Vondrák J., Svoboda S., Malíček J., Palice Z., Kocourková J., Knudsen K., Mayrhofer H., Thüs H., Schultz M., Košnar J. & Hofmeister J. (2022) From Cinderella to Princess: an exceptional hotspot of lichen diversity in a long-inhabited central-European landscape. – Preslia 94: 143–181.

Supplementary Data S1. – Catalogue of all the recognized taxa with comments on noteworthy records.

Taxa recognized as species and at infraspecific levels are listed. Lichenicolous fungi and non-lichenized bark fungi are included and indicated by "**α**" and "**β**" respectively before names. Species that do not form distinctly lichenized thalli, but perhaps have a loose association with algae, i.e. **semilichens** (e.g. *Lichenothelia* spp. or *Naetrocymbe* spp.) are indicated by "**γ**". Names are followed by red list categories (only for lichens and semilichens), records in the sampling sites, substrate abbreviations and voucher data. Sampling sites are numbered according to Fig. 1C and are described in the Methods. Abbreviations of the red list categories, vouchers and substrates are explained below. TLC data and information about generated DNA sequences are included in comments below examined taxa.

Red list categories according to Liška & Palice (2010): **CR** – critically endangered, **DD** – data deficient (or not included), **EN** – endangered, **LC** – least concern, **NT** – near threatened, **RE** – regionally extinct, **VU** – vulnerable. **NEW** – species new to the Czech Republic. Vouchers: JK, JM, JŠ, JV, ZP – initials of collectors: Jana Kocourková, Jiří Malíček, Jaroslav Šoun, Jan Vondrák, Zdeněk Palice. Specimens by JK and JM are deposited in personal herbaria, by JV and ZP in **PRA** – herbarium of the Institute of Botany of the The Czech Academy of Sciences. Few specimens by JK are deposited in **PRM** – herbarium of the Czech National Museum.

Substrate abbreviations: **Abi** – *Abies alba*, **Acam** – *Acer campestre*, **Aglu** – *Alnus glutinosa*, **Ainc** – *Alnus incana*, **Apl** – *Acer platanoides*, **Aps** – *Acer pseudoplatanus*, **as** – acid soil, **base** – base of trunk, **Bet** – *Betula pendula*, **bryo** – on bryophytes, **ca** – calcareous rock, **Car** – *Carpinus betulus*, **Cor** – *Corylus avellana*, **Cra** – *Crataegus*, **cs** – calcareous soil, **dw** – dead wood, **esr** – base enriched siliceous rock, **Fag** – *Fagus sylvatica*, **Fra** – *Fraxinus excelsior*, **Pavi** – *Prunus avium*, **Pic** – *Picea abies*, **Pin** – *Pinus sylvestris*, **Pspi** – *Prunus spinosa*, **Qpe** – *Quercus petraea*, **Sal** – *Salix*, **Sam** – *Sambucus nigra*, **Sari** – *Sorbus collina*, **sil** – acid siliceous rock, **Sor** – *Sorbus aucuparia*, **Stor** – *Sorbus torminalis*, **Til** – *Tilia cordata/platyphyllos*, **Ulm** – *Ulmus glabra* and *U. laevis*, **tw** – twig. Epiphytic species followed by abbreviation(s) of tree/shrub occured on **bark of stem** if not otherwise stated.

Known unknowns

Following Spribille et al. (2020) we treat here species for which we have no name. They may be new to science, but more data are necessary to determine whether they merit formal description.

***Bacidina* sp. 1** – 1, 2, 6, 7: Acam, Apl, Fra, Qpe, Til, Ulm; Vouchers: PRA-JV20656, 24163, 24353, 24355, 24493, 24842, 24968, ZP30104, 31371. Green sorediate crust of diffused soralia, soon merged into extensive patches, up to several cm diam. Soredia 15–25 µm diam., occassionally joint into consoredia, up to 40 µm diam. Apothecia and pycnidia not observed. Probably very common throughout the study area on bark of various deciduous trees, but neglected because sterile. **TLC**: no secondary substances (JV24355, 24493, 24842, ZP30104). **ITS** sequenced (20656, 24163, 24355, 24493, ZP30104), **mtSSU** sequenced (JV20656, 24353, 24355, 24493, 24968, ZP30104). Closest NCBI Blast record in ITS is *Bacidina varia* (92.5% identity), in mtSSU *Bacidina medialis* (95%). **Fig. 10A**

***Bacidina* sp. 2** – 1, 6, 7, 14: sil (andesitic pebbles), Til; Vouchers: PRA-JV21138, 24247, 24915, 24921, 24944. Sorediate crust of shining green, discrete soralia, punctiform, 0.1–0.3 mm diam. Thallus among soralia indistinct, green in patches. Soredia 15–20 µm diam., occassionally joint into consoredia, up to 50 µm diam. Apothecia and pycnidia present only in one specimen (24921) in which soralia were substantially reduced: apothecia numerous, pale creme, without pigmentation in section, 0.1–0.3 mm diam. Exciple slightly raised above disc, 50–70 µm wide, formed of convoluted and anastomosed hyphae with gelatinised walls (but some sphaerical cells present in lower part, c. 3–5 µm diam.). Hymenium 30–40 µm tall; ascospores acicular, curved at one end, c. 30–40 × 1.5 µm. Pycnidia numerous, pale creme, immersed in thallus, up to 0.1 mm diam. Conidia straight, c. 30–50 × 1 µm. **TLC**: no secondary substances (JV24247). **ITS** sequenced (24247, 24915, 24921), **mtSSU** sequenced (all specimens). Closest NCBI Blast record in ITS is *Bacidina arnoldiana* (94% identity), in mtSSU *Bacidina inundata* (97%).

***Bacidina* sp. 3** – 1: sil (andesitic stone in damp scree); Voucher: PRA-JV24573. Sorediate crust somewhat similar to *Bacidina* sp. 2, but soralia are less bright and only slightly paler than the thallus. Whereas soralia are rather regularly rounded (punctiform) in *Bacidina* sp. 2, they have an "untidy" irregular shape in *B.* sp. 3. A few young, unpigmented apothecia were present in the single specimen; ascospores not observed. **ITS** and **mtSSU** sequenced. Closest NCBI Blast results are *Bacidina neosquamulosa* in both loci (96–97% identity in ITS and 99% in mtSSU), but this species occurs on organic substrata and has a minutely squamulose thallus. Other *Bacidina* species available in NCBI had identities up to 95% in ITS and 93% in mtSSU. *Bacidina* sp. 2 (see above) differs in 8.4% of nucleotide positions in ITS and in 4% in mtSSU.

[γ]***Chaenothecopsis* sp.** – 4: sil; Voucher: PRA-JV24136. Apothecia with 0.8–1.5 mm long stalk and c. 0.1–0.2 mm wide capitulum. Excipular and stalk tissue brown, KOH-, HNO^3+ slowly red. Ascospores 1-septate, 5–7 × 2–2.5 µm; septum pale. Apothecia associated with *Stichococcus* crust.

***Circinaria* sp.** – 1: esr-periodically inundated; Voucher: PRA-JV24719. Thallus forming extensive pale grey crust similar to *C. hoffmanniana*, but areoles, present in marginal

thalline parts, turn into imbricate squamules in thallus centre (somewhat similar to *Endocarpon psorodeum*). Apothecia immersed, with the thalline margin hardly raised above thallus surface. Epithecium olive. Ascospores 4–6 in asci; 25–30 × 15–20 µm. Pycnidia present; conidia c. 7–10 × 0.5 µm. Thallus K-, C-, P-, UV-. Occurring on base-rich, periodically inundated, andesitic rock at river bank together with *Caloplaca atroflava*. **ITS** seqenced; closest NCBI Blast results are *C. mansourii* (identities 94–95%), the terricolous species with very different ecology and morphology. Other *Circinaria* species available in NCBI have identities below 91%. **mtSSU** sequenced; closest NCBI Blast result is *C. caesiocinerea* (identity <95%). **Fig. 10B**

$^{\alpha}$***Endococcus* sp.** – 1: sil-on *Rinodina* cf. *moziana*; Voucher: JK10393. Ascomata immersed or half-immersed in the host thallus, about 140 x 120 µm, asci 8-spored, 30–40 x 12–17 µm, ascospores dark brown, thick-walled, wall and septum of the same thickness, with thin perispore, wall non-verruculose, (8.1–)9.3–10.4–11.5 (–12.3) × (4.8–)5.0–5.5-5.9 (–6.6) µm, l/b=(1.5)-1.7–1.9-2.0(–2.1).

Record outside the study area: Central Bohemia: distr. Rakovník, 1 km northeast of Nezabudice, Nezabudické skály Nature Reserve, alt. 270 m, MTB 5949 C 11, above road, on rhyolite rock, lichenicolous on *Rinodina oxydata*, 3 Sept. 1997, coll. J. Horáková & P. Kocourek (PRM900036).

$^{\gamma}$***Eopyrenula* sp.** – 14: Apl; Voucher: PRA-JV24273. Thallus indistinct, pale green, with patches of *Trentepohlia*. Perithecia 0.1–0.2 mm diam.; periphyses up to 10 µm long, numerous; paraphysoids absent; asci 30–40 × 11–13 µm; ascospores grey, 15–17 × 4 µm, 3-septate. Pycnidia 0.1–0.15 mm diam.; conidia brown, c. 15 × 4 µm, 3–5-septate. Identification as *Eopyrenula* is tentative; absence of paraphysoids is unusual in this genus.

$^{\beta}$***Karstenia* sp.** – 2, 5, 14: Qpe; Vouchers: PRA-JV24227, 24323, ZP29691. Thallus indistinct, probably saprophytic on the weathered bark of oaks. Apothecia up to 1 mm diam., urceolate, immersed in oak bark to sessile, with thick, white pruinose exciple. Disc, grey or white pruinose, exposed in older apothecia; in young apothecia, disc punctiform, hidden below raised exciple and below periphyses, which form a ring at the inner edge of exciple. Exciple formed of isodiametric cells, c. 3–3.5 µm diam., carbonised to dark brown at the surface, pale grey-brown (KOH+ orange-brown) to colourless inside. Periphyses of up to 30 µm long hyphae, tightly arranged to form a palisade tissue (forming a ring structure observable by magnification >10×). Epihymenium olive-grey, KOH+ orange-brown. Ascospores 30–80 × 4–8 µm, with 6–20 transverse septa (rarely with 1 longitudinal septum in largest cells); perispore absent in KOH; lower spore end slowly tapering to an obtuse tip, upper end rounded. Frequently recorded in the study area on weathered bark of old oaks. **mtSSU** sequenced (JV24227); closest NCBI relatives: various Ostropales with identities <87%.

Lecanorales sp. – 6: Car; Voucher: PRA-JV24028. Thallus crustose, pale grey to white, epiphloedal, up to 100 µm thick, sorediate. Soredia green-grey, pustulate (like in *Loxospora elatina*), 0.2–0.5 mm diam. Soredia c. 20–40 µm diam. White prothallus

distinct, sometimes fimbriate (like in e.g. *Haematomma ochroleucum*). Fruiting bodies and pycnidia absent. Occurring on smooth *Carpinus* bark with *Lecanora argentata* and *Lecidella elaeochroma*. **TLC**: atranorin, perlatolic acid (UV+ white). **ITS** sequenced; closest NCBI Blast results: various Lecanorales with identities up to 86%. **mtSSU** sequenced; closest NCBI Blast results: various Lecanoraceae, Parmeliaceae, Ramalinaceae and Tephromelataceae with identities up to 94%. *Cliostomum haematommatis* and *Mycoblastus caesius*, with similar secondary metabolites, are proved to be distinct on the basis of mtSSU sequences (unpublished).

***Myriolecis* sp.** – 1: esr; Voucher: PRA-JV23493. Thallus formed of a conspicuous, rimose-areolate crust, up to c. 1 cm diam. Surface of areoles is pale grey, uneven to distinctly granular. White-grey prothallus locally present at thallus edge. Thallus up to 250 µm thick; cortex and medulla indistinct; epinecral layer locally developed, thin. Apothecia lecanorine, with pale grey margin and dark brown disc. Exciple without internal crystals, covered in some places by up to 30 µm thick cortex, of isodiametric cells, 3–4 µm diam. Hymenium 70–80 µm tall. Epihymenium covered by brown granules, dissolving in KOH and HNO_3. Ascospores 11–13 × 5–6 µm. Occurring on riverside andesitic outcrops together with *Caloplaca atroflava*, *Dermatocarpon meiophyllizum*, *Protoparmeliopsis muralis*, *Placopyrenium cinereoatratum*, *Rinodina moziana*, *Staurothele fissa*, *Verrucaria substerilis* and *V. tenuispora*. **TLC**: unidentified xanthone. **ITS** and **mtSSU** sequenced. **Fig. 10E**

$^{\beta}$**Ostropales sp.** – 2: Cor; Voucher: PRA-JV24067. Thallus inapparent on bark of thin *Coryllus* twigs, not lichenized (algal cells not detected around fruiting bodies). Fruiting bodies only 70–80 µm diam., pycnidia-like, forming low cups, open below. The wall only 7–10 µm thick, wit blue-green pigment (unchanged after HNO_3 treatment). Conidiophores colourless, c. 10 µm long and 2 µm wide, arising from the blue-green wall downwards. Conidia colourless, ellipsoid to bacilliform, 3–5 × 1–2 µm. **ITS** sequenced; closest NCBI sequences had *Dendroseptoria mucilaginosa* (90% identity) and *Cyanodermella* spp. (85–87% identities). Both fungi are also anamorphs and share the blue-green pigment in fruiting bodies. The former has also similar ecology – growing on twigs of *Buddleja*. However, both fungi have different morphology of conidia, conidiophores and fruiting bodies (van Nieuwenhuijzen et al. 2016, Koukol et al. 2017).

$^{\alpha}$***Phaeospora* sp.** – 7: sil-on *Rinodina aspersa;* Vourcher: JK4970. Only one record in the study area. The species is most similar to *Phaeospora lecanorae* (lichenicolous on *Myriolecis*) in ascospore size (11.5–16 × 5–6 µm) and immersed to half-immersed perithecia. However, our *Phaeospora* (on *Rinodina*) differs in the smaller size of perithecia (about 50–100 µm vs. 120–200 µm), the different shape and colour of ascospores (fusiform, not constricted at septa and reddish-brown vs. narrowly ellipsoid with round ends, constricted at septa and pale greyish-brown colour). So far, the species was collected in three nearby localities within the area of 10 km^2. We

suggest this species is narrowly host-specific, such as the majority of 14 *Phaeospora* species (except for *Phaeospora rimosicola* and *P. parasitica*).

[α]***Requienella* sp.** – 6: Fra; Voucher: PRA-JV24556. Perithecia 0.4–0.6 mm diam., fully immerced in the ash bark, surrounded by carbonised wall. In the upper part, perithecia ellongated into a 0.2–0.3 mm wide beak, raised above bark surface. Hamathecium of anastomosing hyphae. Ascospores brown, 50–70 × 12–16 µm, predominantly 9-septate, spore cells with round lumina.

***Rhizocarpon* sp.** – 1, 3, 10: sil; Vouchers: PRA-JV24544, 24733, 25098, ZP31659a (admixture in sample of *Rhizocarpon postumum*). Thallus grey (partly red by ferric oxide), areolate, without stictic acid and without gyrophoric acid (C-, P-, K-). Apothecia with rough, sometimes rusty red discs (perhaps by ferric oxide) and black margin. Umbonate discs are frequent in most specimens. Ascospores long and narrow, colourless, c. 30–40 × 9–13 µm, usually with more than 20 cells in optical view. Pigment *Atra*-red (K+ purple) in hypothecium, exciple and partly in epihymenium. Additional green pigment sometimes present in outer exciple and epihymenium. Asci 8-spored. Occurring on andesitic stones and rocks in dry or somewhat humid habitats, but not observed on permanently wet rocks. **ITS** sequenced (JV24544, 24733, ZP31659a); closest NCBI relatives: three Turkish lichens called "*Rhizocarpon lavatum*" (identity c. 95%). **mtSSU** sequenced (24733); closest NCBI entry: *R. lavatum* (identity 99%). *Rhizocarpon lavatum* is genuinely closely related and morphologically similar, but has different ecology, i.e. occurs on permanently wet or inundated rocks. **Fig. 10G, H**

***Rufoplaca* sp.** – 1: sil-on *Circinaria caesiocinerea*; Voucher: PRA-JV23393. Thallus lichenicolous on *Circinaria caesiocinerea* areoles, restricted to spots below apothecia. Apothecia up to 0.5 mm diam, rusty orange, with somewhat reduced true exciple of orange or greyish colour (grey by *Sedifolia*-grey pigment). Thalline exciple apparent in old apothecia, grey. Ascospores 12–15 × 5–7 µm; septum in dead spores 2–2.5 µm wide. On sun-lit vertical side of acidic andesitic outcrop. **ITS** sequenced.

[α]***Stigmidium* sp.** – 1, 3: ca-on *Porocyphus rehmicus* and unidentified crustose *Lichinaceae*; Vouchers: PRA-JV20913, 20985, 21227, 21273, 23481. Perithecia black, c. 0.1–0.2 mm diam., entirely immersed in the host tissue, only an area surrounding ostiole visible as a black dot (well observable when wet). Perithecial wall black; centrum occasionally with a purple (K+ violet) pigment, reaction with Lugol's solution negative. Hamathecium of branched and anastomosed, c. 2.5 µm thick paraphysoids. Asci 50–70 × 15–25 µm. Ascospores smooth, colourless, *Arthopyrenia*-like, with upper cell distinctly larger, 20–25 × 6.5–10 µm. Occurring in communities of cyanolichens on lime enriched seepage rocks. **Fig. 10C, D**

[γ]***Strigula* sp. 1** – 6: Sor-young; Voucher: PRA-JV23970. Teleomorph. Thallus inconspicuous, apparently not lichenized. Black perithecia 0.1–0.2 mm diam.; perithecial wall brown, KOH+ dark brown, locally with olive tinge. Hamathecium of anastomosed hyphae; asci c. 50 × 15–20 µm. Ascospores 18–20 × 3–5 µm, 1-septate, *Arthopyrenia*-like, with

upper cell distinctly larger than the lower; with c. 0.1 µm thick perispore in KOH. Ascospores, when released from asci, frequently disintegrating into single cell fragments; 10–11 × 5–6 µm (from upper cell) and 8–10 × 3–5 µm (from lower cell). Occurring on smooth bark of *Corylus* or *Sorbus* together with *Arthopyrenia analepta* and *Strigula* sp. 2.

Record outside the study area: Czech Republic. Central Bohemia: Křivoklát, nature reserve Stříbrný luh, alt. 340 m, 50.02325N, 13.89800E, on smooth bark of *Corylus avellana*, 19 August 2020, coll. Jan Vondrák (PRA-JV24620).

[γ]***Strigula* sp. 2** – 6: Sor-young; Voucher: PRA-JV23985. Anamorph. Thallus inconspicuous, apparently not lichenized. Black pycnidia up to 0.1 mm diam. Conidia 7–11 septate, 32–40 × 3.5–4.5 µm, without appical gelatinous appendages. Occurring on smooth bark of *Corylus* or *Sorbus*. The lichenized *Strigula tagananae* has very similar conidia, but with distinct appendages (Roux et al. 2004). This anamorph may possibly belong to the teleomorph, *Strigula* sp. 1 (see above), as both were twice recorded on the same phorophyte (but not intermixed).

Record outside the study area: Czech Republic. Central Bohemia: Křivoklát, nature reserve Stříbrný luh, alt. 340 m, 50.02325N, 13.89800E, on smooth bark of *Corylus avellana*, 19 August 2020, coll. Jan Vondrák (PRA-JV24619).

[α]***Taeniolella* sp. –** 6, 12: sil-on *Baeomyces rufus*; Vouchers: JK3497, 10373. It forms galls on the host thallus, similarly to *Taeniolella atricerebrina*, *T. rolfii* and *T. diploschistina*. Young galls discoloured, later blackened, eventually leaving dark brown irregular, partly glossy, convex structures of necral tissue, 0.4–1 mm diam. Mycelium immersed; hyphae brown, flexuous, contorted, smooth on surface, 3–6.5 µm wide. Conidiophores semi-macronematous, mononematous, solitary to dense, erect, strait, sometimes flexuous, arising from internal hyphae, occasionally branched near base up to lower third, slightly or conspicuously constricted at the septa, wall of conidiophores cracked or ridged, 24–45 µm long, 4–6.5 µm wide. Conidia most often only 0–1(–2)-septate, ellipsoid, 2-layered, upper wall with irregular cracks. Conidia 6–8 × 4.5–7 µm when 0-septate; up to 16–19 × 4.5–7 µm when 2-septate. When septate not distinctly constricted at the septa. Both collections from the study area are rather poor and not suitable for designation as a type specimen.

Trapeliaceae sp. – 1: esr; Voucher: PRA-JV21130. Sterile thallus formed of tiny granules to bullate areoles, 0.1–0.3 mm diam. Surface pale grey, but usually white pruinose. Spot tests: K-, P-, C+ red. Recorded on soft, base-rich, andesitic tuff on sun-lit rock. ITS sequence is closest to genera *Trapelia*, *Trapeliopsis* and *Xylographa* (90–92% identity); mtSSU is closest to *Trapelia* spp. (92–96%). **TLC:** gyrophoric acid; **ITS**, **mtSSU** sequenced. **Fig. 10F**

***Verrucaria* sp. 1** – 1: esr; Voucher: PRA-JV23414. Thallus areolate to subsquamulose, about 100 µm thick, variable in colour (pale grey-green to dark brown). Algal layer thick (along whole vertical thallus section); photobiont cells 5–7.5 µm diam, appear to divide predominantly in vertical direction (forming indistinct stacks). Cortex indistinct,

of a single layer or two layers of isodiametric cells (faintly brown pigmented); medulla not developed. Perithecia c. 0.2–0.3 mm diam. (when well developed), partly immersed in thallus. Involucrellum dimidiate, but not much spreading. Exciple brown in upper part. Ascospores slender and some tapering to one end (i.e. elongated tear), 22–37 × 8–10 µm. On andesitic rock at river side, but at a rather dry site with *Circinaria contorta*. **ITS** sequenced; closest NCBI Blast match is *Verrucaria funckii* (94% identitiy in ITS).

***Verrucaria* sp. 2** – 1: esr; Vouchers: PRA-JV21053, 21188, 23402, 23415. Thallus thin, green-grey to grey (sometimes with pink tint), rimose, appressed to substrate. Polygonal areoles c. 0.1–0.2 mm (–0.4 mm, when with perithecium). Cortex and medulla not developed. Mature photobiont cells 9–15 µm diam. Perithecia in centres of areoles, about half-immersed in the thallus, c. 0.2–0.3 mm diam. Involucrellum thin, fully attached to exciple, reaching lower side of perithecia, but not enclosing them. Ascospores c. 17–20 × 6–10 µm. On base-rich vertical andesitic rocks in sun-lit sites. Sequences: **ITS** (21053, 21188, 23415), **mtSSU** (21188). Closest NCBI Blast matches based on ITS data are *Verrucaria* spp. (max. 90% identitiy); based on mtSSU data a sequence of *Verrucaria cernaensis* (98% identity with EF105149 = Thüs W1414, on Genbank this specimen is still catalogued under an earlier incorrect identification as *V. aethiobola* s.lat. sensu Thüs 2002). In the ITS tree, it forms a group with *Verrucaria* sp. 3 and *V.* sp. 11 (Fig. 11) and *V.* sp. 15.

***Verrucaria* sp. 3** – 1: sil; Voucher: PRA-JV23411. Thallus conspicuous, rimose to areolate, (brown) grey, 50–150 µm thick. Areoles flat, 0.2–0.5 mm diam. Algal layer of vertically arranged algal cells, 5–10 µm diam. Cortex well developed, 10–20 µm thick, of tiny isodiametric cells, 3–4 µm diam. Epinecral layer absent. Perithecia, cca 0.2 mm diam, immersed in thallus, only uppermost area surrounding ostiole is exposed. Involucrelum thin, apical, carbonised. Exciple pale brown, K+ green. Ascospores 17–22 × 7–8 µm. On andesitic pebbles in rocky steppe, in nitrophilous communities with *Amandinea punctata* and *Protoparmeliopsis muralis*. **ITS** sequenced; closest NCBI Blast results are *Verrucaria* spp. (max. 90% identitiy). In the ITS tree, it forms a group with *Verrucaria* sp. 2 and *V.* sp. 11 (Fig. 11), and *V.* sp. 15.

***Verrucaria* sp. 4** – 9, 11, 13: sil; Vouchers: PRA-JV20693, 20853, 23952a. Thallus very thin, membranaceous, sometimes forming only patches around perithecia, sometimes indistinctly rimose, in moist state subgelatinous. Photobiont cells 5–11 µm diam. Perithecia tiny, 0.1–0.2 mm diam, with conical involucrellum that reaches the substrate. Transparent tissue sometimes present between the brown exciple and the carbonised involucrellum at perithecial base. Ascospores 15–17 × 5–6 µm. On shaded siliceous stones in rather dry forest stands. Closest Blast relatives to its ITS are *Verrucaria* spp. (max. 90% identitiy); to its mtSSU *Verrucariaceae* spp. (max 94% identity). Our specimens could be identified as *V. memnonia*, but that species usually has a thicker thallus formed of irregular swollen structures. *Verrucaria maculiformis* has a subgelatinous thallus but larger perithecia (0.2–0.3 mm diam.). Sequences: **ITS**

(20693, 20853, 23952a), **mtSSU** (20853). Closest NCBI Blast results are *Verrucaria* spp. (max. 91% identitiy in ITS and 94% in mtSSU).

