L.) Willd.

This lichen was also considered extinct in Lithuania (Rašomavičius, 2007). The last time it was found in 1930 in the vicinity of Trakai (Michalski, 1935). The reference specimen is stored in the Herbarium of Vilnius University (WI) (Motiejūnaitė, 1992). *Peltigera aphthosa* is also known from Latvia (Āboliņa et al., 2015) and Estonia (Randlane & Saag, 1999). The distribution of the lichen is mainly montane-boreal.

Material examined. Lithuania, Švenčionys distr., Labanoras Regional Park, 55°11'15.1" N, 25°50'19.5" E, among terricolous mosses in mixed

coniferous forest, 31 July 2023, leg. G. Grašytė; Švenčionys distr., Labanoras Regional Park, 55°10'58.0" N, 25°50'34.2" E, among terricolous mosses in mixed coniferous forest, 21 August 2023, recorded by A. Gaidamavičius (not collected).

Ramalina europaea Gasparyan, Sipman & Lücking

The lichen has recently been segregated from the *Ramalina pollinaria* (Westr.) Ach. group and differs from the title species by the presence of small, spine-like branchlets at the lobe tips with punctiform, granular soralia (Gasparyan et al., 2017). *Ramalina europaea* and *Ramalina pollinaria* seem to have wide European and Eurasian distribution, with the former being more common in some areas (Gasparyan et al., 2017). However, its actual distribution is still unknown. This lichen has not yet been recorded in Estonia. Still, it has recently been recorded (R. Kaupuža pers. com.) in Latvia. The Lithuanian records presented here are based on a revision of herbarium specimens and personal observations of the

author, recorded on the iNaturalist.org platform (iNaturalist.org, 2024).

Material examined. Lithuania, Jurbarkas distr., Eržvilkas, 55°15'46.8" N, 22°42'21.6" E, on a wall of timber building, 13 August 1987; Zarasai district, Tilžė, 55°39'19.4" N, 26°34'20.4" E, on the trunk of *Salix* sp. by the lake, 9 September 1986; Vilnius distr., Neris Regional Park, Dūkštos oak forest, forest compartment No 9, 54°50'1.9" N, 24°57'9.9" E, on old *Quercus robur*, 18 March 2006, leg. D. Stončius; Ukmergė distr., Leonpolis Manor Park, 55°13'0.2" N, 24°43'3.0396" E, on *Acer platanoides*, 10 April 2023 (not collected); Kaunas distr., Raudondvaris Manor Park, 54°56'58.2" N, 23°47'6.8" E, on *Quercus robur*, 30 April 2023 (not collected).

Xanthoria calcicola Oxner (Fig. 3)

The species is found in mild-temperate and the Mediterranean areas of Europe, extending to the



Fig. 3. *Xanthoria calcicola*. Thallus (A); habitus and substrate (B). Photos by J. Motiejūnaitė.

Middle East (Lindblom & Blom, 2016). It typically grows on calcareous or basic siliceous rocks and human-made rock substrates. *Xanthoria calcicola* differs from the much more common *Xanthoria parietina* (L.) Th. Fr. by thallus, which is deeper orange, and by the presence of knob-like warts in the central parts. Known from Estonia (Randlane & Saag, 1999). The Baltic States are the most north-eastern limit of the distribution of *Xanthoria calcicola*.

Material examined. Lithuania, Elektrėnai municipality, Alesninkai, road No 4717, 54°46'55.3" N, 24°48'15.9" E, on concrete pole, 24 August 2023.

DISCUSSION

In total, six species of lichens are presented in the paper. Of these, four species, i.e. *Flavoplaca arcis*, *Kuettlingeria teicholyta*, *Ramalina europaea* and *Xanthoria calcicola* are presented for the first time in Lithuania. Of these, *Kuettlingeria teicholyta* and *Flavoplaca arcis* have not been reported in the Baltic States so far. Two lichens, namely *Cladonia turgida* and *Peltigera aphthosa*, which were thought to be extinct in Lithuania, were rediscovered after 62 and 94 years, respectively.

All the lichens listed are rare in Lithuania, except possibly *Ramalina europaea*. *Cladonia turgida* and *Peltigera aphthosa* were included in the 2007s edition of the Lithuanian Red Data Book in the category of extinct species, together with ten other lichen species (Rašomavičius, 2007). Six of these species (*Chaenotheca hispidula*, *Cladonia turgida*, *Nephrona resupinatum*, *Peltigera aphthosa*, *Peltigera degenii* and *Punctelia subrudecta*) have since been rediscovered. However, they all remain very rare and (except for *Punctelia subrudecta*) are restricted to vulnerable and decreasing habitats. Most of these records were made by non-lichenologists, indicating the increasing importance of citizen science, as Ruotsalainen et al. (2023) reported.

Three species listed in this paper are calcicoles, found in Lithuania only on artificial substrata. Although rare, their restriction to anthropogenic substrata does not allow for assessing their conservation value. One reason for this is the conflict with the maintenance of historic buildings (e.g., the case of *Kuettlingeria teicholyta* found on a historic build-

ing); another is that some of these habitats may be naturally transient, for example, crumbling old concrete. Woods & Coppins (2003) consider species growing on such substrata to be of least concern in their evaluation.

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