***Verrucaria* sp. 5** – 1, 2, 13, 14: sil; Vouchers: PRA-JV23971, 23987, 24250. **ITS** sequenced (JV23987, ZP29726), **mtSSU** sequenced (JV23971, 23987, 24250, ZP29726). The species is known as "*Verrucaria* sp. 1" from Wales and Germany (Thüs et al. 2018), which has some similarity with *Verrucaria umbrinula* Nyl., but differs in the shape of the involucrellum, which is laterally slightly spreading in *Verrucaria* sp. 5 from Týřov and hardly visible to incurved under the exciple in *V. umbrinula*. ITS data are similar to those of *Verrucaria hegetschweileri* from bark, but in that species the exciple is more or less dark from top to bottom and a visibly separated involucrellum is entirely absent. The taxon is related to *V. hunsrueckensis*, with which it shares a thallus of tiny green to greenish-brown granules, the spores are of similar size but the shape is less elongated (14–20 × 5–6 µm). Photobiont cells 5–8 µm diam. in our specimens.

***Verrucaria* sp. 6** – 1: esr/ca; Voucher: JM12612. Thallus rimose areolate, very thin (<50 µm), green-brown, but covered by white crystalline pruina. Photobiont cells 4–8 µm diam. Perithecia c. 0.3–0.4 mm diam., from ½ to ¾ immersed in thallus. Involucrellum enclosing the exciple. Ascospores broadly ellipsoid, 15–25 × 12–14 µm. **ITS** and **mtSSU** sequenced. Closest NCBI Blast results in ITS are *Verrucaria vitikainenii* (c. 96% identity) and *V. ahtii* (c. 95%); see the position on Fig. 11.

***Verrucaria* sp. 7** – 1: sil/esr; Vouchers: PRA-JV21188a, 23403, 23415, 23566, 24722. Thallus rimose, areolate to squamulose, of brown-green flat areoles/squamules appressed to substrate; up to 100 µm thick. Cortex and medulla not developed. Algal cells dispersed across the entire thallus height, not arranged in stacks; mature photobiont cells 10–13 µm diam. Perithecia 0.2–0.3 mm diam., usually from c. 2/3 immersed in the thallus. Involucrellum indistinct from the exciple, widened in the basal part into a black basal layer, which is developed only in spots between perithecia. Ascospores c. 17–25 × 9–11 µm. Occurring on base-rich andesite rocks. Occasionally lichenicolous on *Verrucaria* sp. 2, especially in initial stages. **ITS** sequenced (all speciemens). In the ITS tree, it has unresolved relationships to related species: *Verrucaria maculiformis*, *V. substerilis*, *V. tenuispora*, *V. teyrzowensis*, and *Verrucaria* spp. 8–10 (Fig. 8).

***Verrucaria* sp. 8** – 2: sil; Voucher: PRA-JV23735. Thallus brown-green, granular; granules 0.1–0.25 mm diam. Cortex and medulla not developed. Algal cells dispersed over the entire thallus height, not arranged in stacks; mature photobiont cells 13–17 µm diam. Perithecia small, 0.1–0.2 mm diam., not immersed. Involucrellum indistinctly separated from the exciple, widened in the basal part and merging between perithecia to form spots of a black basal layer. Ascospores 18–24 × 6.5–8 µm. Occurring on siliceous stone with accompanying *Trapelia* spp. **ITS** sequenced. In the ITS tree, it has unresolved relationships to related species: *Verrucaria maculiformis*, *V. substerilis*, *V. tenuispora*, *V. teyrzowensis*, and *Verrucaria* spp. 7, 9 and 10 (Fig. 8).

***Verrucaria* sp. 9** – 1, 3: sil; Vouchers: PRA-JV20942, 23566, SMNS-STU-F-0001988. Thallus of brown areoles/squamules, c. 0.2–0.4 mm diam., loosely or tightly dispersed on the

carbonised black basal layer. Margin of squamules occasionally raised and granular, of granules 0.05–0.1 mm diam. Squamules up to 150 µm thick. Cortex and medulla not developed. Algal cells dispersed over the entire thallus height, not arranged in stacks; mature photobiont cells 12–17 µm diam. Perithecia developed between squamules, with involucrellum connected with the hypothallus. Ascospores 15–18 × 5–6 µm (only a few observed). Occurring on andesitic pebbles with *Amandinea punctata*, *Candelariella vitellina* and *Rinodina aspersa*. **ITS** sequenced (all specimens). In the ITS tree, it is placed in the same group as *Verrucaria maculiformis*, *V. substerilis*, *V. tenuispora*, *V. teyrzowensis*, and *Verrucaria* spp. 7, 8 and 10 (Fig. 8).

***Verrucaria* sp. 10** – 1: sil; Voucher: PRA-JV24699. Thallus dark brown to black, orbicular (up to 1 cm diam), rimose areolate, up to 100 µm thick. Areoles up to 0.2 mm diam. Cortex and medulla not developed. Algal cells dispersed over the entire thallus height, not arranged in stacks; mature photobiont cells 11–17 µm diam. Perithecia, c. 0.2 mm diam, immersed in thalline warts. Ascospores 20–25 × 7–8 µm. On andesitic stone in shady scree. **ITS** sequenced; it has unresolved relationships to related species: *Verrucaria maculiformis*, *V. substerilis*, *V. tenuispora*, *V. teyrzowensis*, and *Verrucaria* spp. 7–9 (Fig. 8); **mtSSU** sequenced.

***Verrucaria* sp. 11** – 1, 2: sil, esr; Vouchers: PRA-JV23420, 23728, ZP29002. Usually a sterile crust of brown granules or strongly bullate areoles, 0.05–0.2 mm diam. Cortex not developed. Photobiont cells 5–10 µm diam. Perithecia-like structures are frequently formed in the thallus, c. 0.1–0.2 mm diam., but without any traces of hymenium inside. The fertile specimen ZP29002 is the only exception; involucrellum thick, connected to the black basal layer (which is developed in spots); ascospores 14–25 × 12–14 µm. A pioneer species on andesitic or spilite pebbles in rocky steppes or well-lit oak forests on steep S-facing slopes, in communities with *Amandinea punctata*, *Trapelia obtegens* and *Protoparmeliopsis muralis*. **ITS** sequenced (all specimens); **mtSSU** sequenced (ZP29002). In the ITS tree, it is placed in the same group as *Verrucaria* sp. 2, *V.* sp. 3 (Fig. 11) and *V.* sp. 15.

***Verrucaria* sp. 12** – 1: esr; Vouchers: PRA-JV21173, 25030, 25045. Thallus brown-green, squamulose. Squamules 0.3–1.2 mm diam, often with raised and isidiate/blastidiate margins. Isidia c. 30–100 µm wide. Thallus c. 80–180 µm thick. Algal layer 50–120 µm thick; photobiont cells 3.5–7 × 3.5–5.5 µm diam., arranged in clusters, not in stacks. Upper cortex 40–60 µm thick, of paraplectenchymatous cells of 3–6 µm diam. Medulla indistinct and lower cortex not developed. Perithecia not developed. Morphologically similar to *V. macrostoma* (which also has a well developed cortex), but differs by raised and isidiate margins of squamules. Occurring on base rich or even lime enriched volcanic rocks. **ITS** sequenced (JV21173, 25030); forming a clade related to *Verrucaria macrostoma* and *V. nigrescens* - group 1 (Fig. 11). **mtSSU** sequenced (JV25030, 25045).

Other Czech record: Central Bohemia: Křivoklát, protected area Stříbrný luh, alt. 290 m, 50.02335N, 13.89577E, on lime enriched spilite rock in rocky steppe, 19 August 2020, coll. Jan Vondrák (PRA-JV24633; **ITS** and **mtSSU** sequenced).

***Verrucaria* sp. 13** – 1: esr, sil; Vouchers: PRA-JV24725, 24973. Thallus brown, rimose areolate, c. 100 µm thick. Areoles sharply polygonal, 0.1–0.4 mm diam. Cortex and medulla absent. Photobiont cells 4.5–7.5 µm diam. The black basal layer developed in spots and connected with involucrellum below perithecia. Perithecia immersed in thallus, c. 0.3–0.4 mm diam. Involucrellum conical, 50–100 µm thick in upper part, widened to c. 0.5 mm in basal part, with dark brown pigmentation mainly in the cell walls (net-like appearance). Periphyses remarkably long (up to 55 µm), cytoplasm filled parts c. 1.8 µm thick, but cell walls of neighbouring periphyses merging to form a more or less continuos gelatinous matrix. Ascospores 18–26 × 7–10 µm; length/width ratio from app. 2.0 in short spores, increasing to 3.4 in larger ones. **ITS** sequenced (both specimens) and **mtSSU** sequenced (24973). Closest NCBI Blast matches are Verrucariaceae spp. (identities up to 91% in ITS, up to 97.5% in mtSSU).

***Verrucaria* sp. 14** – 6: sil; Vouchers: PRA-JV24839, 25041.Thallus green granular. Granules c. 30–50 µm diam. (Granules poorly developed in JV25041.) Photobiont cells sphaerical to ellipsoid, 4–13 × 4–8 µm. Perithecia pale to dark brown, occasionally black, sessile, c. 0.1–0.2 mm diam. Perithecial wall smooth, colourless to carbonised in upper part, c. 20–30 µm thick. Involucrellum absent. Periphyses 23 × 2 µm. Ascospores 15–24 × 6–9 µm. Occurring on damp and shady rhyolitic and andesitic stones, together with *Verrucaria* spp*.* **ITS** and **mtSSU** sequenced; closest NCBI Blast matches are *Verrucariaceae* spp. for ITS (91% identitiy) and *V. dolosa* EF105148 for mtSSU (97% identity).

***Verrucaria* sp. 15** – 1: esr; Vouchers: PRA-JV24742, 25144. Thallus olive-green, epilithic, areolate to subsquamulose. Areoles flat, up to 150 µm thick. Cortex not developed, algal cells (c. 4-10 µm diam.) present in whole thallus section, not arranged in stacks. Black basal layer restricted to spots surrounding bases of perithecia. Perithecia frequently formed between thalline areoles, c. 0.1–0.25 mm diam., but sometimes without hymenium (similarly to *V.* sp. 11). Hymenium rarely developed in JV24742, ascospores few and poorly developed and 17–18 × 13–16 µm. Ascospores well developed in JV25144, 15–28 × 13–16 µm; smaller spores almost globose. Occurring on andesitic pebbles in steppe (JV25144) or on nutrient-rich andesitic outcrops at river bank, together with sorediate *Bacidina* sp (JV24742). **ITS** sequenced (both specimens) and **mtSSU** sequenced (JV24742); the ITS sequences placed in the same group as *Verrucaria* sp. 2, *V.* sp. 3 and *V.* sp. 11.

***Verrucaria* sp. 16** – 1: sil; Voucher: PRA-JV24739. Sorediate crust without perithecia. Thallus olive green to brownish, <50 µm thick, epilithic. Cortex and the black basal layer absent. Soralia beige-green, very small, c. 0.05–0.15 mm diam, irregularly punctiform, convex. Soredia only 15–25 µm diam., usually with up to 6 algal cells in optical view. Algal cells 3–8 µm diam. Occurring on andesitic pebbles in scree together with

Verrucaria sp. 5. **ITS** sequenced; almost identical with the NCBI sequence of *Verrucaria* aff. *trabicola* (98.5 % identity) generated by Pykälä et al. (2019), but their specimen was epiphytic and without soredia. We have sequenced ITS of more Czech and Slovakian specimens of *Verrucaria* specimens with tiny punctiform soralia with following results: one was closely related to *V.* sp. 16 and *V.* aff. *trabicola* (PRA-ZP15480 with about 98 % identity with both sequences) and two specimens (PRA-ZP29891 and ZP30029) were closely related to *V. tallbackensis*, the species belonging to the same group (*Verrucaria kalenskyi – V. xyloxena* species complex sensu Pykälä et al. 2019).

***Verrucaria* sp. 17** – 7: ca (mortar in ruin wall); Voucher: PRA-JV25024. Thallus olive green, epilithic, membranaceous, not divided into areoles, but with occasional cracks; mostly up to 50 µm thick. Cortex and the black basal layer absent. Algal cells 4–8 µm diam., not arranged in stacks. Perithecia 0.15–0.25 mm diam., half-immersed in thallus, with poorly developed carbonised involucrellum, indistinguishable from exciple. Ascospores 20–28 × 9–13 µm. Occurring on mortar together with calcicolous bryophytes. **ITS** sequenced; the sequence stays solitary within the clade of *V. dolosa*, *V. hydrophila* and *V. placida*. **mtSSU** sequenced.

***Verrucaria* sp. 18** – 1: sil; Voucher: PRA-JV24701. Morphologically similar to *V. dolosa*. Thallus brown, epilithic, membranaceous, divided by thin cracks into tiny areoles, c. 0.1–0.2 mm diam. Areoles up to 50 µm thick. Cortex and the black basal layer absent. Algal cells 4–7 µm diam., not arranged in stacks. Perithecia c. 0.1–0.2 mm diam., sessile to half-immersed in thallus. Carbonised involucrellum thin, enclosing perithecia, not laterally spreading. Ascospores 14–18 × 5.5–7 µm. **ITS** and **mtSSU** sequenced; the ITS sequence stays solitary within the clade of *V. dolosa*, *V. hydrophila*, *V. placida* and *V.* sp. 17.

***Verrucaria* sp. 19** – 6: ca-concrete; Voucher: PRA-JV24858. Morphologically similar to *V. viridula* and *V. tabacina* Thallus rimose-areolate, pale brown-grey; polygonal areoles variable in size, 0.1–0.8 mm diam., up to 150 µm thick. Cortex and the black basal layer absent. Algal cells in whole vertical profile, sometimes forming poorly arranged stacks; algal cells 6–10 µm diam. Perithecia 0.5–0.7 mm diam., half-immersed or fully immersed in thalline warts. Carbonised involucrellum sphaerical, enclosing perithecia, 70–100 µm thick. Periphyses well developed, 30–40 µm long and 3–5 µm thick. Ascospores 20–29 × 14–17 µm. Occurring on rain-sheltered concrete in humid and shaded conditions in the bottom of stream valley, together with *Caloplaca chrysodeta*. **ITS** sequenced. It is related to *V. tabacina* (c. 91.5% identity with JV21269) and *V. viridula*, but our and NCBI sequences of *V. viridula* have <91% identities with *V.* sp. 19.

***Verrucaria* sp. 20** – 1: ca/esr; Voucher: PRA-JV25145. Outer morphology similar to *Staurothele frustulenta*. Thallus brown-grey, bullate-areolate in centre and subsquamulose at thallus margins. Areoles/squamules c. 0.2–1 mm diam., 100–300 µm thick. Cortex absent, but the uppermost mycobiont cells form c. 5 µm thick,

brown-pigmented layer. Medulla and black basal layer absent. Algal cells 4–8 µm diam., sometimes arranged in stacks. Perithecia globose, 0.15–0.3 mm diam., fully immersed in thallus (only a small round area around ostiolum visible on thallus). Carbonised involucrellum absent. Exciple brown (but colourless below perithecium), 15–25 µm thick. Ascospores 10–15 × 6–8.5 µm. Occurring on sun-exposed lime enriched andesitic rock. **ITS** sequenced; identities with Verrucariaceae spp. available in NCBI are below 86%.

***Verrucaria* sp. 21** – 6: sil; Voucher: PRA-JV25040. Thallus dark green, up to 100 µm thick, but typically much thinner and membranaceous; not divided by cracks. Algal cells 5–12 µm diam. Cortex and black basal layer absent. Perithecia 0.2–0.25 mm diam., raised above thallus (up to half-immersed in thallus). Carbonised involucrellum c. 20–30 µm thick, reaching the perithecial base, but neither incurving below the exciple nor laterally spreading; sometimes enclosing 2 or 3 adjacent perithecia. Periphyses forming a palisade tissue at ostiolum, c. 10–15 × 1–2 µm. Ascospores 10–16 × 5–7 µm. Occurring on shaded and damp andesitic stone with *Verrucaria praetermissa* and *V.* sp. 14. **ITS** sequenced; closest NCBI Blast hits are various *Heteroplacidium* and *Placidium* with shared identities below 97%, but with low covers (mostly 30–40%) and identities largely restricted to the 5.8S rDNA part. **mtSSU** sequenced; closest NCBI Blast hits are various Verrucariaceae (e.g. *Mastodia* and *Hydropunctaria*) with identities up to 92%.

***Verrucaria* sp. 22** – 1: ca; Voucher: PRA-JV25038. Thallus areolate, pale grey, without pigmentation in section. Areoles irregular in shape and size, c. 0.2–0.7 mm diam., 100–150 µm thick. Cortex absent, but colourless epinecral layer present, up to 30 µm thick. Medulla and black basal layer absent. Algal cells 4–8 µm diam., not arranged in stacks. Perithecia globose, 0.2–0.25 mm diam., half-immersed or fully immersed in thallus. Carbonised involucrellum absent, but exciple brown in upper part and with colourless bottom; 20–40 µm thick. Ascospores 14–17 × 5.5–7 µm. Occurring on calcareous inclusion in andesitic rock with *Diplotomma alboatrum*. **ITS** sequenced; closest NCBI Blast hit is a North American *Verrucaria* sp., MZ922242 (95% identity). Other NCBI sequences share identities below 90%. **mtSSU** sequenced.

List of named taxa

Lichenicolous, *non-lichenized fungi*

α***Abrothallus caerulescens*** – 1, 3: sil-on *Xanthoparmelia conspersa*; Vouchers: JK (in Kocourková 2000), JM12059.

α***Abrothallus tulasnei*** – 10: sil-on *Xanthoparmelia conspersa*; Voucher: JK10381.

α***Arthrorhaphis aeruginosa*** – 1, 4, 5, 7, 14: log-on *Cladonia* squamules. Voucher: JK6561.

α***Cercidospora macrospora*** – 1, sil-on *Lecanora garovaglii*; Voucher: JK10353.

α***Cercidospora solearispora*** – 1, esr: on *Circinaria caesiocinerea;* Voucher: JK10510.

α***Clypeococcum cladonema*** – 7: sil-on *Xanthoparmelia verruculifera* (Kocourková 2000).

α***Clypeococcum hypocenomycis*** – 3: Qpe-on *Hypocenomyce scalaris* (Kocourková 2000).

α***Dactylospora deminuta*** **s.lat.** – 4, 7: Apl, Qpe-on *Bacidia rubella*, *Rinodina efflorescens*, unidentified crust; Vouchers: PRA-JV20628, 24142, 24162. Apothecia dark brown to black, 0.1–0.3 mm diam., with raised margin and flat disc. Exciple, 30–40 µm wide, extended below hypothecium, with orange-brown pigment, KOH+ dark brown. Asci 8-spored. Ascospores grey to brown, 3-septate, 14–18 × 4–6 µm. Identification tentative; ascospore characters do not correspond with the description in Triebel (1989). **ITS** sequenced (JV24162; on unidentified thin crust).

α***Dactylospora parasitica*** – 7: Apl-on *Pertusaria amara*; Voucher: PRA-JV24261. **ITS** sequenced.

α***Endococcus brachysporus*** (NEW) – 9: sil-on *Porpidia tuberculosa*; Voucher: PRA-JV24517. Also recorded from Central Bohemia on the same host (Malý Blaník, 5 May 2001, coll. J. Kocourková, PRM896122).

α***Endococcus karlstadtensis*** (NEW) – 1: cs-on *Endocarpon pusillum;* Voucher: JK10503. Also recorded from a nearby locality on the same host (Stříbrný luh Nature Reserve, 19 August 2020, coll. J. Vondrák, PRA-JV24628).

α***Endococcus macrosporus*** – 1, 7, 10: sil-on *Rhizocarpon geographicum*, *R. lecanorinum*; Vouchers: JK (in Kocourková 2000), JK4003, 4979, PRA-JV24689.

α***Endococcus perpusillus*** s.lat. – 1, sil-on *Circinaria caesiocinerea*; Voucher: JK10362.

α***Endococcus stigma*** – 1: sil-on *Acarospora praeruptorum*; Voucher: PRM906842.

α***Intralichen christiansenii*** – 1: sil-on *Catillaria atomarioides;* Voucher: JK10529.

α***Karschia talcophila*** – 3: sil-on *Diploschistes scruposus*; Voucher: JK (in Kocourková 2000).

α***Lichenoconium erodens*** – 6, 7, 11: Aglu, Pic, Qpe, sil-on *Cladonia coniocraea*, *Flavoparmelia caperata*, *Lecanora conizaeoides, Parmelia saxatilis*; Vouchers: JK3926, 4804, 4843, 10357.

α***Lichenoconium lecanorae*** – 1,10, 11: esr-on *Xanthoparmelia conspersa. X. pulla*, *X. verruculifera*, sil-on *Parmelia saxatilis*, Qpe-on *Lecanora conizaeoides*; Fra-on *Lecidella elaeochroma*; Vouchers: JK2258, 2259, 3990, 3484, 10539, PRM906953.

α***Lichenoconium lichenicola*** – 1: sil-on *Physcia dubia;* Voucher: JK10528.

α***Lichenoconium usneae*** – 11: Qpe, sil-on *Ramalina europaea*; Voucher: JK (in Kocourková 2000), JK10450.

α***Lichenodiplis lecanorae*** – 1, 7: sil-on unidetified crust, Fra-on *Lecanora* cf. *saligna*; Vouchers: JK (in Kocourková 2000), PRA-JV23416.

α***Lichenostigma alpinum*** – 6: Car-on unidentified sorediate crust*;* Voucher: JK5474 (only in anamorph).

α***Lichenostigma chlaroterae*** (NEW) – 7: Car-on *Lecanora pulicaris;* Voucher: JK4985 (only as anamorph).

α***Lichenostigma cosmopolites*** – 1, 6, 7, 8, 11: sil-on *Xanthoparmelia conspersa*; Vouchers: JK10380, PRM (Kocourková 2000).

α***Lichenostigma elongatum*** – 1, 8: sil-on *Aspicilia brucei* and *Circinaria caesiocinerea*; Vouchers: JK3937, PRA-JV24596, 24878.

α***Lichenostigma gracilis*** – 1: sil-on *Acarospora praeruptorum*; Vouchers: PRM906842a, PRA-JV24690.

α***Lichenothelia convexa*** – 1, 3, 5: sil-on *Acarospora*; Vouchers: PRA-JV20932, 20996.

α***Lichenothelia rugosa*** – 1, 2, 3, 11: sil-on *Diploschistes scruposus*; Voucher: JK (in Kocourková 2000), JK2827, 10567, PRA-JV21223.

α***Marchandiomyces corallinus*** – 1: sil-on *Ramalina capitata*; Voucher: PRA-JV24691.

α***Microcalicium arenarium*** – 2, 4, 5, 7, 11, 13: sil-lichenicolous on *Psilolechia*; Vouchers: JK7666, 7669, PRA-JV24137. **mtSSU** sequenced (JV24137).

α***Muellerella erratica*** – 1, 7: esr-on *Circinaria contorta*, ca-on *Protoblastenia rupestris*; Vouchers: JK (in Kocourková 2000, as *Muellerella pygmaea* var. *athallina*), JK10452.

α***Muellerella lichenicola*** – 1: esr-on *Caloplaca flavovirescens*; Voucher: JK (in Kocourková 2000).

α***Muellerella polyspora*** (NEW) – 2: Car-on *Arthonia radiata*; Voucher: PRA-ZP29758.

α***Muellerella pygmaea*** – 3: sil-on *Lecidea fuscoatra*; Voucher: JK (in Kocourková 2000).

α***Muellerella ventosicola*** – 11: sil-on *Rhizocarpon reductum*; Voucher: JK (in Kocourková 2000).

α***Nectriopsis micareae*** (NEW) – 6: dw-stump-on *Micarea prasina* s.lat.; Voucher: PRA-JV24164. Perithecia c. 0.1 mm diam., ascospores 10–13 × 3 µm, curved, resembling *Nectriopsis rubefaciens*.

α***Paranectria oropensis*** (NEW) – 6, 9: Acam, Car, Fra-on *Aquacidia trachona*, *Lecania croatica*; Voucher: PRA-JV24156. Also recorded from Prague, on *Physcia adscendens* (coll. J. Kocourková, 2020, JK10280).

α***Phaeospora rimosicola*** – 10: esr-on *Rhizocarpon petraeum*; Voucher: PRA-ZP31558.

α***Polycoccum minutulum*** – 7, 13: sil-on *Trapelia placodioides;* Vouchers: JK4973, 4978.

α***Roselliniella cladoniae*** – 1: cs-on *Cladonia pocillum;* Voucher: JK10495.

α***Sarcopyrenia cylindrospora*** – 7, 10: sil-on *Aspicilia* sp., *Rhizocarpon geographicum*; Vouchers: JK (in Kocourková 2000), JK10444, PRA-JV25099.

α***Spirographa ciliata* s.l.** (NEW) – 1: sil-on *Xanthoparmelia conspersa;* Voucher: JK10490. In the Czech Republic, the species is known only as anamorph (*Cornutispora ciliata*). Here we employ the broad concept of *S. ciliata*, in which the species is not host-specific.

Additional records from the Czech Republic: Křivoklátsko: Vysoký Tok Nature Reserve, on *Lecanora conizaeoides*, 12 Sept. 2018, coll. J. Kocourková (JK10074); Nezabudické skály NR, 16 Febr. 2002, coll. J. K. (PRM896173); Lánská obora game reserve, on *L. conizaeoides*, 5 May 2002, coll. J. K. (PRM900163); on *Pertusaria coccodes*, 24 June 2002, coll. J. K. (PRM900182); Řevničov, source area of Klíčava brook, on *L. conizaeoides*, 18 May 2001, coll. J. K. (PRM895830); near Horácká Lísa gamekeeper´s house, on *Cladonia macilenta*, 13 Oct. 2001, coll. J. K. (PRM896145). Eastern Bohemia: Nové Město n. Metují, valley of the Metuje River (Peklo), on *Cladonia caespiticia*, coll. J. K. & F. Berger (PRM895843).

α***Sphinctrina leucopoda*** – 1: sil-on *Diploschistes scruposus*; Field record: JM.

[α]***Stigmidium fuscatae*** – 1: sil-on *Acarospora fuscata*, *A. gallica*, *A. praeruptorum*; Vouchers: JK (in Kocourková 2000), PRA-JV24971.

[α]***Stigmidium lichenum*** (NEW) – 1: esr-on *Verrucaria* cf. *maculiformis*; Vouchers: PRA-JV24748, 24950, 24970.

[α]***Stigmidium rivulorum*** – 6: sil-inundated-on *Verrucaria aquatilis*; Voucher: JM11881a. This lichenicolous fungus is possibly conspecific with *Pseudarthopyrenia rivularis* described from the Czech Republic as an aquatic lichen on siliceous stones (Servít 1955). Our specimen has tiny perithecia (about 0.1 mm diam.) on black thallus; ascospores *Arthopyrenia*-like, 1-septate, 15–18 × 4–5 µm.

[α]***Stigmidium xanthoparmeliarum*** – 1, 7: sil-on *Xanthoparmelia conspersa*, *X. protomatrae*; Vouchers: JK (in Kocourková 2000).

[α]***Taeniolella delicata*** – 1: sil-on *Protoparmeliopsis garovaglii*; Voucher: JK10484.

[α]***Taeniolella* spp.** – 9, 11: sil-on *Rhizocarpon reductum* and *Lecidea fuscoatra*; Vouchers: JK2829, PRA-JV24535.

[α]***Tremella candelariellae*** (NEW) – 3: Qpe-on *Candelariella xanthostigma*; Voucher: PRA-ZP30966.

[α]***Tremella diploschistina*** (NEW) – 1: sil-on *Diploschistes scruposus*; Voucher: PRA-JV23423. *Additional Czech record*: Šumava Mts, Hamry: nature reserve Bílá strž, rock-outrop-ridge at SE part of the reserve, 49°11'15.9"N, 13°09'57.5"E, infecting *Diploschistes scruposus* on SW-facing, half-shaded low vertical part of mica-schist outcrop, alt. 1075 m, 17 Sept. 2019, coll. Z. Palice (PRA-ZP27715).

[α]***Tremella wirthii*** (NEW) – 2: dw-log (Qpe)-on *Protoparmelia hypotremella*; Vouchers: PRA-JV23710a, ZP29015. **ITS** sequenced (JV23710a).

[α]***Unguiculariopsis acrocordiae*** – 1, 2, 3, 10, 14: Qpe, Til, Ulm-on *Acrocordia gemmata*; Vouchers: PRA-JV, ZP.

[α]***Weddellomyces xanthoparmeliae*** – 7: sil-on *Xanthoparmelia conspersa*; Voucher: JK7674.

Non-lichenized microfungi

[β]***Amphisphaeria umbrina*** – 5, 14: Qpe; Vouchers: PRA-JV24191, 24328. **ITS** and **mtSSU** sequenced (24328).

[β]***Bertia gigantospora*** (NEW) – 1, 2, 3: Acam, Apl; Voucher: PRA-JV24354, 24923. Characterized by exceptionally large ascospores, 36–45 × 12–14 µm (Nannfeldt 1975). Described from Florida, but recently also reported from Europe, Great Britain. It occurs in lowlands of the Czech Republic, preferrably on *Acer campestre* in lichen communities, typically with *Bacidina* sp. 1 (see above). It was previously reported from the Czech Republic as *Rhagadostoma* sp. (Vondrák et al. 2016). European specimens may be distinct from the sequenced *Bertia gigantospora* from Kenya (Mugambi & Huhndorf 2010).

[β]***Cheiromycella microscopica*** (NEW) – 4, 5: dw-log (Abi); Vouchers: PRA-JV24882, 24893.

[β]***Cryptodiscus foveolaris*** – 2, 6: dw; Vouchers: PRA-JV, ZP.

[β]***Exarmidium inclusum*** – 1: dw-log (Fra); Voucher: PRA-JV24702.

[β]***Hyalotrochophora lignatilis*** (NEW) – 13: dw-log; Voucher: PRA-JV23983.

[β]***Hysterium pulicare*** – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Apl, Aps, Fra, Qpe; Voucher: PRA-JV24930.

[β]***Karschia cezannei*** – 1, 2, 4, 5, 7, 8: Qpe; Vouchers: JK, PRA-JV, PRA-ZP. Common in the study area on weathered bark of older oaks. The species was also recorded in nearby areas (e.g. Vysoký Tok Nature Reserve, coll. J. Kocourková, JK9656, 9689, 10130).

[β]***Karstenia* aff. *idaei*** – 1: Ulm; Voucher: PRA-ZP31630. *K. idaei* is taxon originally described from canes of *Rubus idaeus* (Sherwood 1977), but recently suggested to be a plurivorous saprophytic species growing also on weathered bark and wood of various deciduous trees and shrubs (e.g. Friebes 2011). The present specimen fits quite well the decription in Sherwood (1977) and additional notes in Friebes (2011) in overall habitus, and ascospore and excipular characters. It deviates by the presence of crystals non-soluble in KOH, forming a surficial layer of epihymenium, resulting in a faint pruina of largely hidden disc, and by slightly coloured, distinctly delimited subhymenium, intensifying yellow-orange after adding KOH. Similarly-looking specimens from the Czech Republic were identified as *Ramonia chrysophaea* (e.g. Vondrák et al. 2016; not studied in detail later), and may well be conspecific or related to our specimen. However, the name *R. chrysophaea* is highly misunderstood and misapplied. In literature it is attributed to at least three different entities: i) Verkley (1999) studied the very sparse Persoon's original material of *Peziza chrysophaea* in L, and concluded it is possibly conspecific with *Stictis friabilis*, over which should have nomenclatoric priority; ii) previously Vězda (1966) missed the Persoon's type specimen and designed a neotype on (apparently) a lichenized fungus, old Nylander's specimen from France with distinctly halonate ascospores, which is very close and possibly identical to *Ramonia subsphaeroides* according to descriptions in the same work (Vězda 1966); iii) currently used concept of *R. chrysophaea* by the British authors (e.g. Sanderson & Purvis 2009) which was followed in identification of Czech specimens (e.g. Vondrák et al. 2016), resembles that one by Sherwood (1977) for *Karstenia idaei* and *K. sorbina*. The species delimitation in the *Karstenia/Ramonia*-complex is not clarified yet and remains to be solved in future. **ITS** sequenced; closest NCBI Blast hit is *Karstenia rhopaloides* (FJ904685; 87.2% identity). **mtSSU** sequenced; closest NCBI Blast hits: various Ostropomycetidae (identities up to 88%).

[β]***Kirschsteiniothelia aethiops*** – 2: Ulm; Voucher: PRA-JV24059. Ascospores 1-septate, sole-shaped, 22–30 × 12–14 µm, grey-brown. Hamathecium of branched and anastomosed paraphysoids. Perithecial wall dark brown, cellular, surrounding the centrum. *Peridiothelia grandiuscula* has similar size and shape of ascospores, but the brown perithecial wall should be absent below hymenium.

[β]***Leptosillia wienkampii*** – 3: Fra; Voucher: PRA-JV24928.

[β]***Peridiothelia fuliguncta*** – 1, 2: Til-base; Vouchers: JM13737, PRA-JV23457, ZP30116.

[β]***Pseudotryblidium neesii*** – 4: Abi; Voucher: PRA-JV24149. Anamorph recorded. Dark red to black pycnidia of irregular shape, 0.2–0.5 mm diam. Conidia curved, c. 20 × 6 µm.

[β]***Rebentischia massalongoi*** – 2, 6, 9: Acam, Apl; Vouchers: PRA-JV24188, 24533, 24694.

[β]***Requienella fraxini*** (NEW) – 1: Fra; Voucher: PRA-JV24337.**ITS** sequenced.

[β]***Sarea coeloplata*** (NEW) – 7, 9: Pic-resin; Vouchers: JK4952, PRA-JV24514. Hardly distinguishable from *S. difformis*, but distinct in the DNA sequence data. According to Mitchell et al. (2021), our specimen JV24514 belongs to the "clade 2" of this species. Older specimen JK4952 is tentatively identified.

[β]***Sarea resinae*** – 6, 9: Pic-resin; Voucher: PRA-JV23906. **ITS** and **mtSSU** sequenced.

Semilichens

[γ]***Absconditella rubra*** (DD) – 2: Car; Voucher: PRA-ZP31463. Although recently described (van den Boom et al. 2015), it has already been recorded from numerous sites in the Czech Republic, also in regions with impoverished lichen flora (Malíček et al. 2018a). It is easily overlooked and has only a single record in Týřov.

[γ]***Anisomeridium macrocarpum*** (DD) – 1, 2, 3, 6, 7, 10, 13: Acam, Aps, FE, Til-tree bases; Vouchers: PRA-JV.

[γ]***Arthonia punctiformis*** (DD) – 1, 2, 5, 6, 10, 11, 13, 14: Bet, Car, Cor, Cra, Fag, Qpe, Sari, Stor, Til-preferrably on thin twigs; Vouchers: PRA-JV.

[γ]***Arthonia thoriana*** (NEW) – 4, 6: Aglu, Fra, Qpe, dw-snag (Abi, Aglu); Vouchers: PRA-JV20623, 23882, 24891, 24892. Described as non-lichenized (Ertz et al. 2018) from southern England. In the study area it is common on mature *Alnus* trees in the bottom of the valley of Úpořský potok stream. We suggest the species is a semilichen with a loose association with algae. **mtSSU** sequenced (JV20623, 23882).
Other Czech records: South Bohemia. Benešov nad Černou, protected area Žofínský prales, alt. 780 m, 48.66992N, 14.70982E, on bark of *Ulmus glabra*, 30 July 2020, coll. J. Vondrák (PRA-JV24025); České Budějovice, Poněšice, valley of stream Kozlovský potok, alt. 390 m, 49.11401N, 14.47481E, on *Quercus robur*, 9 April 2021, coll. J. Vondrák (PRA-JV24954). (Frequent and abundant on the latter locality.)

[γ]***Arthopyrenia analepta*** (DD) – 6, 8: Car, Sor-tw; Voucher: PRA-JV23984. Historical records from the Czech Republic (sub *A. fallax*) are more than 90 years old. In recent years, the species was rediscovered in several localities, one of which has been published (Malíček et al. 2017). Perhaps it is locally frequent in sites with humid mesoclimate on smooth bark, expecially on *Carpinus* rods.

[γ]***Arthopyrenia fallaciosa*** (NEW) – 3: Bet; Vouchers: PRA-JV24545. Distribution in Europe is little known; said to be more frequent in northern Europe (Coppins & Earland-Bennett 2009). In the study area recorded on a single mature birch (49.96979N, 13.79521E). **mtSSU** sequenced.

[γ]***Arthopyrenia inconspicua* auct., non (Nyl.) J. Lahm ex Körb.** (NEW) – 6: sil; Voucher: PRA-JV23972. A little known tiny semilichen with inconspicuous thallus and perithecia up to 0.1 mm diam. Perithecial wall is about 20 µm wide with colourless inner part and

dark brown rough outer part; the wall is absent beneath perithecia. It is said to occur on base-rich siliceous stones at lower altitudes (Wirth et al. 2013). In the study area, it was found on acidic siliceous stone (rhyolite) at forest path. A similar species, *Arthopyrenia saxicola*, has larger perithecia and ascospores and occurs on calcareous substrata.

We apply here the name according to the concept of Wirth et al. (2013), however, the real *Arthopyrenia inconspicua* (Nyl.) J. Lahm ex Körb. is a non-lichenized fungus with specific fruiting bodies (catathecia), lichenicolous on *Verrucaria* (Roux 2020).

ᵛ***Arthopyrenia salicis*** (DD) – 3, 5, 6: Car, Cor, Fra; Vouchers: PRA-JV. Species known to be either lichenized or not (Coppins & Orange 2009). Specimens from central Europe usually do not have a lichenized thallus, but perhaps are loosely associated with *Trentepohlia* and thus considered semilichens. In the Czech Republic, the species is locally frequent, especially on *Corylus* rods, but was only once published (Malíček et al. 2017).

ᵛ***Chaenothecopsis pusilla*** (DD) – 3, 4, 5, 6, 10: Bet, Pin, Qpe, dw-snag (Abi, Fag, Pin); Vouchers: PRA-JV, ZP.

ᵛ***Chaenothecopsis pusiola*** (DD) – 5: dw-snag (Fag); Voucher: PRA-JV23875.

ᵛ***Chaenothecopsis rubescens*** (DD) – 2, 3, 5: Qpe; Vouchers: PRA-JV23725, 24321.

ᵛ***Chaenothecopsis savonica*** (DD) – 4: dw-snag (Qpe); Voucher: PRA-JV24131.

ᵛ***Cyrtidula quercus*** (NEW) – 6: Cor; Vouchers: PRA-JV. Recorded several times in the Czech Republic in recent years (Beskydy Mts, Třeboňsko, Podyjí), but those reports were unpublished. The species occurs on hazel rods and oak twigs where it forms numerous black stromata, each including few perithecia (Coppins & Earland-Bennett 2009). Ascospores are rarely well developed.

ᵛ***Eopyrenula avellanae*** (NEW) – 3: Car; Vouchers: PRA-JV24588. In the Czech Republic, known from a single tree in the study area (49.97034N, 13.79457E) where it grows in an anamorpic state (with pycnidia only) together with *Naetrocymbe fraxini*.

ᵛ***Epigloea soleiformis*** (DD) – 14: dw-log; Voucher: PRA-JV24252.

ᵛ***Leptorhaphis epidermidis*** (DD) – 1: Bet; Voucher: PRA-JV24564. Recorded on a single old birch in the study area (49.98510N, 13.79186E).

ᵛ***Leptorhaphis maggiana*** (DD) – 2, 4: Cor; Vouchers: PRA-JV24133.

ᵛ***Lichenothelia papilliformis*** (NEW TO EUROPE) – 1: esr; Voucher: PRA-JV23406. Described from limestone in a single site in California (Ametrano et al. 2019). We report on the first known occurrence in Europe; on calcareous inclusion in andesitic rock in the study area. Our specimen has extensive areolate thalli similar to the silicicolous *L. scopularia* without ascocarps. **mtSSU** sequenced; Closest NCBI Blast results with identities >99% had *L. arida* (silicicolous), *L. intermixta* (calcicolous, but not forming areolate crusts) and *L. papilliformis* (calcicolous and morphologically corresponding to our specimen).

ᵛ***Lichenothelia scopularia*** (DD) – 1, 2, 5, 9, 11: sil; Vouchers: PRA-JV21035, 21070, 24594. **mtSSU** sequenced (JV21070).

[v]***Microcalicium ahlneri*** (DD) – 4: dw (Abi); Voucher: PRA-JV24276. A single record in the study area in a remnant of fir-pine forest on a scree with cold and humid mesoclimate (49.95894N, 13.80106E). **mtSSU** sequenced.

[v]***Microcalicium disseminatum*** (DD) – 4: Qpe; Vouchers: PRA-JV24176, 24280. **ITS** and **mtSSU** sequenced (JV24176).

[v]***Microcalicium minutum*** (NEW SPECIES) – 4: Pin; Voucher: PRA-JV24173. See the description above.

[v]***Mycocalicium subtile*** (DD) – 1, 2, 4, 5, 11: dw-log, snag; Vouchers: PRA-JV20626, 23755, 24286, 25060 (anamorph). The anamorphic state (JV25060) sequenced for **ITS** and **mtSSU**. The anamorph has black pycnidia, 150–200 µm diam., with grey-green wall in section. Conidia are pale olive, 4–5 × 1.5–2.5 µm, ellipsoid or shortly bacilliform, sometimes slightly curved.

[v]***Naetrocymbe fraxini*** (RE) – 3: Car; Voucher: PRA-JV24587. Rather frequent in oceanic regions of Europe, e.g. in Great Britain (Coppins & Orange 2009) where its ecology is similar to the common *Naetrocymbe punctiformis*. However, the species is certainly rare in central Europe (Wirth et al. 2013) and has a more specific ecology. The few records of this species in the Czech Republic are dated to the early 20th Century and are now more than 100 years old (cf. Vězda & Liška 1999). The only known recent occurrence is in the study area on rain-sheltered smooth bark of a single old *Carpinus* – the very same tree where also *Eopyrenula avellanae* and *Reichlingia zwackhii* have the only Czech records.

[v]***Naetrocymbe punctiformis*** (DD) – 2, 3, 5: Car, Cor, Fag-tw, Til-tw; Vouchers: PRA-JV.

[v]***Steinia geophana*** (LC) – 1, 6, 7, 13: dw-log, snag; Vouchers: JK3491, PRA-JV20659, 21237.

[v]***Stenocybe pullatula*** (DD) – 6: Aglu-tw; Voucher: PRA-JV24160.

[v]***Thelocarpon epibolum*** (LC) – 6: dw-log; Voucher: JK (in Kocourková-Horáková 1998).

[v]***Thelocarpon intermediellum*** (NT) – 1, 3, 4: dw-log; Vouchers: PRA-JV20953, 21236.

Lichens

Absconditella lignicola (LC) – 3, 6, 7, 13: dw-log; Vouchers: JK, PRA-JV.

Acarospora admissa (DD) – 1, 3: sil; Vouchers: PRA-JV20968, 23431. (The record JV20968 published; Knudsen & Kocourková 2020a).

Acarospora fissa (NEW SPECIES) – 1: sil; Vouchers: PRA-JV. See the description above.

Acarospora franconica (DD) – 1: sil; Voucher: JM12580. (The record published; Knudsen & Kocourková 2020b).

Acarospora fusca (DD) – 3: sil; Voucher: PRA-JV24683.

Acarospora fuscata (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12: sil; Vouchers: JK, JM, PRA-JV.

Acarospora gallica (DD) – 1, 13: sil; Vouchers: JK10354, 10369.

Acarospora glaucocarpa **f. *melaniza*** H. Magn. (DD) – 1: ca; Voucher: JK10522. It differs from the forma *typica* by the endolithic thallus and probably represents a distinct species from *A. glaucocarpa* (Knudsen et al. 2020).

Acarospora insolata (DD) – 1: sil; Vouchers: JM12581, PRA-JV21212.

Acarospora intermedia (DD) – 1, 8: sil; Vouchers: PRA-JV21141, 24202. (The record published; Knudsen & Kocourková 2020a).

Acarospora irregularis (DD) – 1: sil; Voucher: PRA-JV21216.

Acarospora praeruptorum (DD) – 1, 3, 7: sil; Vouchers: JK4977, PRA-JV (6 specimens), ZP31386, PRM906842.

Acarospora rugulosa (VU) – 1: sil; Voucher: JK10519.

Acarospora squamulosa (syn. *Acarospora peliocypha*) (DD) – 1, 7: sil; Vouchers: JK4980, 10355, 10508, 10532, 10355, JM12585, PRA-JV20666, 23488. **ITS** and **mtSSU** sequenced (JV20666).

Acarospora subfuscescens (syn. *Polysporina lapponica* auct.) (LC) – 1, 3, 7, 8: sil-lichenicolous on *Acarospora*; Vouchers: PRA-JV.

Acarospora umbilicata (NT) – 1, 10: esr; Vouchers: JM, PRA-JV21170, ZP31502.

Acarospora veronensis (NT) – 1, 3, 10: sil-pebbles; Vouchers: JM, PRA-JV.

Acarospora versicolor (VU) – 1, 7: esr; Vouchers: PRA-JV23435, 23586, 24202.

Acrocordia conoidea (DD) – 6, 13: esr; Voucher: PRA-JV23883.

Acrocordia gemmata (EN) – 1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14: Acam, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Til, Ulm; Vouchers: JM, PRA-JV, ZP. Frequent and abundant in the study area; the high red list category (EN) is probably overestimated. Morphotype with unpigmented perithecia (albinomorph) also recorded (JV24050).

Agonimia allobata (DD) – 1, 2, 3, 6, 11, 13, 14: Acam, Apl, Fag, Fra, Qpe, Til, Ulm-tree bases, roots; Vouchers: JM, PRA-JV, ZP.

Agonimia flabelliformis (DD) – 14: Qpe; Voucher: PRA-JV24269. Recorded in the study area on a single tree where it was abundant and richly fertile. **ITS** and **mtSSU** sequenced.

Agonimia gelatinosa (DD) – 2: as; Voucher: PRA-JV23716. Known as an arctic-alpine species, but some records exist from European lowlands (Sérusiaux et al. 1999). In the Czech Republic, it was reported from mountains (Bouda et al. 2019) and lower altitudes (Vondrák et al. 2010). Probably a rare lichen in the study area; only one thallus recorded on sandy soil in steppe at top of an andesite cliff.

Agonimia globulifera (DD) – 1, 3: bryo-ca; Vouchers: PRA-JV20896, 21027.

Agonimia opuntiella (NT) – 1, 3, 7, 10: bryo-ca, bryo-esr, Fra; Vouchers: JK, PRA-JV, ZP.

Agonimia repleta (DD) – 1, 2, 3: Fag, Fra, Qpe-tree bases, roots; Vouchers: PRA-JV24224, 24695, 25151.

Agonimia tristicula (LC) – 1, 2, 3, 8, 9, 10, 13: bryo-ca, bryo-esr, Apl, Fra, Qpe; Vouchers: JK, JM, PRA-JV, ZP.

Agonimia vouauxii (DD) – 1: bryo-esr; Voucher: PRA-JV21021. In the study area, it occurs on old stems of the moss *Abietinella abietina* (and rarely on plant debris) in rocky steppes.

Alyxoria ochrocheila (DD) – 6: Fag; Voucher: PRA-JV24335. Several young thalli (with pycnidia, but without apothecia) observed on a single tree in the study area.

Alyxoria varia (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14: Acam, Apl, Aps, Car, Fag, Fra, Qpe, Til, Ulm, dw, esr; Vouchers: JK, PRA-JV, ZP.

Amandinea punctata (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Apl, Aps, Car, Cra, Fag, Fra, Pin, Qpe, Til, Stor, dw, sil; Vouchers: JK, PRA-JV, ZP.

Anema decipiens (NT) – 1, 3: ca, esr; Vouchers: JM, PRA-JV.

Anema tumidulum (DD) – 1, 3: ca; Vouchers: PRA-JV, ZP.

Anisomeridium polypori (LC) – 1, 2, 3, 4, 5, 6, 11, 13, 14: Acam, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Sam, Til, Ulm, sil. Vouchers: PRA-JV24884 (saxicolous), 24916 (saxicolous), ZP29756, 30116.

Aquacidia trachona (VU) – 1, 2, 5, 6, 7, 8, 10, 11, 13, 14: Acam, Aglu, Aps, Car, Fag, Fra-roots, bases, sil; Vouchers: JM, PRA-JV, ZP.

Aquacidia viridifarinosa (VU) – 1, 13: sil; Voucher: PRA-JV23436.

Arctoparmelia incurva (NT) – 9: sil; Voucher: PRA-JV24539. In the study area, a few thalli recorded in a single site. The similar *Xanthoparmelia mougeotii* is locally frequent.

Arthonia atra (EN) – 3, 5, 6: Apl, Car, Cor; Vouchers: JK, PRA-JV. **mtSSU** sequenced (JV23909).

Arthonia didyma (VU) – 1, 2, 3, 6, 10, 11, 13: Apl, Car, Cor, Fag, Fra, Qpe; Vouchers: JK, JM, PRA-JV, ZP. **ITS** sequenced (JV23914).

Arthonia dispersa (EN) – 1, 2: Acam-tw, Car; Voucher: PRA-JV23467.

Arthonia fusca (NT) – 1: ca: Voucher: JK10454.

Arthonia helvola (VU) – 6: Pic; Voucher: PRA-JV25088.

Arthonia mediella (VU) – 4, 5, 12, 13, 14: Apl, Aps, Qpe; Vouchers: PRA-JV.

Arthonia radiata (VU) – 1, 2, 3, 5, 6, 7, 8, 10, 11, 13: Car, Cor, Fag, Fra; Vouchers: JK, PRA-JV, ZP.

Arthonia ruana (VU) – 2, 3, 6, 13: Aps, Cor, Fra; Vouchers: JK, PRA-JV.

Arthonia spadicea (NT) – 3, 4, 5, 6, 10, 13, 14: Aglu, Car, Fag, Pic, Qpe. Voucher: PRA-ZP31385.

Arthrorhaphis grisea (LC) – 3, 7: as-on *Baeomyces rufus*; Vouchers: JK4852, JM12063.

Aspicilia brucei (NEW) – 1, sil; Vouchers: PRA-JV23387, 23416. In the study area, we recorded a luxuriant population in a single site on sun-lit andesite rock. The thallus is thick, of strongly bullate areoles which turn into irregular isidiate outgrowths in central parts of thalli. Norstictic acid present in upper part of medulla. Apothecia not recorded. The species is so far known from North America and Pyrenees only (Roux et al. 2011c). **ITS** and **mtSSU** sequenced (both specimens). The ITS sequence fits the specimen from Pyrenees (>99% identity) and from North America (98%). DNA sequences of *A. brucei* are surprisingly very distinct from all Megasporaceae available in NCBI.

Aspicilia cinerea (NT) – 1, 2, 3, 4, 5, 9, 10, 12: sil; Vouchers: JM, PRA-JV, ZP. **ITS** sequenced (JV24549).

Aspicilia cinerea* f. *papillata Arnold – 1, 8: sil; Vouchers: PRA-JV21182, 23387. Probably a morphotype of *A. cinerea* with strongly bullate thallus areoles and occasionally with irregular isidiate outgrowths. **mtSSU** sequenced (JV21182); closest NCBI Blast results are *A. cinerea* and *A. dudinensis* from Sweden (both c. 99% identity).

Aspicilia goettweigensis (DD) – 1, 2, 3, 7: sil; Vouchers: JK, JM, PRA-JV, ZP. **ITS** sequenced (JV23397, 23713). The most frequent *Aspicilia* on sun-lit andesite rocks.

Aspicilia laevata (NT) – 1, 5, 9: sil; Vouchers: PRA-JV24502, 24566. **ITS** sequenced (24502). Montane lichen restricted to screes with cold microclimate in the study area.

Aspicilia verrucigera (DD) – 4, 9: sil; Vouchers: JM12041, PRA-JV24214, 24528. **ITS** and **mtSSU** sequenced (JV24214).

Bacidia albogranulosa (DD) – 2, 3, 12, 14: Apl, Fra, Qpe; Vouchers: JM11990, PRA-JV24258, 24974. A recently described epiphytic species (Malíček et al. 2018b) preferring nutrient rich bark of *Acer* spp. Scattered in scree forests in the study area. **ITS** sequenced (JV24974).

Bacidia arceutina (EN) – 3: Cor; Voucher: PRA-JV24590.

Bacidia auerswaldii (RE) – 10, 12: Acam, Apl; Vouchers: PRA-JV23910, 24256, 25100. Considered regionally extinct in the Czech Republic by Liška & Palice (2010), but recently rediscovered (Šoun et al. 2015, Vondrák et al. 2016b). Species of undisturbed lowland forests. Recorded only on two trees in the study area. **ITS** and **mtSSU** sequenced (JV23910).

Bacidia bagliettoana (LC) – 1, 10: bryo-cs; Vouchers: PRA-JV23682, ZP31645.

Bacidia circumspecta (CR) – 1, 2, 5, 6, 9, 14: Aps, Car, Qpe; Vouchers: PRA-JV. Considered critically endangered in the Czech Republic by Liška & Palice (2010), but its recent records are on the increase (Malíček et al. 2021). Detected on eight trees in the study area.

Bacidia hyalina (NEW SPECIES) – 2, 6, 8: Apl, Qpe; Vouchers: PRA-JV. See the description above.

Bacidia incompta (CR) – 7, 10: Aps, Car, dw-died part of trunk; Vouchers: PRA-JV20677, ZP31503, 31504. Considered critically endangered in the Czech Republic by Liška & Palice (2010), however, this species, preferring bark enriched by sap flows, was probably overlooked. Its records in suitable microsites are recently on the increase (Malíček et al. 2021).

Bacidia rosella (EN) – 5, 8, 10, 13, 14: Apl. Scattered in the study area on few mature mapple trees.

Bacidia rubella (VU) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Apl, Aps, Car, Cor, Fra, Qpe, Til, Ulm; Vouchers: JK, PRA-JV, ZP.

Bacidia subincompta (VU) – 1, 2, 3, 5, 6, 9, 10, 13: Acam, Apl, Aps, Cor, Fag, Fra, Qpe, Ulm; Vouchers: JK5312, PRA-ZP29748.

Bacidia vermifera (CR) – 1, 2, 4, 7, 9, 10, 12, 14: Apl, Aps, Car, Fag, Fra, Ulm, dw; Vouchers: JM, PRA-JV, ZP. Considered critically endangered in the Czech Republic by Liška & Palice (2010), but its recent records are on the increase (Malíček et al. 2021). Rather frequent in the study area in sparse sun-lit forests and forest-steppes.

Bacidina adastra (DD) – 1: sil; Voucher: PRA-JV24569. **ITS** sequenced.

Bacidina arnoldiana (DD) – 1, 5, 6, 7, 11, 12, 13, 14: sil; Voucher: PRA-JV24248, 24947. **ITS** sequenced (24248).

Bacidina brandii (DD) – 4: dw-stump (Pic); Voucher: PRA-JV24312.

Bacidina chloroticula (LC) – 6, 14: sil; Vouchers: PRA-JV23976, 24251, 24921. On volcanic stones and pebbles in shade.

Bacidina egenula (DD) – 7: ca, esr; Vouchers: PRA-JV24934, 24938. **ITS** and **mtSSU** sequenced (JV24938).

Bacidina indigens (syn. *Bacidia viridescens* auct.) (DD) – 7, 8: esr, ca; Vouchers: PRA-JV24868, 24943.

Bacidina inundata (VU) – 6: sil-inundated; Vouchers: JK4535, JM11882.

Bacidina mendax (DD) – 1, 2, 3, 4, 5, 6, 10, 14: Acam, Apl, Car, Fag, Fra, Qpe, Stor; Vouchers: PRA-JV, ZP.

Bacidina phacodes (EN) – 2, 14: Fag; Vouchers: PRA-JV23920, 24220. Only on two overaged trees in the study area.

Bacidina pycnidiata (DD) – 6: sil, dw-log (Fra); Vouchers: JK3496, 10565, PRA-JV24216, ZP29722.

Bacidina sulphurella (LC) – 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14: Acam, Ainc, Aglu, Apl, Aps, Car, Cor, Fag, Fra, Pspi, Qpe, Sal, dw; Vouchers: JK, JV. **mtSSU** sequenced (JV24913).

Baeomyces rufus (LC) – 1, 2, 3, 4, 10: as, sil; Voucher: PRA-JV23424.

Bagliettoa baldensis (NT) – 11: ca; Voucher: PRA-JV20700.

Bagliettoa calciseda (NT) – 1: ca; Vouchers: JK10487, PRA-JV25035, 25141. **ITS** sequenced (both PRA specimens).

Biatora pontica (DD) – 2: Car; Voucher: PRA-ZP29755. Only one sterile sorediate thallus found in the study area. Rare in the Czech Republic, with few records in southern Moravia up to now (Vondrák et al. 2016b, Malíček et al. 2017). **TLC**: granulosin, thiophanic acid, cf. arthothelin, pontica unknowns.

Biatora veteranorum (EN) – 1, 2, 4, 5, 8, 14: Qpe, dw-log, dw-stump; Vouchers: PRA-JV24120, ZP30070.

Biatoridium monasteriense (VU) – 1, 2, 6, 7, 13: Acam, Apl, Aps, Cor, Fra, Sam, Ulm; Vouchers: PRA-JV.

Bilimbia fuscoviridis (DD) – 1, 3, 6, 8, 11, 13, 14: esr, sil, Fra-root; Vouchers: JM, PRA-JV (all specimens without apothecia). According to Coppins & Aptroot (2009), it is recorded on limestone and other calcareous rock types. This is true for most Czech records (e.g. Malíček 2013, Svoboda et al. 2014, Halda et al. 2017), but all nine records from the study area were on base enriched andesite rocks. **ITS** sequenced (JV20638, 20699).

Bilimbia microcarpa (VU) – 1, 2, 3: bryo-esr; Vouchers: PRA-JV20895, 24228, 24721. Lichens with predominantly 3-septate ascospors and small apothecia are identified as this species, although the separation from *B. sabuletorum* is tentative.

Bilimbia sabuletorum (LC) – 1, 4, 7, 10, 13: bryo-ca, bryo-esr, bryo-Til; Vouchers: PRA-JV21136, 25089, ZP30670.

Blennothallia crispa (NT) – 1, 3, 10: ca, cs; Vouchers: PRA-JV20905, 21218, 25032, 25071, ZP31641, PRM906920. **mtSSU** sequenced (JV25032, 25071).

Botryolepraria lesdainii (NT) – 1, 3, 6, 7, 8, 10, 13: esr, ca (bryo); Vouchers: JM11883, PRA-ZP30958.

Brianaria lutulata (VU) – 3, 6: sil; Vouchers: PRA-JV24881, 24883, 24912.

Brianaria sylvicola (LC) – 1, 2, 4, 5, 9: sil; Vouchers: JK10377, 10530, PRA-JV24145, 24532, 24541. Rare in the study area; sometimes with pycnidia only.

Bryoria fuscescens (VU) – 1, 2, 3, 4, 5, 10, 11: Bet, Lar, Qpe, dw-log, snag; Voucher: PRA-JV24327.

Bryostigma muscigenum (NT) – 2, 6: Fag, Fra, sil; Vouchers: PRA-JV23959, 24894 (saxicolous), ZP29692. **ITS** and **mtSSU** sequenced (JV23959).

Buellia aethalea (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 12: sil; Vouchers: JK, PRA-JV. **mtSSU** sequenced (JV24685).

Buellia badia (NT) – 1, 2, 3, 5, 7, 8, 9: sil; Vouchers: JK, JM, PRA-JV. **ITS** and **mtSSU** sequenced (JV20950); closest relative in NCBI Blast is *B. badia* (up to 98% in ITS and 100% in mtSSU).

Buellia microcarpa (NEW SPECIES) – 1, 3: sil-pebbles; Vouchers: PRA-JV. See the description above.

Buellia disciformis (VU) – 6, 8: Car; Vouchers: JM11889, PRA-JV24199. **ITS** sequenced (JV24199).

Buellia griseovirens (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13: Aps, Car, Cor, Fag, Fra, Qpe, Sari, Sor, Til, dw; Vouchers: JK, JM, PRA-JV, ZP. **TLC**: atranorin, traces of norstictic acid (JM12637).

Buellia ocellata (NEW) – 1: sil; Voucher: PRA-JV21275. Recorded only a single thallus in the study area. **ITS** & **mtSSU** sequenced. **Fig. 12A**

Buellia sandstedei (NEW) – 1, 3: sil-pebbles; Vouchers: JM13707, PRA-JV21059, 24684. Our specimens are tentatively identified as this little known species, morphologically intermediate between *Amandinea punctata* and *Buellia badia*. **TLC**: no substances (JV21059). **ITS** sequenced (all specimens) and **mtSSU** sequenced (JM13707, JV21059). Closest relative in NCBI Blast is *B. badia* in ITS (<95% identity) and *Buellia* spp. in mtSSU (97%). Although *B. badia* is certainly closely related, it differs in larger, more conspicuous and often lichenicolous thalli. ITS and mtSSU sequences of *B. badia* (recorded in the study area nearby *B. sandstedei*) are distinct and the ITS has 97–98% similarity with NCBI records of *B. badia*.

Another Czech record: Central Bohemia, Neveklov region, Nahoruby, Poličany: Psané skály, S-facing rocky slopes above Mastník brook, alt. 270 m, 49°43'56.0"N, 14°25'30.1"E, on acidic chert rock close to water level, 27 Dec. 2020, coll. J. Malíček (J. Malíček 14171).

Byssoloma diederichii (NEW) – 4, 9: Pic-needles, sil; Vouchers: PRA-JV24304, 24530, 24889. Apothecia absent in all specimens. Pycnidia numerous, very similar to *Fellhaneropsis myrtillicola*, but differs in shape and size of microconidia which are ellipsoid, 3–4 × 1.5–2 µm. The species was known from oceanic Europe: Azores and France (Sérusiaux 1998), and Great Britain (Giavarini & Sérusiaux 2009). Our records from central

Europe are surprising and perhaps suggest an expansion of this species to more continental areas. It was locally common in young spruce plantations in the study area. Once recorded on shaded rhyolitic stone (JV24889).

Caeruleum heppii (LC) – 1, 10: esr; Vouchers: PRA-ZP30666, 31743.

Calicium abietinum (CR) – 1, 2: Qpe-wood on bases of living trees; Vouchers: PRA-JV24240, 24352, ZP30110. Rare in central Europe. Most 19th and early 20th Century records from the Czech Republic belong to the common *C. glaucellum*. The only reliable record is from wood of fir snag in the Beskydy Mts (Vondrák et al. 2006). In the study area, it specifically occurs on hard wood at bases of ancient living oaks together with *Rinodina archaea* and *Protoparmelia* spp. **mtSSU** sequenced (24352).

Calicium adspersum (EN) – 4, 5: Qpe; Voucher: PRA-JV24177.

Calicium glaucellum (NT) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 14: Qpe, dw-log, snag, stump; Vouchers: JK, PRA-JV, ZP. **ITS** sequenced (JV24550).

Calicium montanum (DD) – 4: Pin; Vouchers: PRA-JV24110, ZP29699. Only two records published from the Czech Republic up to now (Šoun 2010, Vondrák & Kubásek 2019). In the study area, it is rather frequent on old pine trees in a lit and humid scree at point 49.95901N, 13.80149E.

Additional Czech record: South Bohemia. Šumava Mts: Mt. Trojmezná hora [1361], dead climatic spruce forest at N facing slope 370 m NW of the top, 48°46'25"N 13°49'34"E, on wood of *Picea* snag, alt. 1330 m, 24 July 2013, coll. P. Koubková (PRA-ZP17463).

Calicium parvum (EN) – 4: Pin; Voucher: PRA-JV24287. In the Czech Republic so far known only from southern Bohemia (Peksa 2006, Malíček et al. 2021).

Calicium pinastri (VU) – 4: Pin; Vouchers: PRA-JV24174, 25156. In the Czech Republic so far known only from southern and eastern Bohemia (Peksa 2006, Malíček et al. 2021). In the study area it occurs in a sparse pine forest with specifically humid mesoclimate (49.95901N, 13.80149E). Other species restricted to this site are e.g. *Calicium montanum*, *C. parvum*, *Microcalicium ahlneri* and *M. minutum*. **ITS** and **mtSSU** sequenced (JV25156).

Calicium salicinum (VU) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Apl, Aps, Fra, Qpe, dw-snag, stump; Vouchers: JK, JM, PRA-JV, ZP. **TLC**: norstictic acid (JM11978).

Calicium viride (VU) – 1, 2, 3, 4, 5, 10, 13: Apl, Fra, Qpe, Til; Vouchers: JK, PRA-JV, ZP. Scattered in the study area, more frequent in oak forests and forest-steppes. It is here probably in suboptimal conditions as most records are sterile, only with pycnidia.

Callome multipartita (RE) – 1: ca; PRA-JV25063. In the first half of the 20th Century, it was recorded from three sites within the Czech Republic (Malíček et al. 2021). **ITS** and **mtSSU** sequenced.

Caloplaca arnoldii (CR) – 1, 2, 3, 7, 8, 11, 12, 13: esr. Voucher: PRA-ZP31753. The classification as critically endangered in the Czech Republic (Liška et al. 2008, Liška & Palice 2010) is on the basis of an incorrect species concept. Records of this

species were called by different names, e.g. *C. saxicola*, and the name *C. arnoldii* was employed only for extreme morphotypes with small, reddish and distinctly lobed thalli. Nowadays *C. arnoldii* is considered a common polymorphic species on overhanged, base-rich siliceous and calcareous rocks (Gaya 2009).

Caloplaca atroflava (DD) – 1, 2, 3, 7, 8, 10, 13: esr; Vouchers: JK, JM, PRA-JV. **ITS** sequenced (JV24710), **mtSSU** sequenced (JV21204a, 23728a). The blastidiate morphotype is more frequent than the non-blastidiate one.

Caloplaca cerinella (VU) – 1, 2 ,3, 7, 9: Fag, Fra, Rosa-tw, dw-snag; Vouchers: JŠ, PRA-JV.

Caloplaca cerinelloides (DD) – 7: Aps; Vouchers: PRA-JV20694.

Caloplaca chlorina (LC) – 1, 2, 3, 6, 7, 13: Fra-base, esr, sil; Vouchers: JM, PRA-JV. **ITS** sequenced (JV20940). Previously published from the area by Vondrák et al. (2007).

Caloplaca chrysodeta (NT) – 1, 2, 3, 7, 8, 10, 13, 14: esr, ca, bryo.

Caloplaca cirrochroa (NT) – 1, 3, 7, 8, 10, 12: esr, ca; Vouchers: JM12654, PRA-JV21030.

Caloplaca crenulatella s.lat. (LC) – 1, 3, 7: esr, ca. Previously published from the area by Vondrák et al. (2007).

Caloplaca decipiens (LC) – 7: ca; Voucher: JK3499.

Caloplaca demissa (NT) – 1, 2, 3, 7, 8, 10, 12, 13: esr, sil; Vouchers: JK, PRA-JV, ZP. **mtSSU** sequenced (JV24967).

Caloplaca flavocitrina (LC) – 1, 2, 3, 7, 8, 10, 11, 12, 13: esr, ca, Car, Qpe; Vouchers: JK, JM, PRA-JV. Specimens resembling *Caloplaca citrina* sequenced and their identity with *C. flavocitrina* confirmed: **ITS** sequenced (JM11933, JV23439, 23715, 24236, 24914), **mtSSU** sequenced (JV23715, 24914, 25055). Previously published from the area by Vondrák et al. (2007).

Caloplaca flavovirescens (NT) – 1, 3: ca; Vouchers: PRA-ZP31675, PRM892510.

Caloplaca grimmiae (NT) – 1, 3, 7, 10: sil-on *Candelariella coralliza*; Voucher: JK10359. Rare in the study area.

Caloplaca holocarpa (LC) – 1, 2, 7, 9, 10, 12, 13: sil, Car-root, Fag, Fra.

Caloplaca interfulgens (DD) – 1: esr.

Caloplaca irrubescens (VU) – 1, 3, 7, 8: esr, sil.

Caloplaca lucifuga (EN) – 2, 14: Car, Fra, Qpe; Vouchers: JM11932, PRA-JV24090, ZP29734.

Caloplaca monacensis (DD) – 1, 2, 3, 6, 7, 10: Car, Fra, Qpe, Ulm; Vouchers: JM, PRA-JV, ZP. Previously reported from the study area by Šoun et al. (2011). **ITS** and **mtSSU** sequenced (JV24095).

Caloplaca obliterans (EN) – 1, 2: esr, sil; Vouchers: PRA-JV23437, 23730, ZP31754. Predominantly a mountain species preferring base-enriched siliceous overhangs in the subalpine belt. In the Czech Republic it has been known from typical subalpine habitats in the Krkonoše and Hrubý Jeseník Mts (Vondrák et al. 2007, Vondrák & Malíček 2015) and from a lowland occurrence on serpentine rocks at Mohelno (Suza 1931). Similarly to the latter, the two records in the study area are peculiar by their low altitudes. **mtSSU** sequenced (JV23437).

Caloplaca obscurella (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12: Acam, Apl, Aps, Car, Cor, Fag, Fra, Qpe, dw-snag, sil; Vouchers: JM, PRA-JV, ZP.

Caloplaca phlogina (DD) – 3: Fra, esr; Vouchers: PRA-JV24907, 24908. **ITS** and **mtSSU** sequenced (24907).

Caloplaca polycarpa (VU) – 1: ca; Voucher: PRA-JV23433.

Caloplaca pyracea (LC) – 1, 3, 7: Apl, Car, Fra-tw; Vouchers: PRA-JV.

Caloplaca raesaenenii (VU) – 1, 2, 3, 7, 8: Fra, Qpe-bryo; Vouchers: JM, PRA-JV, ZP.

Caloplaca rubelliana (CR) – 7: esr; Vouchers: JK, PRA-JV, PRA-ZP. Thermophilous lichen known from a few Czech localities (Malíček & Vondrák 2016). Previously published from the area by Vondrák et al. (2007).

Caloplaca subpallida (VU) – 1, 2, 3, 8, 9, 10, 13: esr, sil; Vouchers: JK, PRA-JV, ZP. **ITS** sequenced (JV23733), **mtSSU** sequenced (JV21225, 23396).

Caloplaca substerilis (DD) – 1, 2, 3, 7: Acam, Fra, Qpe, Ulm; Vouchers: JM, PRA-JV. **ITS** and **mtSSU** sequenced (JV24100).

Caloplaca ulcerosa (DD) – 1, 7: esr; Vouchers: JM, PRA-JV, ZP. Species with generally maritime distribution and epiphytic occurrences, however a single anomalous record was known deeply inland on limestone in the Czech Republic (Vondrák et al. 2009). Here we report on a second Czech occurrence, also saxicolous, represented by a rich and fertile population on stones and concrete in walls of the ruin Týřov. (Another fertile population was detected at one place on Týřovické skály rocks: 49.98336N, 13.79381E.) **ITS** and **mtSSU** sequenced (JV20661).

Caloplaca viridirufa (VU) – 1, 3, 7, 8, 10: esr, sil; Vouchers: JK, JM, PRA-JV. The species is locally common in the study area forming typical apothecia with anthraquinones in red discs, but a rare form with black discs lacking anthraquinones was also recorded (JV24676).

Caloplaca vitellinula (DD) – 1, 7, 11: esr; Vouchers: PRA-JV. Sometimes considered conspecific with *C. holocarpa* (Vondrák et al. 2016a), but in the study area, both species were observed to form distinct crusts when growing next to each other: *C. vitellinula* has conspicuous yellow thallus which is missing in *C. holocarpa*.

Caloplaca xerica (VU) – 1, 7, 8: esr; Voucher: PRA-ZP31640.

Candelaria concolor s.str. (NT) – 2, 3, 10: Aps, Fag; Voucher: PRA-JV23752.

Candelariella aurella (LC) – 1, 2, 3, 7, 10, 13: ca, esr, Qpe. Voucher: PRA-JV23720. **ITS** and **mtSSU** sequenced (JV23720, epiphytic).

Candelariella coralliza (LC) – 1, 2, 3, 8, 9, 10, 11: sil, *Juniperus* wood; Vouchers: JM, PRA-JV, ZP. **mtSSU** sequenced (JV20942a).

Candelariella efflorescens agg. (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Aps, Car, Cor, Cra, Fag, Fra, Qpe-tw, dw.

Candelariella vitellina (LC) – 1, 2, 3, 7, 8, 10: sil, Cor, Qpe; Voucher: JK4832.

Candelariella xanthostigma (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Apl, Car, Cor, Fag, Fra, Qpe, Stor, Ulm, dw; Vouchers: JK, JM, PRA-ZP, PRM.

Carbonea assimilis (DD) – 1: sil; Vouchers: JM12594, PRA-JV20997, 21255.

Catillaria atomarioides (DD) – 1, 3, 11: sil; Vouchers: JK, JM, PRA-JV.

Catillaria chalybeia (NT) – 1, 3, 7, 8, 10, 12: esr, sil; Vouchers: JK, PRA-JV.

Catillaria fungoides (DD) – 3, 10, 12: Cor, Lar, esr; Vouchers: PRA-JV24492, 24589, 25074, ZP30682 (all specimens without apothecia). **ITS** and **mtSSU** sequenced (JV24589). Closest NCBI Blast match is *Catillaria nigroclavata* in ITS (identities 91–92%) and *Speerschneidera euploca* in mtSSU (identity 93%). The saxicolous specimens (JV25074, ZP30682) could be identified as the typically saxicolous *C. nigroisidiata*, however they occurred in peculiar communities of epiphytes on stone (together with *Catillaria nigroclavata*, *Halecania viridescens*, *Lecania cyrtella* and *L. naegelii*).

Catillaria lenticularis (NT) – 1, 3, 10: ca; Vouchers: JK10498, PRA-JV21029.

Catillaria nigroclavata (VU) – 1, 2, 3, 6, 8, 10: Acam, Aps, Car, Cor, Fag, Fra, Ulm-tw, roots, esr; Vouchers: PRA-JV, ZP.

Catinaria atropurpurea (EN) – 7: dw-log; Voucher: PRA-JV20637.

Cetraria aculeata (NT) – 1, 9: as; Voucher: JM12026.

Cetraria islandica (NT) – 4: as.

Cetrelia monachorum (DD) – 2: Car, Qpe-bryo; Voucher: PRA-JV23921. **TLC**: anziaic acid, 4-*O*-demethylimbricaric acid, imbricaric acid, perlatolic acid, atranorin.

Chaenotheca brachypoda (VU) – 2, 3, 4, 6, 7, 9, 12, 13, 14: Acam, Apl, Fag, Fra, Sam.

Chaenotheca chlorella (EN) – 4, 14: Fra, dw-snag (Abi); Vouchers: PRA-JV24270, 24841. Only two records in the study area. **mtSSU** sequenced (JV24841).

Chaenotheca chrysocephala (NT) – 1, 2, 3, 4, 5, 6, 9, 10, 11, 13, 14: Acam, Apl, Aps, Car, Fag, Fra, Qpe, Til, dw-snag.

Chaenotheca ferruginea (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Aglu, Apl, Aps, Car, Fag, Fra, Qpe, Pic, Til, dw-snag; Vouchers: JK3944, 4807.

Chaenotheca furfuracea (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14: Apl, Aglu, Aps, Car, Fag, Fra-base, Qpe, roots, as; Voucher: PRA-ZP31750.

Chaenotheca hispidula (EN) – 2, 3, 5, 6: Acam, Fra, Qpe, Til; Vouchers: PRA-JV, ZP.

Chaenotheca phaeocephala (VU) – 1, 2, 13, 14: Apl, Aps, Car, Fra, Qpe, Til; Vouchers: PRA-JV23736, 24060, ZP29698. **mtSSU** sequenced (JV23736).

Chaenotheca stemonea (VU) – 5, 6, 7, 13, 14: Aglu, Apl, Aps, Fag, Qpe, Til; Voucher: JK10570.

Chaenotheca trichialis (NT) – 1, 2, 3, 4, 5, 6, 9, 12, 13, 14: Acam, Aglu, Apl, Aps, Bet, Car, Fag, Fra, Pic, Qpe, Til, Ulm, dw-snag. Vouchers: JK, PRA-ZP.

Chaenotheca xyloxena (VU) – 3, 4, 5, 8, 10, 11: dw-log, snag, stump; Vouchers: JK5307, 10569, PRA-JV24294.

Chrysothrix candelaris (VU) – 2, 3, 5, 13, 14: Apl, Fra, Qpe, dw-log; Voucher: PRA-JV24317.

Chrysothrix chlorina (LC) – 1, 2, 3, 4, 6, 8, 9, 12: Bet, Pin, Qpe, sil; Voucher: PRA-ZP30074.

Circinaria caesiocinerea (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13: sil; Vouchers: JK, JM, PRA-JV. **ITS** and **mtSSU** sequenced (JV23398).

Circinaria calcarea (LC) – 1: esr.

Circinaria contorta (LC) – 1, 2, 3, 7, 8, 10, 13: ca, esr; Vouchers: JK, PRA-JV.

Circinaria hoffmanniana (DD) – 1, 3, 8: ca, esr; Vouchers: JK4817, PRA-JV24861, 24917.

Cladonia arbuscula* ssp. *squarrosa (NT) – 1, 2, 4, 9, 11: as.

Cladonia caespiticia (NT) – 1, 2, 4, 9, 12: as; Vouchers: PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV24116).

Cladonia cenotea (LC) – 2, 8, 10: dw.

Cladonia ciliata (VU) – 1, 2, 4: as; Vouchers: JM12043, PRA-JV21149.

Cladonia coccifera / C. diversa (LC) – 1, 3, 4, 5, 10, 12: as; Vouchers: PRA-JV. **TLC**: usnic acid, zeorin (JV24303), usnic acid, zeorin, porphyrilic acid (JV24302).

Cladonia coniocraea (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Aglu, Car, Fra-base, Pin, Qpe, Sari-bryo, dw-log, snag; Vouchers: JK.

Cladonia digitata (LC) – 4, 5, 6, 10, 11, 14: Aglu, Pin-base, dw-log, stump; Vouchers: JK.

Cladonia fimbriata (LC) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14: Aglu, Fag, Fra, Pin, Qpe, Sari, Til-base, as, dw-log; Vouchers: JK.

Cladonia floerkeana (LC) – 1, 2, 5: dw-log; Vouchers: PRA-JV21154, 23899.

Cladonia foliacea (NT) – 1, 3: as.

Cladonia furcata (LC) – 1, 4, 5, 10: as; Vouchers: JK, JM, PRA-JV. **TLC**: fumarprotocetraric & protocetraric acids (JM13720).

Cladonia glauca (VU) – 1, 2, 4, 9: Bet, as, dw; Vouchers: JM, PRA-JV.

Cladonia gracilis (LC) – 2, 4, 9: as.

Cladonia grayi (NT) – 8: Fre-base; Voucher: JM12645. **TLC**: fumarprotocetraric acid, grayanic acid.

Cladonia macilenta (LC) – 1,2, 3, 5, 6, 8, 9, 10, 11, 13, 14: as, dw; Vouchers: JK, PRA-JV. **ITS** and **mtSSU** sequenced (JV23891).

Cladonia merochlorophaea (DD) – 1, 2, 3, 4, 6, 9: as, dw, bryo-sil; Vouchers: JM12038, 12623. **TLC**: fumarprotocetraric acid, merochlorophaeic and 4-O-methylcryptochlorophaeic acids (12623).

Cladonia mitis (DD) – 1, 2, 5, 8, 9, 10: as; Vouchers: JM, PRA-JV.

Cladonia parasitica (EN) – 1, 2, 3, 8, 14: dw-log, stump; Vouchers: PRA-JV, ZP. Locally frequent in dry rocky sites, on old oak logs with hard wood resisting decay. Thalli are often poorly developed, granular, with indistinct squamules. Mostly without apothecia. **ITS** sequenced (JV24101).

Cladonia phyllophora (NT) – 1, 2, 4: as-bryo; Voucher: PRA-JV24153.

Cladonia pleurota (NT) – 1, 2, 3, 4, 5, 8, 9, 10: as, bryo-sil; Vouchers: PRA-JV24147, 25114.

Cladonia pocillum (LC) – 1, 8, 10: cs; Vouchers: JK10497, PRA-JV25115.

Cladonia polycarpoides (VU) – 2, 10: as; Vouchers: PRA-JV25116, ZP30770.

Cladonia polydactyla (NT) – 4: Pin-base; Voucher: PRA-JV24283. Montane lichen, very rare at altitudes below 500 m where it prefers sites with cold mesoclimate in gorges of sandstone areas (Malíček et al. 2021). Only one record from the study area on mesoclimatically suitable rhyolite scree (49.95894N, 13.80106E).

Cladonia pyxidata (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10: Fra, Pin-base, as; Voucher: JV25113.

Cladonia ramulosa (NT) – 1, 4: Qpe-base, as, bryo-sil; Vouchers: JM, PRA-JV. **ITS** sequenced (JV24319).

Cladonia rangiferina (NT) – 2, 4, 8: as.

Cladonia rangiformis (NT) – 1, 2, 3, 4, 5, 8, 9, 10, 11: as; Vouchers: PRA-JV.

Cladonia rei (LC) – 1, 5, 12: as; Vouchers: JM, PRA-JV. **TLC**: fumarprotocetraric acid, homosekikaic acid (JM12644).

Cladonia squamosa (LC) – 1, 2, 4, 6, 8, 9: as, bryo-sil, Bet, Fag, Pin-base; Vouchers: PRA-JV20852, 24152.

Cladonia strepsilis (VU) – 1, 4, 9: as; Vouchers: PRA-JV. A luxuriant population was recorded on rhyolite scree at point 49.95752N, 13.79972E. The lichen here forms unusually large thalli resembling *Cladonia turgida* (JV24313).

Cladonia subulata (LC) – 1, 2, 4, 8: as; Voucher: PRA-JV21142 (UV-).

Cladonia uncialis s.str. (NT) – 2, 10: as; Voucher: JM11940.

Cladonia uncialis **subsp. *biuncialis*** (DD) – 4, 9: as.

Cladonia verticillata (NT) – 1, 2, 9: as; Vouchers: PRA-JV.

Clauzadea monticola (NT) – 6, 7: ca, esr; Voucher: PRA-JV23903, 24940.

Coenogonium pineti (LC) – 2, 3, 4, 5, 6, 9, 11, 13, 14: Aglu, Abi, Bet, Car, Fag, Fra, Qpe, Pic, snag; Vouchers: PRA-ZP31387, PRM891420.

Collema flaccidum (NT) – 1, 2, 3, 6, 8: esr, Fra-base.

Cystocoleus ebeneus (NT) – 1, 3: sil; Vouchers: JM, PRA-JV.

Dendrographa latebrarum (VU) – 1, 2, 4, 5, 8, 12, 13: esr, sil; Voucher: PRA-JV20862.

Dermatocarpon meiophyllizum (RE) – 1: esr-inundated; Vouchers: JK10524, PRA-JV23410, 23497, 24709. Occurring on periodically inundated andesitic rock at Berounka river bank together with *Porocyphus coccodes* and *Staurothele fissa*. The more frequent aquatic species, *Dermatocarpon luridum*, was not detected in the study area. **ITS** sequenced (JV24709); closest NCBI Blast results were *D. meiophyllizum* (identity 95–97.5%). **mtSSU** sequenced (JV23410, 24709).

Dermatocarpon miniatum (NT) – 1, 2, 3, 8, 10, 13: esr, ca; Vouchers: JK, JM, PRA-JV, ZP. Our identification is tentative as the taxonomy of *Dermatocarpon* is not yet settled. **ITS** sequenced (JV25066-morphotype with large lobes; JV25028-morphotype with small condensed lobes; both sequences identical except of one indel position), **mtSSU** sequenced (JV23399).

Dibaeis baeomyces (LC) – 1, 2, 4: as; Voucher: PRA-JV21244.

Dimelaena oreina (VU) – 1: sil; Vouchers: PRM755957, JM12583. Central European occurrences are mostly restricted to hard siliceous rocks in extremely dry (wind-drying) mesoclimate. Its distribution in the Czech Republic is described by Suza (1942, 1947). In the study area restricted to a single sampling site (Týřovické skály rocks), but it is luxuriant there on most exposed, vertical faces of hard andesitic outcrops.

Diploicia canescens (EN) – 8: esr; Voucher: JM12653. Recorded in a single sampling site where it is abundant on base-rich and lime enriched andesitic rocks.

Diploschistes euganeus (DD) – 1: sil; Voucher: PRA-JV23401.

Diploschistes gypsaceus (DD) – 1, 8: ca, esr; Voucher: PRA-JV23495.

Diploschistes muscorum (LC) – 1, 2, 3, 4, 7, 8, 10: dw, sil-on *Cladonia*, Fra, Pin, Qpe-base; Voucher: JK.

Diploschistes scruposus (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12: sil, Qpe; Vouchers: JK.

Diplotomma alboatrum (NT) – 1, 3, 7, 8, 10, 11: esr, ca; Vouchers: JK, JM, PRA-JV, ZP.

Diplotomma porphyricum (DD) – 1: esr; Voucher: PRA-JV21205. Identified on the basis of the concept in Wirth et al. (2013) where it is separated from *D. alboatrum* by its thallus containing norstictic acid and the occurrence on base-rich siliceous (not calcareous) rocks. It also has smaller and not pruinose thallus and apothecia. In contrast to the common *D. alboatrum*, it is genuinely a rare species in central Europe. In the study area it occurs on base-rich andesite with e.g. *Caloplaca atroflava*, *Myriolecis persimilis* and *Rinodina moziana*.

Dirina fallax (DD) – 1, 2, 13, 14: sil, Til-root; Vouchers: PRA-JV23426, 23927, 25064, ZP31757. **ITS** and **mtSSU** sequenced (JV25064).

Dirina massiliensis (EN) – 8: ca, esr; Vouchers: PRA-JV24848, 24852. **ITS** and **mtSSU** sequenced for both specimens.

Elixia flexella (DD) – 4: dw-snag (Pin); Voucher: PRA-ZP29693. In general, a montane species with few records in the Czech Republic (Palice et al. 2003, Malíček & Palice 2013). Its occurrence at low altitude in the study area is exceptional (355 m, 49.95931N, 13.80122E).

Enchylium polycarpon (VU) – 1, 3: ca; Vouchers: PRA-JV24927, 25031. **mtSSU** sequenced (JV25031).

Enchylium tenax (LC) – 1, 2, 3, 7, 8, 10: bryo-cs; Vouchers: JK, PRA-JV, ZP.

Endocarpon adscendens (DD) – 1: cs; Vouchers: JK10461, PRA-JV25053, 25054, 25149, 25150, ZP31636. The specimen ZP31636 identified as *E. adsurgens*, but here we merge all specimens with raised margins of squamules under *E. adscendens*.

Endocarpon latzelianum (= *E. psorodeum* auct. medioeur.) (EN) – 1, 3, 8, 13: esr, sil; Vouchers: PRA-JV20872, 23499, 23940, 24866, 24885, 24901.

Endocarpon pusillum (NT) – 1, 3, 7, 10: ca, cs; Vouchers: JK, PRA-JV20973, 25070.

Enterographa hutchinsiae (EN) – 2: sil; Voucher: PRA-JV23723.

Enterographa zonata (VU) – 1, 2, 5, 6, 8, 9, 11, 12, 13, 14: sil, Til-root; Vouchers: JK3929, PRA-JV23729, 23928.

Eopyrenula leucoplaca (RE) – 1, 2, 3, 5: Acam, Car, Cor, Fra, Qpe; Vouchers: PRA-JV, ZP. Considered extinct from the Czech Republic by Liška & Palice (2010), but recently rediscovered (Malíček et al. 2014, Vondrák et al. 2016). Perhaps broadly distributed in the Czech Republic at lower altitudes, but inconspicuous and overlooked. Often recorded in its anamorpic state (with pycnidia only).

Evernia divaricata (CR) – 14: Pspi.

Evernia mesomorpha (CR) – 10: Lar.

Evernia prunastri (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12: Acam, Aps, Car, Cra, Fra, Pspi, Qpe, Sari-tw, dw-log, snag; Vouchers: JK.

Fellhanera bouteillei (CR) – 1, 4, 6, 12, 13: Abi, Pic-tw, leaves, dw, sil; Vouchers: PRA-JV24888 (saxicolous), ZP30753 (saxicolous). Considered critically endangered in the Czech Republic (Liška & Palice 2010), but recent records are strongly on the increase (Malíček et al. 2021). However, it is still rather rare at lower altitudes with drier climate, e.g. in the study area.

Fellhanera gyrophorica (DD) – 6: Aglu; Voucher: PRA-JV23911. Known from four sites in the Czech Republic (Malíček et al. 2021): the study area (recorded on a single tree) and three localities in southern Bohemia.

Fellhanera subtilis (NT) – 1: sil; Voucher: PRA-ZP31664. Usually epiphytic, but our record is from andesitic stones in scree with rather humid microclimate.

Fellhanera viridisorediata (DD) – 1: sil; Voucher: PRA-ZP31744. Usually epiphytic, but our record is from andesitic stones in scree with rather humid microclimate.

Flavoparmelia caperata (EN) – 1, 2, 3, 4, 7, 8, 10, 11: Aps, Car, Cornus, Cra, Fra, Qpe, Sari, Til, dw, sil. Vouchers: JK, JM.

Fuscidea cyathoides (NT) – 4, 5: sil; Vouchers: JM12040, PRA-JV24132. In the study area, it is frequent on rhyolite rocks, but not recorded on andesite.

Fuscidea pusilla (DD) – 2, 4, 6, 9: Bet, Car, Fra, Pin, dw-log, sil; Vouchers: JM, PRA-JV, ZP. Apart from epiphytic occurrences, it is one of the dominant lichens on a damp rhyolite scree in the sampling site 9. **TLC**: divaricatic acid (JV24920-saxicolous, ZP29745). **mtSSU** sequenced (JV24298).

Fuscidea recensa (DD) – 1, 4, 12: sil; Vouchers: PRA-JV21166, 21177, ZP31763. **ITS** and **mtSSU** sequenced (JV21177).

Gonohymenia schleicheri (NEW) – 1: esr; Voucher: PRA-JV21241. Species similar to *Lichinella nigritella*, but the thallus lobes have scabrous surface and are without granular isidia. According to Nimis et al. (2018; as *Lichinella schleicheri* (Hepp) nom. prov.), it is widespread in Europe.

Graphis scripta (VU) – 1, 2, 3, 5, 6, 7, 10, 13: Car, Cor, Fag, Fra; Voucher: JK4803.

Gyalecta derivata (CR) – 2, 12: Apl, Fag; Vouchers: PRA-JV24219, 24259.

Gyalecta fagicola (EN) – 2, 3, 6, 8: Acam, Cor, Fag, Fra-also tw; Vouchers: PRA-JV23963, 24078, ZP30055, 30991. **ITS** and **mtSSU** sequenced (JV24078)

Gyalecta flotowii (CR) – 3, 14: Apl, Fra, Til; Vouchers: PRA-JV24169, 24272, 24486.

Gyalecta jenensis (LC) – 6, 13: esr; Vouchers: PRA-JV23907, 23950. **ITS** sequenced at the specimen without apothecia, but with pycnidia (JV23907).

Gyalecta truncigena (CR) – 7: Ulm; Voucher: PRA-JV20687.

Gyalideopsis helvetica (DD) – 5: dw-log; Voucher: PRA-JV23900. In the Czech Republic, it is known from mountains, at altitudes above 800 m (Malíček et al. 2021). The record from the study area (a few sterile thalli with goniocystangia on a single spruce log) is from altitude 430 m.

Gyrographa gyrocarpa (LC) – 1, 3, 9, 10, 11, 12, 13: sil.

Halecania viridescens (DD) – 1, 2, 3, 6, 8, 10, 11, 12: Acam, Aps, Car, Cor, Fra, Qpe, Ulm-tw, roots, esr; Vouchers: JM, PRA-JV, ZP.

Hazslinszkya gibberulosa (DD) – 3, 6, 12, 14: Acam, Apl, Aps, Fra; Vouchers: PRA-JV.

Hertelidea botryosa (CR) – 1, 2, 3, 4, 5, 8, 10: Pin-base, dw-log (Qpe), stump (Qpe, Pin); Vouchers: PRA-JV, ZP. In the Czech Republic considered critically endangered (Liška & Palice 2010) and known from mountains, at altitudes above 600 m (Malíček et al. 2021). The species has, however, been recorded frequently, occasionally fertile, at lower altitudes in the study area and some close localities.

Hyperphyscia adglutinata (EN) – 1, 2: sil, Car; Vouchers: PRA-JV21243 (saxicolous), PRA-ZP30063.

Hypocenomyce scalaris (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Cra, Pin, Qpe, Til, dw, sil; Vouchers: JK, PRA-ZP, PRM.

Hypogymnia farinacea (VU) – 1: Car, Cra-tw.

Hypogymnia physodes (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Aglu, Apl, Bet, Car, Cra, Fra, Pic, Pin, Qpe, Sari-tw, dw, sil; Vouchers: JK.

Hypogymnia tubulosa (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12: Apl, Aps, Bet, Cra, Fag, Fra, Qpe, Sari-tw, dw; Voucher: JK5297.

Hypotrachyna revoluta (CR) – 1, 3: sil. Classification as critically endangered in the Czech Republic (Liška & Palice 2010) is overestimated, because epiphytic records of the species are recently on the increase (Malíček et al. 2021). Both records from the study area are however saxicolous and belong to the occurrences of "relic character" (Vondrák & Liška 2010).

Immersaria cupreoatra (NEW) – 1, 7: sil-on *Buellia aethalea*; Vouchers: PRA-JV21162, 23490. Considered as an alpine lichen, on *Buellia* (Nimis et al. 2018). Our specimens tentatively identified as they may belong to another *Immersaria* species. Vouchers: PRA-JV21162, 23490. **TLC**: unknown substance in height of argopsin in solvent systemes A, B', C (JV21162). **mtSSU** sequenced (both specimens). **Fig. 12B**

Imshaugia aleurites (VU) – 1, 2, 3, 4, 5, 8, 9, 10, 11: Bet, Fag, Pin, Sari, dw-log, snag, sil.

Inoderma byssaceum (RE) – 6, 14: Apl, Fra; Vouchers: PRA-JV24489, 25086. Considered extinct from the Czech Republic by Liška & Palice (2010), but recently rediscovered after more than 100 years (Malíček et al. 2014, Vondrák et al. 2016). It is a species of low altitudes requiring a humid mesoclimate. In the study area, young thalli with pycnidia (without apothecia) recorded on two trees. **mtSSU** sequenced (JV24489).

Inoderma sorediatum (NEW) – 4, 14: Qpe, Til-root; Vouchers: PRA-JV24850, 23926. Although not recorded from the Czech Republic yet, it is locally abundant in stands of old oaks with a humid mesoclimate. It occurs in communities of Arthoniomycetes: e.g. *Arthonia mediella*, *A. thoriana*, *Buellia violaceofusca*, *Chrysothrix candelaris* and *Inoderma byssaceum*. **mtSSU** sequenced (JV24850).

Additional Czech records: Southern Bohemia. České Budějovice, Poněšice, valley of stream Kozlovský potok, alt. 390 m, 49.11401N, 14.47481E, on *Quercus robur*, 9 April 2021, coll. J. Vondrák (PRA-JV24952) - frequent and abundant in the locality; Southern Moravia, distr. Břeclav: nature reserve Ranšpurk, a flood-plain forest around the largest blind arm, 48°40'48"N, 16°56'45"E, on dry and shaded bark of old

Quercus robur, alt. 153 m, 17 Sept. 2020, coll. Z. Palice & J. Vondrák (PRA-ZP29605); **TLC**: confluentic and 2'-O-methylperlatolic acid).

Ionaspis lacustris (VU) – 1, 6: esr; Vouchers: PRA-JV23877, 24751. Only two records in the study area on damp andesite in shady sites.

Ionaspis obtecta (NEW) – 3: sil; Voucher: PRA-JV24497. Considered very rare in Europe with scattered occurrences e.g. in the Alps (Nimis et al. 2018); perhaps somewhat more frequent in Scandinavia (Santesson et al. 2004). It was recorded on an andesitic boulder in sparse forest on steep SW exposed slope (49.96898N, 13.79665E). Accompanying species: *Acarospora fuscata*, *Catillaria chalybeia*, *Rhizocarpon rubescens*, *Scoliciosporum umbrinum* and *Varicellaria lactea*.
Other Czech records: Central Bohemia, Ostrovec u Terešova (okr. Rokycany), CHKO Křivoklátsko, přírodní rezervace Lípa, bezlesé skalní výchozy na hřebeni nad meandrem Zbirožského potoka, na výslunném skalním výchozu (dacit až ryodacit) obohaceném železem, 49°56'16.860"N, 13°44'44.100"E, 334 m n. m., 3 Sept. 2020, coll. J. Šoun (Museum Rokycany BL1046); Northern Bohemia, distr. Děčín, protected landscape area Lužické hory: Mt Malý Stožec, semiopen phonolite boulder scree at S-facing slope, SW of the top, 50°50'56.3"N, 14°32'14.5"E, on exposed, iron-rich boulder, alt. 600 m, 27 May 2020, coll. I. Marková, Z. Palice & P. Uhlík (PRA-ZP30850); Southern Bohemia, Šumava Mts, Prachatice: the valley of Blanice, bedrock of the rivulet, ca 1km NW of the castle ruin Hus, 48°57'46.9"N, 13°55'04.3"E, on recently exposed, illuminated, iron-rich gneiss stones in the alluvium, with *Porpidia* spp., *Micarea erratica*, *Trapelia placodioides*, *Rhizocarpon reductum*, alt. 685 m, 27 July 2020, coll. Z. Palice (PRA-ZP30578).

Jamesiella anastomosans (DD) – 2, 4, 5, 6, 7, 9, 11, 13, 14: Bet, Fag, Pavi, Pspi-tw, dw-log, sil-bryo; Vouchers: PRA-JV, ZP.

Lasallia pustulata (NT) – 1, 2, 5, 8, 9, 12: sil; Vouchers: JM12030, PRM.

Lathagrium cristatum (NT) – 1, 3, 10: ca, Fra-root; Vouchers: PRA-JV20972, 20992.

Lathagrium fuscovirens (LC) – 1, 2, 3: esr, ca; Vouchers: PRA-JV, ZP.

Lecania croatica (DD) – 2, 3, 6, 7, 12, 14: Acam, Apl, Aps, Cor, Car, Fra, Til, Ulm-tw; Vouchers: JM, PRA-JV, ZP. **mtSSU** and **ITS** sequenced (JM11890, JV23912).

Lecania cyrtella (LC) – 1, 2, 3, 6, 7, 8, 9, 10, 11: Acam, Aglu, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Sam, Stor, Til-tw, sil; Vouchers: PRA-JV, ZP. **mtSSU** sequenced (JV23489a); **ITS** and **mtSSU** sequenced (JV24705, ZP30715; both saxicolous).

Lecania cyrtellina (DD) – 1, 2, 3, 6: Acam, Car, Cor, Fra, Sam, Til; Vouchers: PRA-JV, ZP.

Lecania erysibe (NT) – 7: ca; Voucher: PRA-JV23569.

Lecania hutchinsiae (DD) – 1: esr; Voucher: PRA-JV25140.

Lecania inundata (DD) – 1, 3, 7, 8: esr, ca; Vouchers: JK, JM, PRA-JV.

Lecania leprosa (DD) – 7: ca; Voucher: PRA-JV23568. **mtSSU** sequenced.

Lecania naegelii (NT) – 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Aps, Car, Cor, Fag, Fra-tw, Sam, esr, sil; Vouchers: PRA-JV, ZP.

Lecania rabenhorstii (VU) – 8: ca; Voucher: PRA-JV24843. **ITS** and **mtSSU** sequenced.

Lecania turicensis (DD) – 1: esr; Voucher: PRA-JV21253.

Lecanora aitema (DD) – 3: dw-log (Qpe); Voucher: PRA-ZP31040. **TLC**: usnic acid, thiophanic acid (trace), zeorin.

Lecanora albella (EN) – 2, 3, 4, 6, 8, 11, 14: Apl, Car, Fra, Qpe, Til; Vouchers: JK, JM, PRA-JV, ZP.

Lecanora argentata (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14: Apl, Aps, Car, Cor, Fag, Fra.

Lecanora campestris (NT) – 1, 10, 13: esr; Voucher: PRA-JV23969.

Lecanora cenisia* f. *soredians (DD) – 9: sil; Voucher: PRA-JV24540. **TLC**: atranorin, roccellic acid, cf. nephrosteranic acid.

Lecanora chlarotera (LC) – 3: Fra, Qpe; Vouchers: PRA-JV20927, ZP30967.

Lecanora compallens (DD) – 1, 2, 3, 8: Car, Fra, Qpe; Vouchers: JM. **TLC**: usnic acid, zeorin (JM11931, 11938, 13723, 13739).

Lecanora conizaeoides (LC) – 1, 2, 3, 4, 5, 9, 10, 11, 14: Pin, Qpe, dw-log, snag, stump; Vouchers: JK, PRA-JV.

Lecanora expallens (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Aglu, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Sari, Stor, Til, log, snag; Vouchers: JK, PRA-JV, ZP. **TLC**: usnic acid, zeorin, thiophanic acid, arthothelin (trace), expallens unknown (ZP30671). **ITS** sequenced (JV23754), **mtSSU** sequenced (JV20685).

Lecanora impudens (DD) – 12: Apl; Voucher: PRA-JV24257. Few recent records are known from the Czech Republic, mostly in the Šumava Mts (Malíček et al. 2021). **ITS** and **mtSSU** sequenced. *Lecanora allophana* f. *sorediata* is closely related, but differs by a few mutations in mtSSU.

Lecanora intricata (LC) – 1: sil; Voucher: PRA-JV21260.

Lecanora intumescens (VU) – 2, 3, 5, 6: Car; Vouchers: PRA-JV, ZP.

Lecanora leptyrodes (DD) – 1, 2, 3, 5, 6, 7, 11, 13: Car, Cor, Fra-tw, Qpe; Vouchers: JK, JM, PRA-JV.

Lecanora orosthea (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13: sil, Qpe; Vouchers: JK, JM, PRA-JV, ZP. **TLC**: usnic acid (major), gangaleoidin, norgangaleoidin, zeorin (ZP30949). **ITS** and **mtSSU** sequenced (JV24522; specimen with distinct white filamentose prothallus); **mtSSU** sequenced (JM11923).

Lecanora phaeostigma (DD) – 2, 4, 5, 10, 11: Pin, Pavi, Pspi-tw, dw-log, stump, snag; Vouchers: PRA-JV, ZP. **ITS** sequenced (JV24083).

Lecanora polytropa (LC) – 1, 2, 3, 5, 8, 9, 10, 11, 12, 13: sil; Voucher: JK.

Lecanora pulicaris (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14: Acam, Apl, Car, Cor, Fag, Fra, Pavi, Pin, Pspi, Qpe, Sari, dw-snag; Vouchers: JK, PRA-JV, ZP. **TLC**: atranorin, roccellic acid, fumarprotocetraric acid (ZP30050).

Lecanora rouxii (DD) – 3, 8: ca, esr; Voucher: JM12657.

Lecanora rupicola (LC) – 1, 3, 4, 5, 8, 9, 10, 11, 12: sil; Vouchers: PRA-JV24924, ZP30950. **TLC**: atranorin, sordidone, thiophanic acid, eugenitol, roccellic acid (ZP30950). **ITS** and **mtSSU** sequenced (JV24924).

Lecanora saligna (LC) – 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12: Car, Fag, Fra, Qpe, dw; Vouchers: PRA-JK, JV, ZP. **ITS** and **mtSSU** sequenced (JV23701).

Lecanora sarcopidoides (DD) – 1, 2, 4, 8, 11: dw-log (Qpe), Pin; Vouchers: PRA-JV20649, 23916, 24175, 24700. **mtSSU** sequenced (JV24175).

Lecanora soralifera (NT) – 1, 3, 10: sil; Vouchers: PRA-JV21202, 24548, ZP30932. **TLC**: usnic acid, zeorin, unknown terpenoid [rf values: A: B': C=4: (2-)3: 3] (ZP30932).

Lecanora subaurea (VU) – 1: sil; Voucher: PRA-JV21018. **TLC**: pannarin, rhizocarpic acid, zeorin.

Lecanora subravida (NEW) – 2: dw-Qpe; Vouchers: PRA-ZP29180, 30004. **TLC**: isousnic, usnic and pseudoplacodiolic acid (both specimens). The taxon was reported from the Czech Republic only once, based on two specimens by J. Suza collected in S Moravia (Suza 1921). This material needs revision because historical understanding of this taxon was largely based on apothecial characters which are quite variable within the *Lecanora saligna* group. van den Boom & Brand (2008) revived this forgotten taxon, most easily recognizable from related species by its chemistry. This is the first confirmed occurrence of the species from the Czech territory.

Lecanora subsaligna (DD) – 2, 4, 5: Fag-tw, Qpe; Vouchers: PRA-JV23894, ZP29003.

Lecanora symmicta (NT) – 1, 2, 3, 5, 6, 10, 11, 12, 13: Car, Fag, Fra-tw, Lar, Pavi, Pspi, Qpe, Stor-tw, dw; Vouchers: PRA-JV, ZP. Sorediate morphotype recorded (JV24499).

Lecanora varia (VU) – 10: dw; Voucher: PRA-JV23699.

Lecidea albohyalina (EN) – 6: Car; Voucher: PRA-JV23538. Recorded on a single mature hornbeam in the study area; the lichen formed extensive cover with frequent pycnidia. Apothecia absent.

Lecidea fuscoatra (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11: sil; Vouchers: JK, JM, PRA-JV. **TLC**: gyrophoric acid (JV23482). **ITS** and **mtSSU** sequenced (JV23392a).

Lecidea fuscoatrina (NEW TO EUROPE) – 3, 7, 10: sil; Vouchers: PRA-JV20885, 23578, 25073, ZP30984. Our specimens resemble *Lecidea fuscoatra* and *Immersaria athroocarpa* in their outer appearance, but *L. fuscoatra* clearly differs in the secondary metabolite content, and *I. athroocarpa*, sharing the presence of the confluentic acid syndrome, differs in its strongly amyloid (I+ blue) medulla. Other similar species, *Lecidea aptrootii*, *L. grisella* and *L. uniformis*, differ in the presence of gyrophoric acid and the absence of confluentic acid syndrome. *Lecidea fuscoatrina*, recently described from siliceous rocks in western North America (Hertel & Printzen 2004) shares chemical and morphological characters with our specimens, including conidia size (8–10 × 1 µm in our specimens). The DNA sequences from our material also correspond with *L. fuscoatrina* (see below). **TLC**: confluentic acid syndrome; i.e. confluentic acid, 2'-O-methylmicrophyllinic acid and trace of 2-O-methylperlatolic acid (JV20885, 23578, ZP30984). **ITS** sequenced (JV23578, 25073), **mtSSU** sequenced (JV20885, 25073). Closest NCBI Blast hits to our mtSSU sequences are *Lecidea fuscoatra* and *L. fuscoatrina* with identities 99.5–100%. Closest NCBI Blast hits to our ITS sequences belong to *L. fuscoatra* (95–97% identity). Lower identity is shared with *L. fuscoatrina*

(MK591838; 93.5%), which is partly caused by presumed incorrect editation detected in MK591838 by unexpected substitutions in invariable regions of ITS2. We speculate that *L. fuscoatrina* may represent a distinct chemotype within *L. fuscoatra*.

Lecidea grisella (LC) – 1, 3, 10: sil; Vouchers: PRA-JV20888, 20999, 25069. **ITS** and **mtSSU** sequenced (JV25069).

Lecidea lactea (DD) – 3, 9, 11: sil; Vouchers: PRA-JV20664, 24537, 24547.

Lecidea nylanderi (VU) – 1, 2, 3, 4, 6, 8, 9, 10, 12: Bet, Fag, Qpe, dw; Vouchers: JM, PRA-JV, ZP. Frequently fertile. **TLC**: divaricatic acid (JM12032).

Lecidea plana (NT) – 1, 3, 4, 9, 12: sil; Vouchers: JM, PRA-JV. **ITS** and **mtSSU** sequenced (JV20894).

Lecidea plebeja (NEW) – 4: Pin, dw-Pin root, stump (Pin); Vouchers: PRA-JV24285, 24301, 24305, 24306. Superficially resembling *Amandinea punctata*, but the anatomy of apothecia discloses its relationship to Malmideaceae (dark brown hypothecium, amyloid tubular structure in tholus in asci, excipular hyphae apically thickened and with with brown cap, tiny simple colourless ascospores, apothecial pigments belonging to secalonic acid derivatives – K+ golden yellow). It has 8-spored asci whereas similar species differ by asci with 12–16 spores. It is a rare species in Europe with a few records in the Alps (Nimis et al. 2018), perhaps more frequent in Scandinavia (Santesson et al. 2004) and boreal zone of Russia (Urbanavichus 2010). In the study area, the species is restricted to two pine stands on scree with cold and humid mesoclimate (49.95894N, 13.80106E and 49.95752N, 13.79972E). **ITS** and **mtSSU** sequenced (JV24285).

Lecidea strasseri (DD) – 14: Til-mossy root; Voucher: PRA-JV23929. One historical and three recent occurrences are known from Moravia (Malíček et al. 2021), but this is the first record in Bohemia. In the study area, it was found on roots of two old *Tilia* polycormons in a single rocky stand (49.96388N, 13.81194E).

Lecidea tessellata (DD) – 1, 10: sil; Vouchers: JK10517, JM12593, PRA-JV20979, 21134, 23425, 25067. **ITS** and **mtSSU** sequenced (JV25067).

Lecidella carpathica (LC) – 1, 2, 3, 5, 7, 10: sil; Voucher: PRA-JV21015.

Lecidella albida (DD) – 2, 3, 8: Apl, Car, Cor; Vouchers: PRA-JV20880, 24479, 24920, ZP30064, 30955. **TLC**: atranorin, capistratone, thiophanic acid, cf. arthothelin (JV20880, ZP30064, 30955), atranorin and capistratone (JV24479, 24920). **mtSSU** sequenced (ZP30064).

Lecidella elaeochroma (NT) – 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Sari, Stor, Til, Ulm, dw; Vouchers: JK, PRA-JV. JK5314 – f. *soralifera*.

Lecidella flavosorediata (VU) – 1, 2, 3: Apl, Qpe, Sari; Vouchers: JM12587, PRA-JV20919, 23505, 24225, 24558. **TLC**: thiophanic acid, arthothelin (JV23505), arthothelin (JM12587), granulosin (JV20919). **ITS** sequenced (JV20919, 24225, 24558); **mtSSU** sequenced (JV24558).

Lecidella scabra (LC) – 1, 2, 3, 7, 8, 10: sil, Acam, Car, Qpe, Stor; Vouchers: JM, PRA-JV, ZP. **TLC**: atranorin, arthothelin (JM12590), atranorin, cf. arthothelin (ZP29385); atranorin, thiophanic acid, cf. arthothelin (ZP30055).

Lecidella stigmatea (LC) – 1, 3, 10: esr, ca; Vouchers: JK10445, 10509, PRA-JV20907, 21137.

Lempholemma chalazanum (VU) – 1: cs; Vouchers: PRA-JV21167, 21233, 24707, ZP31643.

Lempholemma polyanthes (VU) – 2, 3, 7: cs; Vouchers: JK10566, PRA-JV20969, 23679.

Lepraria borealis (LC) – 1, 2, 3, 4: as, sil, bryo-sil, Fra; Vouchers: JM, PRA-JV, ZP. A common species on xerothermic andesite and rhyolite rocky sites. **TLC**: atranorin, rangiformic acid (JV23504, 23507, 23509, 23706, 24507, ZP30968), atranorin, rangiformic & norrangiformic acids (JM12046), atranorin, rangiformic & norrangiformic acids, roccellic acid (JM13729, 13738, both epiphytic). **ITS** and **mtSSU** sequenced (JV23507, 23706); closest NCBI blast result was certainly the type of *L. bergensis* (>99% identity in mtSSU; 96.7% in ITS), but this species contains anthraquinones in the hypothallus which were not observed in our specimens. Sequences of saxicolous and terricolous specimens of *L. borealis* are currently absent in NCBI database. (ITS Sequence from corticolous '*L. borealis*' recorded on bark of *Populus tremula* (Ekman & Tønsberg 2002) is a different species related to *L. neglecta*).

Lepraria caesioalba (LC) – 1, 2, 3, 4, 5, 8, 9, 10, 11: sil, bryo-sil, Pin, Qpe-root, dw; Vouchers: JK, JM, PRA-JV.

Lepraria crassissima (NT) – 2, 5, 6, 7, 8, 13, 14: esr, sil, bryo-sil; Vouchers: JM, PRA-JV. **TLC**: divaricatic acid, zeorin, nordivaricatic acid (JV20641). **ITS** and **mtSSU** sequenced (JV20641).

Lepraria elobata (LC) – 1, 4, 9: Pin, sil; Vouchers: PRA-JV24521, 24680, ZP30683. **TLC**: atranorin, zeorin, stictic acid (ZP30683).

Lepraria finkii (LC) – 1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14: Acam, Aglu, Apl, Aps, Bet, Car, Cor, Fag, Fra, Qpe, Sari, Stor, Taxus, Til, Ulm-bryo; Vouchers: ZP30042, 31031. **TLC**: atranorin, zeorin, stictic acid (both specimens).

Lepraria humida (NEW) – 9: sil; Voucher: PRA-JV24507. *Lepraria humida* was described from the British Isles as a saxicolous lichen containing atranorin, rangiformic acid and anthraquinones and the six reliable ITS sequences also came from Great Britain (Slavíková-Bayerová & Orange 2006). ITS sequence of our specimen shows 98.6–100% identities with those from the British specimens and represents the first sequenced *L. humida* published in Europe outside the British Isles. Morphologically and chemically identical specimens from France, the Balkan and Central Europe have different ITS sequences and were assigned to *Lepraria* sp. H (Slavíková-Bayerová & Orange 2006). **TLC**: rangiformic acid, atranorin; anthraquinones absent, neither detected in hypothalline hyphae. As anthraquinones are absent from the Czech specimen, we consider their presence not diagnostic. **ITS** sequenced.

Lepraria incana (LC) – 1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 13, 14: Aglu, Apl, Aps, Car, Fag, Fra, Pic, Pin, Qpe, Sari, Stor, Til, dw, sil; Vouchers: JK, PRA-JV, ZP. **TLC**: divaricatic acid, zeorin (ZP29004, 29383, 30103).

Lepraria jackii (NT) – 2, 4, 6, 13: Car, Pin, Qpe, Taxus, Til, dw; Voucher: PRA-JV24307.

Lepraria membranacea (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 12, 14: sil, Fra; Vouchers: JK4819, ZP30677. **TLC**: pannaric acid, atranorin, roccellic acid (ZP30677).

Lepraria nylanderiana (VU) – 1, 2, 3: sil, esr, cs; Vouchers: JM, PRA-JV, ZP. **TLC**: thamnolic acid, roccellic acid (JV20929, 21238, ZP30945), thamnolic acid, roccellic acid, rangiformic acid (JM11950), thamnolic acid, roccellic acid, traces of atranorin (JM12603).

Lepraria rigidula (LC) – 2, 3, 4, 5, 6, 7, 13, 14: Apl, Bet, Car, Fag, Sari. Voucher: PRA-ZP30657. **TLC**: atranorin, cf. nephrosteranic acid (only seen in B' solvent).

Lepraria vouauxii (LC) – 1, 2, 3, 5, 7, 8, 12, 14: Acam, Apl, Car, Fag, Fra, Qpe, Til, Ulm; Vouchers: JM, PRA-JV, ZP. **TLC**: pannaric acid 6-methylester, traces of pannaric acid (JM12599, 12646, ZP29218, 29813, 30675, 30676, 31032).

Leprocaulon nicholsiae (NEW TO EUROPE) – 2, 8: esr, Qpe-trunk base; Vouchers: PRA-JV23702 (epiphytic), 24844. A leprose crust so far known from USA and Canada (Tripp & Lendemer 2019). It is generally a saxicolous lichen, but we report also on an epiphytic occurrence on a tree base in a rocky site (49.96573N, 13.80936E) where it grows together with other predominantly saxicolous lichens, e.g. *Leprocaulon quisquiliare*. **ITS** sequenced (both specimens); NCBI Blast results showed highest similarity with *L. nicholsiae* specimens (94.2–99.4 % identities). Other known *Leprocaulon* sequences had distinctly lower similarities. **TLC**: usnic acid, zeorin (JV23702).

Leprocaulon quisquiliare (NT) – 1, 2, 3, 7, 8: sil, Fra, Qpe-base. Vouchers: JK, PRA-JV24677, ZP29737. **ITS** sequenced (JV24677, epiphytic).

Lichenomphalia umbellifera (LC) – 4, 9: as; Vouchers: PRA-JV24128, 24138. **ITS** sequenced (both specimens).

Lichinella myriospora (NEW) – 1: ca; Voucher: PRA-JV20982. Identification confirmed by M. Schultz.

Lichinella nigritella (EN) – 1, 3: esr, ca; Vouchers: JK, PRA-JV, ZP. **mtSSU** sequenced (JV24864).

Lithothelium phaeosporum (DD) – 2, 3, 14: Aps, Fra; Vouchers: PRA-JV23964, 24159, 24488. In the Czech Republic hitherto known from a single lowland site (Vondrák et al. 2016). **ITS** and **mtSSU** sequenced (JV24159), **mtSSU** sequenced (JV24488).

Lithothelium septemseptatum (NEW) – 3, 14: Fra, Til; Vouchers: PRA-JV24170, 24481, 24485. **ITS** sequenced (JV24485), **mtSSU** sequenced (JV24170).

Lobothallia radiosa (LC) – 1, 7: sil; Vouchers: JK2843, PRA-JV23584a, 25107. **ITS** sequenced (admixture in JV23584).

Macentina abscondita (LC) – 7: Sam; Voucher: PRA-JV20674.

Macentina dictyospora (LC) – 7, 10: Fra-root, Ulm-base; Vouchers: PRA-JV24364, 25025, ZP31065.

Melanelia stygia (VU) – 1: sil; Voucher: PRA-JV21176.

Melanelixia fuliginosa (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12: sil; Vouchers: JK3995, JM11941.

Melanelixia glabratula (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14: Ainc, Apl, Aps, Bet, Car, Cor, Fag, Fra, Pin, Qpe, Sari, Til, dw, sil; Vouchers: JK3983, PRA-ZP30060.

Melanelixia subargentifera (VU) – 2, 3, 12, 13: Apl, Fra, Qpe, Ulm; Vouchers: JK3873, 5263.

Melanelixia subaurifera (VU) – 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Aglu, Car, Cor, Cra, Fag, Fra, Lar, Pspi, Qpe, Sari, Stor-tw, dw.

Melanohalea elegantula (VU) – 2, 9, 14: Acam, Qpe-tw, Sam; Vouchers: JŠ, PRA-JV20859, 24542. **ITS** and **mtSSU** sequenced (JV24542).

Melanohalea exasperatula (LC) – 1, 2, 3, 4, 5, 6, 9, 10, 11, 12, 14: Acam, Aps, Cra, Fag, Fra, Qpe-tw, dw; Voucher: JK5295.

Metamelanea caesiella (DD) – 1, 3, 6: ca; Vouchers: JK10477, PRA-JV20920, 21042, 21270, 21271.

Micarea byssacea (DD) – 5, 6: Car, dw-log (Abi); Voucher: PRA-JV24854. **mtSSU** sequenced.

Micarea coppinsii (NEW) – 4, 9: sil; Vouchers: PRA-JV24314, 24543. A species with suboceanic distribution in Europe with the easternmost limit in Austria (Türk & Hafellner 2017). It has saxicolous and corticolous occurrences (Coppins 2009), but in the study area, it appears to be strictly saxicolous, occurring on damp rhyolite boulders in screes together with crusts of filamentous algae and *Jamesiella anastomosans*. It forms a luxuriant population at point 49.95845N, 13.80153E where it forms pale green, almost globose soralia (morphotype with blue-grey soralia not observed). **TLC** (JV24543): 5-O-methylhiascic acid (major), gyrophoric acid (trace to minor). **mtSSU** sequenced (JV24314); Closest NCBI Blast result: *Micarea peliocarpa* (97.7% identity).

Another Czech record: Czech Republic, S Bohemia, Šumava Mts, Frymburk, nature reserve Otovský potok, boggy alder-spruce forest, near the navigational canal Schwarzenberský kanál, 48°38'34.1"N, 14°02'56.0"E, on bark of *Alnus incana*, alt. 781 m, 27 October 2021, coll. Z. Palice (PRA-ZP32008).

Micarea denigrata (LC) – 1, 2, 3, 4, 5, 6, 8, 10, 11, 12: Pin, Qpe, dw; Vouchers: JM, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV23465).

Micarea elachista (EN) – 2, 4: Pin, dw-Qpe; Vouchers: PRA-JV24311, ZP29015, 30082. Recent records from the Czech Republic are otherwise only from southern Bohemia (Malíček et al. 2021).

Micarea erratica (LC) – 9, 10: sil; Vouchers: PRA-JV25057, ZP31561. **ITS** sequenced (JV25057).

Micarea fallax (DD) – 1, 5: dw-log (Abi, Aps); Vouchers: PRA-JV24711, 24744. **mtSSU** sequenced (JV24744).

Micarea globulosella (CR) – 2, 9: dw-log (Pin, Qpe); Vouchers: PRA-JV23708, 24501. Basically a montane species with the vast majority of Czech records at altitudes above 700 m (Malíček et al. 2021). In the study area it occurs at its lowermost known limit at 350

m. Gyrophoric acid was not detected in specimens from the study area. **ITS** sequenced (JV24501).

Micarea herbarum (NEW) – 2: dw-log (Qpe); Vouchers: PRA-ZP29088, 30066. Recently described species (van den Boom et al. 2017) resembling diminutive forms of *M. misella*. The closely related *M. nowakii* (Guzow-Krzemińska et al. 2019), also with distinct sessile pycnidia, differs in the presence of micareic acid (no substances detected by TLC in *M. herbarum*). Perhaps not rare but overlooked as undeveloped *Micarea* spp.

Micarea leprosula (VU) – 4: sil-bryo; Voucher: PRA-JV24113.

Micarea lignaria (LC) – 4, 5: sil-bryo; Vouchers: PRA-JV24122, 24125.

Micarea lithinella (LC) – 1, 2, 6, 14: sil; Vouchers: PRA-JV23726, 23967, 24899, ZP30728.

Micarea melaena (LC) – 4, 5, 14: Bet, Pin, dw-log, snag, stump (Abi, Pin), sil-bryo; Vouchers: JM12044, PRA-JV24253, 24290, 24890.

Micarea micrococca (LC) – 1, 2, 4, 5, 6, 9, 12: Aglu, Bet, Fag, Pic, dw; Vouchers: PRA-JV21180, 24300, 24898. **ITS** and **mtSSU** sequenced (JV24898).

Micarea microsorediata (NEW) – 4, 9: Bet, dw-log (Qpe); Vouchers: PRA-JV24297, 24503. Identified with the use of **mtSSU** sequences (both specimens).

Micarea misella (LC) – 1, 2, 3, 4, 6, 8, 10, 14: dw-log, snag, stump; Vouchers: PRA-JV20952, 24246, 24288, 24718, 24857, 24902. **mtSSU** sequenced (JV24902).

Micarea peliocarpa (LC) – 2, 9: Fra, *Calluna*, dw-log; Vouchers: JK2828, PRA-JV23714, 23744. **ITS** and **mtSSU** sequenced (JV23744).

Micarea prasina s.str. (DD) – 4, 5: dw-log, snag; Vouchers: PRA-JV24289, 24851. **ITS** sequenced (JV24851), **mtSSU** sequenced (JV24289).

Micarea pusilla (DD) – 14: dw-stump (Pic); Voucher: PRA-JV23918. **ITS** and **mtSSU** sequenced.

Micarea soralifera (DD) – 1, 4, 5, 6, 7: Bet-bryo, dw-log, stump; Vouchers: PRA-JV23982, 24563, 24574, 24849, ZP29955. **mtSSU** sequenced (JV24563, 24574, 24849).

Micarea substipitata (NEW SPECIES) – 4: dw-snag (Abi); Voucher: PRA-JV24847 (**ITS** and **mtSSU** sequenced). See the description above.

Micarea tomentosa (DD) – 4: dw-stump (Abi); Vouchers: PRA-JV24856, 24863. **mtSSU** sequenced (both specimens).

Micarea viridileprosa (NT) – 4, 5, 6, 9, 13: as, dw-log, stump; Vouchers: PRA-JV23902, 23919, 23982, 24150, 24505. **ITS** sequenced (JV23902); **mtSSU** sequenced (JV23902, 23982).

Miriquidica deusta (DD) – 1: sil; Voucher: PRA-JV21192. **TLC**: miriquidic acid. The voucher specimen is sterile, as are most specimens known from the Czech Republic (most Czech records concentrated in the nearby area, Brdy Hills).

Miriquidica intrudens (DD) – 1: sil-lichenicolous on *Acarospora* spp., *Lecidea fuscoatra*, *Rhizocarpon* spp.; Vouchers: PRA-JV21191, 21195, 23446, 23494. **TLC**: miriquidic acid (21191). Hitherto known from three regions within the Czech Republic: Krkonoše Mts (Malíček & Kocourková 2014, reported without more precise locality data; Sněžka Mt and Stříbrné návrší, Kocourková, unpublished), Himlštejn at Ohře river (Ondřej Peksa,

unpublished) and Ralsko (Vondrák, unpublished). Occurrence of a similar lichen, *M. instrata*, is plausible in the study area, as it was recorded from a site nearby (Malíček & Kocourková 2014).

Miriquidica leucophaea (NT) – 11: sil; Voucher: JK4984.

Miriquidica pycnocarpa (EN) – 1: sil; Voucher: PRA-JV21190.

Montanelia disjuncta (NT) – 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13: sil; Vouchers: JK10368, PRA-JV21041, PRM909543.

Montanelia panniformis (VU) – 1, 4: sil; Vouchers: JK4752, PRA-JV21051.

Montanelia sorediata (DD) – 1, 2, 3, 5, 8: sil; Vouchers: JM11929, PRA-JV21040.

Multiclavula mucida (EN) – 4: dw-log (Abi); Voucher: PRA-JV24281. The lowermost occurrence of the species in the Czech Republic and the second from the central part of Bohemia; the first one was from the nearby nature reserve Kohoutov (Malíček 2020).

Myriolecis albescens (LC) – 1, 7: ca, esr; Voucher: PRA-JV21160.

Myriolecis dispersa agg. (LC) – 1, 3, 7, 8, 10, 13: ca, esr; Vouchers: JM, PRA-JV.

Myriolecis hagenii (NT) – 1, 2, 3, 8: Car, Fra, Qpe; Vouchers: JM, PRA-JV.

Myriolecis persimilis (NT) – 1, 2, 3, 6, 7, 9, 13: Car, Fag, Fra-tw, Sam, sil; Vouchers: JM, PRA-JV.

Myriolecis sambuci (NT) – 3: Fra; Voucher: PRA-ZP30960.

Myriolecis semipallida (DD) – 1: ca; Vouchers: JK10447, PRA-JV25117.

Normandina acroglypta (DD) – 1, 2, 3, 5, 10: Fra, Qpe-usually on roots; Vouchers: JM, PRA-JV, ZP. **TLC**: zeorin (JM11927).

Ochrolechia androgyna agg. (VU) – 7: Apl; Voucher: PRA-JV20625. **TLC**: only gyrophoric/lecanoric acid detected in the small specimen (analysed twice). Absence of Androgyna-unknowns suggests the placement outside *O. androgyna* s.str.

Ochrolechia microstictoides (VU) – 1, 2, 4: Qpe, dw-log, snag; Vouchers: JM12597, PRA-JV23711, ZP30062.

Ochrolechia turneri (VU) – 1, 2, 3, 5, 7, 8, 13: Apl, Fra, Qpe; Vouchers: JM, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV23905).

Opegrapha lithyrga (DD) – 1, 2, 6, 8, 9, 13: sil; Vouchers: PRA-JV20624, 21153, 23421, ZP30658.

Opegrapha niveoatra (NT) – 2, 3, 6, 7, 11, 12, 13: Aglu, Apl, Aps, Car, Fag, Fra, Qpe, esr; Vouchers: JK, JM, PRA-JV, ZP. **mtSSU** sequenced (JV24477, 24895), **ITS** and **mtSSU** sequenced (JV23582; saxicolous).

Opegrapha paraxanthodes (DD) – 8: ca; Voucher: PRA-JV24865.

Opegrapha trochodes (DD) – 2, 3, 6: Apl, Fra; Vouchers: PRA-JV23954, 24484.

Opegrapha vermicellifera (VU) – 1, 2, 3, 5, 6, 7, 8, 11, 12, 13, 14: Acam, Apl, Aps, Car, Fag, Fra, Qpe, sil; Vouchers: JM, PRA-JV, ZP.

Parmelia ernstiae (DD) – 2, 3, 4, 5, 6, 10: Bet, Fag, Qpe, Sari, dw-log, snag; Voucher: JM11926.

Parmelia omphalodes (NT) – 1, 4, 11, 12: sil; Vouchers: JK3927, PRA-JV24235.

Parmelia saxatilis (LC) – 1, 2, 3, 4, 8, 9, 11, 12: sil; Voucher: JK.

Parmelia serrana (DD) – 3: dw-log; Voucher: JM12073. **TLC**: atranorin, salazinic acid, 2 fatty acids.

Parmelia sulcata (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Aps, Car, Cor, Cra, Fra, Pin, Qpe, Sari, Til-tw, dw, sil; Vouchers: JK, PRA-ZP. **mtSSU** sequenced (ZP29979).

Parmeliopsis ambigua (LC) – 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 14: dw-log, snag, Fag, Pin, Qpe, Sari; Vouchers: JK.

Peltigera canina (VU) – 7, 8, 11, 12: ca-bryo; Vouchers: JK3492, 5303.

Peltigera didactyla (LC) – 1, 13: as, cs; Vouchers: PRA-JV21231, 23978, PRM892121.

Peltigera elisabethae (CR) – 1, 8, 13: as, cs; Vouchers: PRA-JV23486, 23943.

Peltigera extenuata (DD) – 1, 7, 8: as, bryo-sil; Vouchers: JM12658, PRA-JV23463.

Peltigera horizontalis (EN) – 1, 2, 3, 5, 7, 10, 12, 14: bryo-sil, Apl, Fra-roots; Vouchers: JK6542, PRA-JV23731, 25039. **ITS** sequenced (JV25039).

Peltigera lepidophora (EN) – 1, 10: as, cs; Vouchers: PRA-JV24111, 25118.

Peltigera neocanina **ined.** (NEW) – 3, 14: bryo-Fra-roots; Vouchers: PRA-JV24483, 25087. The name was introduced by Miadlikowska et al. (2003), but it is still not formally described. However, the species is well circumscribed on the basis of ITS sequences (Jüriado et al. 2017). The species is morphologically similar to *P. membranacea* by its whitish lower surface of thallus and the slender, "bottle-brush-like" rhizines. **ITS** and **mtSSU** sequenced (JV24483).

Other Czech occurrences: Šumava Mts., protected area Boubín, among mosses on gneiss stone (PRA-JV23645) and Šumava Mts., protected area Čertova stráň, on root of *Fagus* (PRA-JV24456); both specimens confirmed by **ITS** barcode.

Peltigera polydactylon (EN) – 2: as; Voucher: PRA-ZP29377. **TLC**: zeorin, polydactylin, dolichorrhizin.

Peltigera praetextata (NT) – 1, 2, 3, 5, 6, 8, 11, 12, 13, 14: Apl, Aps, Fag, Fra, Qpe, Til-root, base, dw, bryo-sil; Vouchers: JK3490, PRA-JV24483, PRM908769.

Peltigera rufescens (NT) – 1, 2, 3, 7, 10: as, cs; Vouchers: JK4836, PRA-JV24222.

Peltula euploca (EN) – 1, 3, 8: ca; Vouchers: PRA-JV21024, ZP31646.

Pertusaria albescens (NT) – 1, 2, 3, 4, 7, 8, 9, 11, 13: Acam, Car, Fra, Qpe, dw; Vouchers: JK, PRA-JV.

Pertusaria amara (NT) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Aglu, Acam, Apl, Car, Cor, Fra, Qpe, Stor, dw; Vouchers: JK, PRA-ZP, PRM.

Pertusaria amara **f.** ***isidiata*** Harm. (DD) – 1, 2, 3, 8: Fra, Qpe; Vouchers: JM, PRA-JV. **TLC**: picrolichenic acid, protocetraric acid (JM11944).

Pertusaria aspergilla (EN) – 1, 4: sil; Vouchers: JM, PRA-JV. **TLC**: fumarprotocetraric acid (JM12616).

Pertusaria coccodes (VU) – 2, 8: Car, Qpe; Vouchers: PRA-JV24198, 24226.

Pertusaria corallina (NT) – 1, 4, 5, 12: sil; Vouchers: JM, PRA-JV21052.

Pertusaria coronata (VU) – 17: Apl, Fra; Vouchers: JM, PRA-JV24260, 24340.

Pertusaria flavida (EN) – 1: Fra, Qpe; Vouchers: JM12578, PRA-JV24344. Recorded in a single site in the study area, where it was frequent (detected on tens of trees).

Pertusaria hymenea (EN) – 7: Car; Voucher: PRA-JV20670.

Pertusaria leioplaca (VU) – 1, 2, 3, 5, 6, 7, 8, 10: Acam, Aps, Car, Cor, Fag, Fra; Vouchers: JK, PRA-JV.

Pertusaria pertusa (EN) – 2, 6: Apl, Car; Vouchers: PRA-JV23960, 24155.

Pertusaria stalactiza (NEW) – 1: sil; Vouchers: JM13711, PRA-JV23412. Recorded in nutrient-rich communitiy on a bird-perching rock spur. It is similar to an epiphytic *Pertusaria amara* var. *isidiata*, but the secondary metabolites differ and isidia are distinctly larger (100–200 µm diam., versus 50–100 µm in *P. amara* var. *isidiata*). **TLC**: lecanoric acid, protocetraric acid (JM13711). **ITS** and **mtSSU** sequenced (JM13711). Closest NCBI Blast results are *Pertusaria amara* in ITS (93% identity) and *P. excludens* and *P. aspergilla* in mtSSU (>99% identity). **Fig. 12C, D**

Phaeophyscia chloantha (EN) – 1, 2, 3: Acam, Aps, Fra, Ulm; Vouchers: PRA-JV21268, 24715, 24731, ZP30665.

Phaeophyscia endophoenicea (EN) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13: Acam, Apl, Aps, Car, Cor, Fra, Qpe, Ulm-bryo; Voucher: JK4810.

Phaeophyscia hirsuta (CR) – 8: esr; Voucher: PRA-JV24859.

Phaeophyscia nigricans (LC) – 1, 3, 7: Fra, ca; Voucher: PRA-JV20936.

Phaeophyscia orbicularis (LC) – 1, 2, 3, 4, 6, 7, 9, 10, 12, 13: Apl, Aps, Car, Cor, Fag, Fra, Qpe, esr, ca.

Phaeophyscia sciastra (NT) – 1, 3, 10: ca, esr; Vouchers: PRA-ZP30924, 31644, PRM909545.

Phlyctis argena (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14: Acam, Apl, Aps, Car, Cor, Fag, Fra, Qpe, Sari, Stor, Til, Ulm, dw, bryo, sil; Vouchers: JK, JM, PRA-JV, ZP.

Physcia adscendens (LC) – 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Apl, Aps, Car, Cor, Cra, Fag, Fra, Pspi, Qpe, Stor, Ulm-tw; Voucher: JK.

Physcia aipolia (EN) – 2, 3, 6: Fra-tw.

Physcia caesia (LC) – 1, 3, 7, 8: ca, esr.

Physcia dimidiata (NT) – 1, 2, 7, 8: ca, esr, Apl; Vouchers: JK4824, PRA-ZP31651 (epiphytic), PRM906669.

Physcia dubia (LC) – 1, 2, 3, 6, 7, 8, 10, 11, 12, 13: Apl, Aps, Car, Fag, Fra, Qpe, Stor-base, sil. Vouchers: JK, JM, PRA-ZP.

Physcia stellaris (VU) – 1, 2, 6, 12, 14: Acam, Fra-tw, Pspi.

Physcia tenella (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14: Acam, Aglu, Apl, Aps, Car, Cor, Cra, Fag, Fra, Qpe, Ulm-tw, dw, sil; Voucher: JK.

Physconia enteroxantha (NT) – 1, 2, 3, 7, 8, 10, 14: Acam, Apl, Aps, Car, Cra, Fag, Fra, Qpe, dw; Vouchers: JK, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV24074).

Physconia grisea (LC) – 7: Qpe; Voucher: JK3506.

Physconia perisidiosa (VU) – 2, 3, 4, 7, 8, 9, 11, 14: Apl, Aps, Fra, Qpe, bryo-sil; Vouchers: JK, PRA-JV, ZP.

Piccolia ochrophora (NT) – 7: Sam.

Placidium rufescens (NT) – 1, 3, 7, 8: esr, cs; Vouchers: JK10505, PRA-JV20644, 20916, 20986, 25108.

Placidium squamulosum (LC) – 1: cs; Vouchers: JK4544, JM12609, PRA-ZP31629.

Placopyrenium cinereoatratum (NEW) – 1: sil-inundated; Vouchers: PRA-JV21204, 21222, 23502. Orange (2009) described it as lichenicolous on *Staurothele fissa*. In the study area, the species is frequent on the riverside andesite outcrops, usually associated with *S. fissa*, but not necessarily lichenicolous. **ITS** sequenced (JV21204).

Placopyrenium fuscellum (VU) – 1, 3, 10: ca, esr; Vouchers: JK10483, JM12607, PRA-JV25048, 25093, ZP30679, 31608, PRM906668.

Placynthiella dasaea (LC) – 2, 3, 9: Lar, dw-log; Vouchers: PRA-JV24504, PRA-ZP29954.

Placynthiella icmalea (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Bet, Cra, Pin, Qpe, dw, as; Vouchers: JK, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV23901).

Placynthiella oligotropha (LC) – 1, 2, 9: as.

Placynthiella uliginosa (LC) – 1, 2, 3, 5, 10: as; Vouchers: PRA-JV21263, ZP31655.

Placynthium nigrum (NT) – 1, 2, 3, 10: ca; Vouchers: JK10506, PRA-JV21245, 24926. **mtSSU** sequenced (JV24926).

Placynthium subradiatum (EN) – 1: ca; Vouchers: PRA-JV21037, 21044.

Platismatia glauca (NT) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14: Bet, Cra, Fag, Fra, Pin, Pspi, Qpe, Sari-tw, dw-log, snag, sil; Vouchers: JK.

Pleopsidium flavum (VU) – 1: sil. We consider it a glacial relict, restricted in Central Europe to hard siliceous rocks in continually unforested, continental regions. Nowadays the lichen is common in arid regions of Eurasia where steppe is a zonal biome. Its distribution in central Europe is restricted to a few sites at Prague in central Bohemia (Suza 1942) and a few in the Danube valley at Krems an der Donau (Suza 1947). Its occurence in the study area (only a few thalli recorded) is outstanding by the substantial distance from all known localities in central Bohemia.

Pleurosticta acetabulum (VU) – 3: Fra.

Porina aenea (LC) – 1, 2, 3, 4, 5, 6, 7, 10, 11, 13, 14: Abi, Aglu, Aps, Car, Cor, Fag, Fra, Pic, Stor, Til, Ulm; Vouchers: JK3503, 10366, PRA-JV23956, 24134. Only a few specimens were identified as *P. aenea* with brown pigments in involucrellum, unchanged after KOH treatment. Most epiphytic records belong to *P. byssophila*, with purple pigments changed to blue-grey after KOH.

Porina byssophila (DD) – 1, 2, 3, 5, 6, 9, 12, 13, 14: Acam, Apl, Car, Cor, Fag, sil, esr; Vouchers: JM, PRA-JV, ZP. Epiphytic and saxicolous occurrences are frequent throughout the study area. Saxicolous *P. chlorotica* and epiphytic *P. aenea* differ only in involucrellum pigmentation that appears to have an intermediate state in some specimens. The complex of these three *Porina* species urgently needs revision.

Porina chlorotica (LC) – 1, 3, 5, 6, 7, 8, 9, 10, 11, 13: sil; Vouchers: PRA-JV24578, ZP31589, 31755. Perhaps less frequent than *P. byssophila*.

Porina lectissima (VU) – 6: sil; Voucher: PRA-JV24161.

Porina leptalea (EN) – 2: Fag; Voucher: PRA-JV24221.

Porocyphus coccodes (DD) – 1, 13: sil-river bank; Vouchers: PRA-JV21221, 23989.

Porocyphus rehmicus (NEW) – 1, 3: ca; Vouchers: PRA-JV21025, 21043, 21228, ZP31633. In the study area restricted to cyanolichen communities on lime enriched surfaces periodically inundated by seepage water.

Additional Czech records: Central Bohemia, distr. Praha-západ, Český kras, Černošice, Vonoklasy: limestone quarry overgrown by shrubs, just c. 0.5km WNW of the village, N49°57'06", E014°16'17", on steeply inclined seepage limestone S-SW facing rock, alt. 315 m, 26 July 2011, coll. Z. Palice, det. M. Schultz (PRA-ZP14769); South Moravia, distr. Blansko, Moravský Kras, NR Rudické propadání, W-facing xerothermic rock outcrops just SE of the rock-form 'Kolíbky', 49°20'01.1"N, 16°44'07.2"E, on low limestone rock, alt. 463 m, 16 April 2015, coll. Z. Palice & P. Uhlík (PRA-ZP21202).

Porpidia cinereoatra (EN) – 1, 5, 8, 11: sil; Vouchers: JK4974, JM12660, PRA-JV21032, 24896. **ITS** and **mtSSU** sequenced (JV24896).

Porpidia contraponenda s.lat. (NEW) – 4: sil; Voucher: PRA-JV24123. **TLC**: methyl-2-O-microphyllinate. **ITS** and **mtSSU** sequenced; closest NCBI Blast results: *Porpidia* sp. (3 specimens from North America; identity in ITS 97–99.3%), closely related to *P. contraponenda* and *P. cinereoatra* (Orange 2014b). On the basis of similarity in secondary metabolites, we tentatively call our specimen *P. contraponenda*.

Porpidia crustulata (LC) – 1, 3, 4, 5, 9, 10, 11, 12: sil; Vouchers: PRA-JV24124, 24538. **TLC**: stictic acid (24124).

Porpidia nigrocruenta (DD) – 1, 4: sil; Voucher: PRA-JV24135.

Porpidia soredizodes (LC) – 1, 3, 4, 5, 9: sil; Vouchers: JK10372, PRA-JV.

Porpidia tuberculosa (LC) – 1, 2, 3, 8, 9, 10, 11, 12, 13: sil; Vouchers: JK, JM, PRA-JV, ZP. Specimens with rusty coloured thalli are sometimes present on iron-rich rocks, resembling *P. melinodes*, but the medulla is amyloid.

Protoblastenia rupestris (LC) – 1, 3, 6, 10, 13: esr, ca; Vouchers: JK10453, PRA-JV23430.

Protoparmelia badia (LC) – 1, 11: sil.

Protoparmelia hypotremella (DD) – 1, 2, 3, 8: Car, Qpe, dw; Vouchers: JM, PRA-JV, ZP29015 (fertile). **ITS** and **mtSSU** sequenced (JV23710, 24196). Rather frequent in the study area, especially on hard wood of oak logs, where it forms pale grey granular to subsquamulose thalli, similar to *Rinodina excrescens*, but P- and UV+ white. Apothecia are present in the specimen ZP29015, likewise in the specimen recently reported from the National Park Podyjí (Malíček 2021); until now reported fertile only from North America (Brodo & Aptroot 2005). **Fig. 12F** (fertile thallus)

Protoparmelia oleagina (NEW) – 2, 5: Qpe, dw; Vouchers: PRA-JV24320 (richly fertile), 24470, ZP29015. Distinct from the related *P. hypotremella* by darker (olive-brown) thalli of tiny granules. The negative UV reaction of thallus is also characteristic (Aptroot et al. 1997, Brodo & Aptroot 2005), although both species are indistinguishable by TLC. In the Czech Republic this species was previously collected in the Šumava Mts on hard wood of solitary *Sorbus aucuparia* as a host of *Sphinctrina*

anglica (Palice 1999) but not explicitely listed. **ITS** sequenced (24320). **Fig. 12E** (fertile thallus)

Protoparmeliopsis garovaglii (NT) – 1, 3, 7, 8: sil; Vouchers: JK5233, 10353.

Protoparmeliopsis muralis (LC) – 1, 2, 3, 5, 7, 8, 10, 13: esr, sil; Voucher: PRA-JV24207.

Protothelenella corrosa (LC) – 5, 9: sil; Voucher: PRA-JV24524. The records in the study area at altitudes below 500 m are outstanding, as *P. corrosa* is predominantly a montane lichen.

Pseudevernia furfuracea (NT) – 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14: Aglu, Car, Cra, Fag, Fra, Pin, Pspi, Qpe, Sari-tw, dw-log, snag; Voucher: JK4011.

Pseudoschismatomma rufescens (VU) – 1, 2, 3, 5, 6, 7, 8, 12, 13: Apl, Bet, Car, Cor, Fag, Fra, Qpe; Vouchers: PRA-JV24562 (anamorph), ZP29759. Sometimes covering large areas in a purely anamorphic stage with crowded tiny pycnidia, fewer than 0.1 mm diam.; conidia 6–7 × 2.5–3 µm. **mtSSU** sequenced (JV24562).

Psilolechia clavulifera (LC) – 5, 6, 9: sil (dry side of stones); Vouchers: PRA-JV23936, 24529. Majority of Czech occurrences are from organic substrata, but the three records from the study area are saxicolous.

Psilolechia lucida (LC) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14: sil.

Psoroglaena stigonemoides (DD) – 13: Acam; Voucher: PRA-JV23973.

Psorotichia schaereri (DD) – 1, 3: ca, esr; Vouchers: PRA-JV21028, 21033, 24904, 25052. **mtSSU** sequenced (JV25052).

Pterygiopsis neglecta (DD) – 1: ca; Vouchers: PRA-JV21272, 23408, 23484. In the study area, it occurs either on rocks periodically irrigated by seepage water enriched by lime, or on periodically inundated rocks on the river side. In the Czech Republic so far known from few localities in valley of Vltava river (Malíček & Vondrák 2016). **ITS** sequenced (JV23408).

Pterygiopsis umbilicata (CR) – 1, 3: ca; Vouchers: PRA-JV. In the study area, it is rather frequent on lime enriched rocks periodically irrigated by seepage water. In the Czech Republic, it was previously known only from its type locality (Vězda 1978, Šoun et al. 2015, Malíček et al. 2017).

Punctelia jeckeri (VU) – 1, 2, 3, 5, 6, 8, 10, 12, 14: Car, Cra, Fra, Qpe-tw.

Punctelia subrudecta (VU) – 1, 2, 3, 6, 8: Aps, Car, Cra, Fra, Qpe-tw; Voucher: PRA-ZP31421.

Pycnora praestabilis (VU) – 1, 2: Pin, dw-log, snag, stump; Vouchers: JM12588, PRA-JV23751.

Pycnora sorophora (NT) – 1, 2, 3, 4, 9, 10, 11: Pin, dw-snag, stump; Vouchers: PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV23721).

Pycnothelia papillaria (VU) – 1, 2, 9: as; Vouchers: JK4755, PRA-JV21251.

Pyrenula nitida (EN) – 1, 2, 3, 5, 6, 8, 14: Aps, Car, Cor, Fag.

Pyrenula nitidella (EN) – 2, 3, 6: Car, Cor, Fra (young); Vouchers: PRA-JV20697, 23955, 23961, 24157. **ITS** and **mtSSU** sequenced (JV24157).

Ramalina capitata (VU) – 1: sil (bird-perching); Voucher: PRA-JV21010.

Ramalina europaea (NT) – 1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 14: Acam, Apl, Car, Fra, Qpe, sil; Vouchers: JK, JM, PRA-JV, ZP. **ITS** sequenced (JM11934, PRA-JV24581), and **mtSSU** sequenced (JM11934, 11935, PRA-JV24347, 24581).

Ramalina farinacea (VU) – 2, 3, 4, 5, 8, 9, 10, 11, 12, 13: Apl, Car, Fag, Fra, Qpe-tw, dw-snag; Vouchers: JK4848, PRA-ZP29710.

Ramalina obtusata (RE) – 2: Car; Voucher: PRA-JV24089. This is the only published record from the Czech Republic in the last 80 years. Few modern records are however known from the Šumava Mountains in Southern Bohemia. **ITS** and **mtSSU** sequenced; identity of the ITS sequence with *R. obtusata* was confirmed by Sergio Pérez Ortega.

Reichlingia leopoldii (DD) – 6, 8, 13: Aps, sil; Vouchers: JK10568, PRA-JV21074, 23953.

Reichlingia zwackhii (NEW) – 3: Car; Voucher: PRA-JV24586. In central Europe, it is a very rare lichen occurring at low altitudes on smooth bark of *Carpinus* or *Fraxinus* (Wirth et al. 2013), sometimes reported as a facultative parasite on *Phlyctis argena* (Cameron et al. 2020). Recorded on a single old tree in the study area.

Rhizocarpon disporum (NT) – 1: sil; Vouchers: JK10364, PRA-JV21026.

Rhizocarpon distinctum (LC) – 1, 2, 3, 5, 7, 8, 9, 10, 11, 12: sil; Vouchers: JK, JM, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV23892).

Rhizocarpon fratricida (NEW) – 1: sil-on *Rhizocarpon geographicum*; Vouchers: JK10564, 10577. First record for Central Europe. So far known only from Italy (Sicily, Sardinia; Nimis 2016) and from a single locality in southeastern France (Roux & Uriac 2018). The species forms very small thalli lichenicolous on yellow *Rhizocarpon* species, with I+ blue medulla and strongly halonate, 1-septate grey-brown ascospores, 14–23 × 7–8.5 µm.

Rhizocarpon geminatum* var. *citrinum (NEW) – 1, 7: sil; Vouchers: JK4889, PRA-JV20643, 23584. Whereas *Rhizocarpon geminatum* prefers damp sites close to streams and lakes (Fletcher et al. 2009), the var. *citrinum* occurs in xerothermic sites. The Czech record of *R. geminatum* from rocks in the valley of Vltava river (Malíček et al. 2008) probably belongs to this taxon. **ITS** sequenced (JV23584), **mtSSU** sequenced (JV20643). The var. *citrinum* is distinct from *R. geminatum* on a species level (E. Timdal, pers. communication).

Rhizocarpon geographicum (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12: sil; Vouchers: JK10482, JM12035.

Rhizocarpon grande (VU) – 1, 3, 4, 8, 9: sil; Vouchers: JK5311, PRA-JV21011, 21061, 24112, 24877.

Rhizocarpon lecanorinum (LC) – 1, 3, 4, 5, 9, 10, 12: sil; Vouchers: JK4002, JM12031.

Rhizocarpon oederi (VU) – 1: sil; Vouchers: JK10479, PRA-JV24579, ZP31663.

Rhizocarpon petraeum (VU) – 1, 10: ca, esr; Vouchers: PRA-JV21022, 23438, ZP31557.

Rhizocarpon postumum (DD) – 1: sil; Voucher: PRA-ZP31659.

Rhizocarpon reductum (LC) – 1, 2, 3, 4, 5, 8, 9, 10, 11, 12: sil; Vouchers: JK, JM, PRA-JV, ZP, PRM.

Rhizocarpon rubescens (NEW) – 1, 2, 3: sil; Vouchers: PRA-JV21235, ZP29011. Genuinely rare in Europe. Most records are from southern Scandinavia (Ihlen 2004); the species is not present in the checklist of the Alps (Nimis et al. 2018) or the German lichen flora (Wirth et al. 2013). It has a few scattered records in the study area and one more Czech locality has recently been found.

Additional Czech record: Šumava Mts. Záblatí, Řepešín, protected area Čertova stráň, alt. 660 m, 49.00698N, 13.89251E, coll. J. Vondrák, 9 Sept. 2020 (PRA-JV24379).

Rhizocarpon viridiatrum (VU) – 1, 2, 3, 5, 7, 8, 10: sil; Vouchers: JK, JM, PRA-JV, ZP.

Rimularia gibbosa s.lat. (NT) – 1, 2, 3, 8, 10: sil; Vouchers: JM, PRA-JV. Two species are presumably present in the study area. One has strongly bullate thallus and resembles a typical morphotype of *R. gibbosa*; this one was only recorded in the sampling site 1 (JV20988, 24688). **ITS** and **mtSSU** sequenced (JV24688).

Another one, common throughout the area, has low areoles that soon become entirely blastidiate. This morphotype resembles *Lambiella furvella* or *Rimularia intercedens*. **ITS** sequenced (JV20960, 21023) and **mtSSU** sequenced (JV21023, 23583).

Both species are closely related to *R. gibbosa* (according to data in NCBI), but both have ITS sequences distinct from the typical *R. gibbosa* (PRA-JV24407; CZ-Šumava Mts).

Rimularia insularis (NT) – 1: sil-lichenicolous on *Lecanora rupicola*; Vouchers: JK10518, PRA-JV21211.

Rinodina archaea (CR) – 2: dw-Qpe-root; Voucher: PRA-JV24239. Our record represents the only known recent occurrence in the Czech Republic. Rather recently, it was mentioned as an associated species from the Šumava Mts (Palice 1999), but this record probably refers to *R. orculata*. In the study area, only a single small thallus was collected on hard wood at trunk base of an old living oak. Identification confirmed by Helmut Mayrhofer. **mtSSU** sequenced.

Rinodina aspersa (NT) – 1, 2, 3, 5, 7, 8, 9, 10, 11, 13: sil-pebbles; Vouchers: JK, JM, PRA-JV. **ITS** sequenced (JV25068), **mtSSU** sequenced (JV20960a, 25068).

Rinodina bischoffii (LC) – 1, 7, 10: ca; Vouchers: JK10488, PRA-JV23443, 23450, 25096.

Rinodina calcarea (VU) – 1: ca, esr; Voucher: PRA-JV21265.

Rinodina efflorescens (VU) – 1, 2, 3, 4, 5: Aps, Car, Qpe, dw-log; Vouchers: JM, PRA-JV, ZP. **ITS** sequenced (JV23876), **mtSSU** sequenced (JV23860).

Rinodina excrescens (DD) – 2, 3: Car, Qpe; Vouchers: PRA-JV24241, 24552.

Rinodina exigua (VU) – 1, 2, 3, 4, 5, 8, 10, 11, 12: Apl, Aps, Car, Fag, Fra, Qpe-tw; Vouchers: JK, JM, PRA-JV, ZP.

Rinodina fimbriata (DD) – 1, 6: esr-inundated; Vouchers: PRA-JV24737, 24738, 24922. Atranorin absent in all specimens (tested by polarised light - the bright colour of the small atranorin crystals is diagnostic; Mayrhofer, unpublished). It has only two other records from the Czech Republic (Halda 2017). **ITS** and **mtSSU** sequenced (JV24738).

Rinodina freyi (EN) – 1, 3, 12: Fra, Lar-tw; Vouchers: JM12056, PRA-JV20912, 23468, 24491.

Rinodina moziana (DD) – 1, 2, 8, 13: sil-river bank, sil; Vouchers: PRA-JV (5 specimens), ZP29177. Sheard (2018) revised and summarized the synonymy of this widespread subcosmopolitan, but poorly known and certainly rare species related to *R. oxydata*. It was described under various names from three continents: from Asia (Japan) in 1890 (as *Lecanora moziana*), from North America (U.S.A.: Illionis) in 1891 (as *Lecidea destituta*) and from Europe (Czech Republic) in 1984 (as *Rinodina vezdae*). The last description (Mayrhofer 1984) refers to the type locality at Veverská Bitýška in southern Moravia (collected by A. Vězda in 1956). Our records represent the only known recent occurrences of the species in the Czech Republic.

Rinodina oleae (LC) – 7: ca, esr; Voucher: PRA-JV23570. Abundant occurrence on andesitic stones in ruin walls. **ITS** sequenced. Closest NCBI Blast results are three sequences of *R. oleae* (c. 98% identity). Some authors recognize *Rinodina oleae* as an epiphytic species, distinct from the saxicolous *R. gennarii*. Our record is saxicolous and thus could be identified as *R. gennarii*.

Rinodina obnascens (NEW) – 7: sil, esr; Voucher: PRA-JV20630. Species with blastidiate thallus morphology similar to *R. furfurea*, but it differs in ascospores (Milvina-type in *R. obnascens* and Dubyana-type in *R. furfurea*). So far known mainly from southern Europe (Mayrhofer & Poelt 1979, Mayrhofer 1984, Giralt 2001, Grube et al. 2001, Mayrhofer et al. 2005, Nimis et al. 2018). In the study area, it occurs on xerothermic base-rich outcrops of andesite below the ruin of Týřov. Accompanying species include *Caloplaca rubelliana*, *Lobothallia radiosa*, *Rhizocarpon geminatum* var. *citrinum* and *Verrucaria sphaerospora*. **ITS** and **mtSSU** sequenced.

Rinodina oxydata (NT) – 1, 2, 3, 7, 8, 10, 11: sil, Fag-root; Vouchers: JK, JM, PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV24720, 24966).

Rinodina pityrea (LC) – 1, 3, 7, 10: Acam, Fra, Qpe; Vouchers: PRA-JV21220, 24909, 24932, ZP30963.

Rinodina poeltiana (NEW) – 2, 3: Fra, Qpe; Vouchers: PRA-JV24062, 24063, 24476, ZP30067, 30759. Described from a single site in Austria (Giralt et al. 1993) as an epiphyte on *Salix alba*. Later recorded in the west of North America (Sheard 2010) and in Italy: South Tyrol (Nascimbene 2014, Nimis et al. 2018). **ITS** and **mtSSU** sequenced (JV24063). **Fig. 12G**

Rinodina pyrina (VU) – 1, 2, 3, 6, 13: Fag, Fra-tw, log; Vouchers: JM, PRA-JV.

Rinodina subpariata (DD) – 2, 3, 4, 8, 12, 14: Car, Cor, Fra, Qpe, Stor; Vouchers: PRA-JV, ZP.

Romjularia lurida (VU) – 1: ca, cs; Vouchers: PRA-JV21013, 25152.

Ropalospora viridis (LC) – 2, 3, 4, 5, 6, 7, 14: Ainc, Bet, Car, Cor, Fag, Pspi, Sari; Vouchers: JM11925, 11989, 12042. **TLC**: perlatolic acid (all specimens).

Rostania occultata (CR) – 1: Fra-base; Voucher: PRA-JV24348. Four records are known from the Czech Republic from the first half of 20th Century. Afterwards recorded only once in the Šumava Mts (Palice 1999).

Rufoplaca griseomarginata (NEW SPECIES) – 1: esr; Voucher: PRA-JV23414. See the description above.

Sagedia simoënsis (DD) – 1, 2, 3, 9, 10: sil; Vouchers: JM12069, 12626, PRA-JV21036, 24531, ZP30680, 31059, 31505. Thallus variable; soralia dark blue grey to pale grey, rough granulose to farinose. **mtSSU** sequenced (JV24531, with farinose blue-grey soralia).

Sarcogyne regularis (LC) – 1, 3, 10: ca, esr; Vouchers: JM12613, PRA-JV21135, 23419, 23442, 25102, ZP31745. **mtSSU** sequenced (23419, sterile specimen).

Sarcosagium campestre (LC) – 10: Fra-roots; Voucher: PRA-JV24362.

Sclerophora pallida (CR) – 2: Fra; Vouchers: PRA-JV24245, ZP29694. A rare species with a single detected occurrence in the study area.

Sclerophora peronella (EN) – 14: Apl-wood in hollow; Voucher: PRA-JV24189. A rare species with a single detected occurrence in the study area.

Scoliciosporum chlorococcum (LC) – 1, 2, 3, 4, 11: Bet, Car, Qpe, dw-log; Vouchers: JK5300, 10383, PRA-JV20627, 24299.

Scoliciosporum gallurae (DD) – 8: Fra; Voucher: JM12635. Probably underrecorded, because its sterile thalli (if present) were automatically identified as the common *S. sarothamni*.

Scoliciosporum sarothamni (LC) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14: Acam, Aglu, Aps, Car, Cor, Fag, Fra, Qpe, Pavi, Sari-tw, dw, sil; Voucher: PRA-JV21208.

Scoliciosporum schadeanum (DD) – 4: Qpe; Voucher: PRA-JV24119.

Scoliciosporum umbrinum (LC) – 1, 2, 3, 4, 8, 10, 11: Fag, Qpe, sil; Vouchers: JK10371, JM12045, ZP31013.

Schismatomma pericleum (EN) – 7, 12, 13: Apl, Fra; Vouchers: JM11975, PRA-JV24254, 24262.

Scytinium gelatinosum (VU) – 1: esr-bryo; Voucher: PRA-JV24713.

Scytinium intermedium (DD) – 1, 3, 10: ca, cs; Vouchers: PRA-JV20955, 21187, 25065. Although the species is known to be richly fertile (Jørgensen 1994), it forms extensive thalli without apothecia in the study area.

Scytinium lichenoides s.str. (DD) – 1, 2, 3, 14: Apl, Fra, Til-mossy root; Vouchers: PRA-JV24080, 24168, 24275. The name *Leptogium (Scytinium) lichenoides* has been also used for a common species *L. (S.) pulvinatum* in the Czech Republic, however *S. lichenoides* s.str. (sensu Otálora et al. 2008) is certainly rare in the Czech Republic. In the study area, it is scattered on mossy roots and tree bases in humid scree forests. For differences from epiphytic specimens of *L. magnussonii*, see below. **ITS** sequenced (JV24080), **mtSSU** sequenced (all specimens).

Scytinium magnussonii (DD) – 1, 2, 3, 8, 13: ca, esr, Fra; Vouchers: JM11951, PRA-JV21200, 23479, 25029, 25036. Corticolous specimens differ from the similar *L. lichenoides* by rounded (not elongated and denticulate), shiny brown (not matt, grey) and only slightly striate thallus lobes. It has smaller cortical cells (4–10 vs. 8–13 µm diam.) and denser algal layer with *Nostoc* more in clusters than in chains (*Nostoc* predominantly in chains in *L. lichenoides*). Isidia are tiny, granular or very shortly coralloid (often long coralloid in *L. lichenoides*). **mtSSU** sequenced (JM11951, JV25036).

Scytinium plicatile (VU) – 1, 3, 8, 10: ca, esr; Vouchers: PRA-JV24732, 24867.

Scytinium pulvinatum (LC) – 1, 2, 3, 7, 8, 10, 11, 13: ca, esr-bryo, Fra-roots; Vouchers: JK, JM, PRA-JV.

Scytinium schraderi (VU) – 1, 3, 10: cs; Vouchers: JK10502, PRA-JV24925.

Scytinium subtile (EN) – 1, 2, 3, 7, 10: Apl, Car, Fra, Qpe-usually on roots; Vouchers: PRA-JV, ZP.

Scytinium tenuissimum (VU) – 1, 10: as; Voucher: PRA-JV23685.

Scytinium teretiusculum (EN) – 1, 2, 3: Fra, Qpe-bryo-usually on roots; Vouchers: JM, PRA-JV, ZP.

Sparria endlicheri (CR) – 1, 2, 3, 8, 13, 14: sil, esr; Vouchers: JM, PRA-JV. Recently considered as regionally extinct in some Central European countries (cf. Vondrák et al. 2010), but intensive floristic research in the Czech Republic in the last decade revealed numerous localities from lowlands to lower mountains. It specifically grows below mineral enriched siliceous outcrops accompanied by *Dirina fallax* and *Dendrographa latebrarum*.

Staurothele fissa (EN) – 1, 13: sil, esr-river bank; Vouchers: PRA-JV21213, SMNS-STU-F-0001982. A dominant lichen on riverside, periodically inundated, andesite rocks. **ITS** sequenced (SMNS-STU-F-0001982).

Staurothele frustulenta (LC) – 1, 7: esr; Vouchers: PRA-JV20978, 25110, ZP30661, 31634.

Strangospora moriformis (NT) – 1, 2, 5, 11: dw-log; Vouchers: PRA-JV20639, 25153.

Strangospora pinicola (NT) – 1, 2, 3, 5, 9, 10, 12: Fag, Fra, Qro, dw- fence, log, snag; Vouchers: JM, PRA-JV, ZP.

Strigula jamesii (DD) – 1, 2, 6, 7, 11: Apl, Cor, Fra, Til, ca; Vouchers: PRA-JV20672, 20673, 24052, 24057, 24706, 24900 (saxicolous), ZP30100 (as *Strigula* cf. *affinis*). The lichen with suboceanic distribution, with the easternmost occurrence in Slovakia. In the Czech Republic, has so far been known from the Moravian Karst only (Palice et al. 2018). All specimens from the study area had only perithecia, i.e. pycnidia were absent. Some specimens (JV24052, ZP30100) have slightly larger ascospores (c. 17–20 × 5–6 µm) and the latter has larger perithecia (0.2–0.25 mm). These two could be identified as a poorly developed *Strigula affinis*. **ITS** sequenced (JV24052, 24057) and **mtSSU** sequenced (JV24052).

Strigula taylori (NEW) – 2, 7, 13: Fra, esr; Vouchers: JM11955, 11976, PRA-JV23945. Corticolous specimens (JM11955, 11976) are with perithecia and micropycnidia. The saxicolous specimen (JV23945) was with macropycnidia only and the sizes of conidia, 12–16 × 2–3 µm, fits *S. taylori* better than similar species (Roux et al. 2004).

Synalissa ramulosa (NT) – 1, 3: ca; Vouchers: JK, PRA-JV. **ITS** and **mtSSU** sequenced (JV24687).

Tephromela atra (NT) – 1, 3, 5, 8, 12: sil; Voucher: PRA-JV21240.

Tephromela grumosa (LC) – 1, 3, 5, 8, 10, 11, 12: sil; Vouchers: JK10370, PRA-JV20963, ZP30673.

Thelenella muscorum **var.** ***muscorum*** (VU) – 1, 2: Fra, Qpe-bryo; Vouchers: JM11953, PRA-JV21185, 23924.

Thelenella pertusariella (NT) – 2, 6: Acam, Apl, Car; Vouchers: PRA-JV24187 (sub *T. vezdae*), ZP29715.

Thelidium minimum (DD) – 13: esr; Voucher: JK4972. Matching the description in Wirth et al. (2013), but occurring on base-rich andesitic (not calcareous) rock. Identification tentative.

Thelocarpon laureri (LC) – 1, 2, 3, 5: sil-pebbles; Vouchers: PRA-JV20873, 21143.

Thyrea confusa (VU) – 1, 3: ca, esr; Vouchers: PRA-JV. **mtSSU** sequenced (JV25033).

Toninia aromatica (EN) – 1, 7: ca, esr; Vouchers: PRA-JV21239, 23574, ZP31628. **ITS** sequenced (JV23574).

Toninia sedifolia (LC) – 1, 3, 8: cs; Voucher: PRA-JV20974, 25091, ZP31673.

Trapelia elacista (DD) – 2, 14: sil; Voucher: PRA-ZP29132.

Trapelia glebulosa (LC) – 1, 3, 9, 10, 11: sil; Vouchers: JK10367, JM13715. **ITS** sequenced (JM13715).

Trapelia obtegens (LC) – 1, 2, 3, 5, 8, 9, 10, 12: sil; Vouchers: JK3932, PRA-JV20868.

Trapelia placodioides (LC) – 1, 2, 3, 10, 11, 12: sil; Voucher: JK5476.

Trapeliopsis flexuosa (LC) – 1, 2, 3, 5, 6, 8, 9, 10, 11, 12: Qpe, dw-log, snag; Vouchers: JK, PRA-ZP.

Trapeliopsis gelatinosa (NT) – 4: as; Voucher: PRA-JV24139.

Trapeliopsis glaucolepidea (NT) – 2, 6, 12: dw; Voucher: PRA-JV24234.

Trapeliopsis granulosa (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12: dw, sil-bryo, as; Vouchers: JK5310, 10476, PRA-ZP30052.

Trapeliopsis pseudogranulosa (LC) – 4, 5, 6, 9: dw-log, as, Pic-rootplate; Vouchers: PRA-JV23979, 24510. **ITS** and **mtSSU** sequenced (JV23979).

Tuckermannopsis chlorophylla (NT) – 1, 2, 4, 5, 9, 10, 11, 14: Fag, Lar, Qpe, Sari, dw-log; Voucher: JK5247.

Umbilicaria hirsuta (LC) – 1, 2, 3, 4, 8, 9, 10, 12: sil; Vouchers: PRA-JV20957, 20980, 21148.

Umbilicaria polyphylla (LC) – 1: sil; Voucher: JK10527.

Usnea barbata (CR) – 8, 9, 11, 12: Acam, Cra, dw; Vouchers: PRA-JV23938, 24536.

Usnea dasopoga (VU) – 2, 4: Qpe, dw-snag.

Usnea glabrata (RE) – 14: Pspi; Voucher: PRA-JV24526. Although considered regionally extinct in the Czech Republic (Liška & Palice 2010), recent records are on the increase (Šoun et al. 2017). **TLC**: fumarprotocetraric acid, usnic acid.

Usnea hirta (VU) – 2, 3, 5, 9, 10, 11: Car, Lar, Qpe-tw, dw-snag; Vouchers: PRA-JV, ZP. **TLC**: murolic acid complex, usnic acid (JV23880, 23881).

Usnea subfloridana (EN) – 1, 2, 5, 10: Cra, Pin, Qpe-tw; Vouchers: PRA-JV, ZP. **TLC**: thamnolic acid, usnic acid (JV21197, ZP29139).

Usnea substerilis (CR) – 2, 5, 6, 7, 8, 9, 10, 14: Cra, Acam, Fag, Fra, Pspi, Qpe-tw; Vouchers: PRA-JV. **TLC**: salazinic acid, usnic acid (JV20858, 21196, 24525).

Usnea viktoriana (DD) – 2: Qpe-tw; Voucher: PRA-ZP31292. **TLC**: usnic acid, alectorialic acid.

Varicellaria hemisphaerica (EN) – 2: Til; Voucher: JM11942. **TLC**: lecanoric acid.

Varicellaria lactea (NT) – 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12: sil; Vouchers: JK, PRA-JV, ZP.

Verrucaria aquatilis (VU) – 6: sil-inundated; Vouchers: JM11881b, PRA-JV24591, 24593.

Verrucaria breussii (DD) – 2: Fra, Qpe-base; Vouchers: PRA-JV23707, ZP30041, 30628. **mtSSU** sequenced (JV23707).

Verrucaria bryoctona (VU) – 1, 2, 3, 6, 10: Apl, Fra, Qpe, Ulm-base; Vouchers: PRA-JV20698, 21170, 24365, 24931, ZP29724. **ITS** sequenced (JV20698, 24365); **mtSSU** sequenced (JV20698, 21170, 24931, ZP29724).

Verrucaria devensis (NEW) – 1: esr-inundated; Voucher: PRA-JV25051. Occurring on mineral-rich inundated rock together with *V. praetermissa*. Morphology fits the description by Orange (2014a). **ITS** sequenced. The sequence is almost identical with NCBI sequences of *V. devensis* (identities >99.5%).

Another Czech record: Central Bohemia, Sedlčany region, rocky valley of Mastník brook 150 m SW of Líšnice settlement, alt. 290 m, 49°43'21.0''N, 14°25'58.6''E, on inundated siliceous stone in brook, 7 August 2021, coll. I. Černajová & J. Malíček (J. Malíček 14542 & 14543).

Verrucaria elaeina (NEW) – 1, 6, 7, 11, 12, 14: sil, esr, ca-mortar; Vouchers: JM, PRA-JV. Somewhat similar to the aquatic *V. praetermissa*, but grows in non-aquatic, rather base-rich rocks in damp sites. Not published from the Czech Republic yet, but perhaps locally frequent. It is abundant on suitable sites in the study area. **ITS** sequenced (JV20682, 21080, 23405, 23941, 23966, 23878) and **mtSSU** sequenced (JV20682, 23395, 23405, 23966).

Verrucaria elaeomelaena (DD) – 6: sil-inundated; Vouchers: PRA-JV. So far only published once from the Czech Republic (Halda 1999). In the study area it is, together with *V. praetermissa* and *V. hydrophila*, the most common lichen on stones in streams. **ITS** sequenced (JV23575, 23577, 23886).

Verrucaria furfuracea (DD) – 1, 7, 8, 13: ca; Vouchers: PRA-JV. **ITS** sequenced (JV23572); the sequence is distinct from our sequences of *V. macrostoma*.

Verrucaria hegetschweileri (DD) – 1, 2, 3, 10: Apl, Aps, Fra, Qpe-root, base; Vouchers: PRA-JV, ZP. **ITS** and **mtSSU** sequenced (JV20931, 23704). The sequences are almost identical with *Verrucaria* sp. 5 (see the known unknown), a taxon which differs by a different involucrellum structure and its occurrence on rocks.

Verrucaria hydrophila (VU) – 1, 6: sil-inundated; Vouchers: PRA-JV. **ITS** sequenced (JV23576, 23681, 24840, SMNS-STU-F-0001985) and **mtSSU** sequenced (JV23681, 24840).

Verrucaria macrostoma (DD) – 1, 7, 8, 10, 13: ca; Vouchers: JK10455, PRA-JV23400, 23942, 24873, 24941. **ITS** sequenced (JV23400, 23942); **mtSSU** sequenced (JV24941). Specimen 21173 from the study area is also tentatively identified as *V. macrostoma*, but it has granular isidiate outgrowths on margins of squamules and has distinct ITS sequence (with 95% identity to the other two obtained sequences).

Verrucaria maculiformis (DD) – 1: esr-periodically inundated; Vouchers: PRA-JV24838, 24951, 24969. Mature photobiont cells 10–15 µm diam. **ITS** sequenced (JV24838); it is placed in the group with *Verrucaria substerilis*, *V. tenuispora* and *V. teyrzowensis*

(Fig. 8); members of the group are characterized by the occurrence of large photobiont cells. All specimens with lichenicolous *Stigmidium lichenum*.

***Verrucaria margacea* s.lat.** (VU) – 1: esr-inundated; Voucher: SMNS-STU-F-0001991 (collected by Holger Thüs). *Verrucaria margacea* s.lat. is a monophyletic group of high genetic diversity which consists of several lineages with apparently distinct distributional patterns. For some of these lineages from rather low elevations in Central Europe older names may already exist in the literature, but morphological delimitation of species in this group is difficult and the aggregate is in need of revision (Thüs et al. 2015, Stordeur et al. 2020).

Verrucaria memnonia (DD) – 4: sil; Voucher: JM12050. Identified by Othmar Breuss. **mtSSU** sequenced.

Verrucaria muralis (LC) – 1, 7: ca; Vouchers: PRA-JV24730, 24933. **ITS** sequenced (both specimens); **mtSSU** sequenced (JV24730).

Verrucaria nigrescens s.lat. (LC) – 1, 2, 3, 7, 8, 10, 11, 12, 13: ca, esr, sil; Vouchers: JK, JM, PRA-JV. **ITS** sequenced (JV23409, 23485, 23498, 23748, 23939, 24498, SMNS-STU-F-0001981, 0001986, 0001989). The name is currently used for specimens belonging to more than one species. Two unrelated ITS clades were obtained from the studied specimens (Group 1 and 2 in Fig. 11).

Verrucaria ochrostoma (LC) – 7: sil, esr; Voucher: PRA-JV20683. Identification tentative. **ITS** sequenced.

Verrucaria polysticta (DD) – 1, 2, 3, 8, 10, 13: ca, esr; Vouchers: PRA-JV20928, 23948, 24871. **ITS** sequenced (JV23948), **mtSSU** sequenced (JV24871).

Verrucaria praetermissa (VU) – 1, 6, 11: sil-inundated; Vouchers: JM, PRA-JV. **ITS** sequenced (JM11881, JV23681a, SMNS-STU-F-0001983) and **mtSSU** sequenced (JM11881).

Verrucaria procopii (DD) – 1: ca; Voucher: PRA-JV23449. **ITS** and **mtSSU** sequenced. Closely related to non-sorediate forms of *V. macrostoma*.

Verrucaria sphaerospora (VU) – 7: esr; Vouchers: JK10516, PRA-JV23573. **ITS** sequenced (JV23573).

Verrucaria substerilis (NEW SPECIES) – 1, 2, 13: esr; Vouchers: PRA-JV. See the description above.

Verrucaria tabacina (NEW) – 1: ca; Voucher: PRA-JV21269. Identification tentative, however the specimen matches well with the description by Breuss & Berger (2010). Distribution of *V. tabacina* is little known; it is presumed to be rare in central Europe, preferring xerothermic sites. **ITS** and **mtSSU** sequenced; closest NCBI Blast relative in mtSSU is *Verrucaria viridula* (98.8% identity), but no close relative found in ITS (*V. viridula* and Verrucariaceae spp., <92%).

Verrucaria tectorum (DD) – 1, 5, 7: ca, sil-pebbles; Vouchers: PRA-JV. **ITS** sequenced (JV23571). Earlier considered as a blastidiate morphotype of *V. nigrescens*, but our ITS data support its distinction on the species level.

Verrucaria tenuispora (NEW SPECIES) – 1: esr; Vouchers: PRA-JV. See the description above.

Verrucaria teyrzowensis (NEW SPECIES) – 1: esr; Vouchers: PRA-JV. See the description above. Information supplementing the protolog: the species also occurs epiphytically at the base of trunks, as shown by recent findings. The following two entries were verified by ITS sequences that are identical to the type sequence.
Additional records: **Czech Republic**. Pálava Protected Landscape Area, Horní Věstonice, Děvín-Kotel-Soutěska National Nature Reserve, in forest along red tourist path near S border of reserve, 0.5 km N of Klentnice, 48°51'21''N, 16°38'41''E, alt. 340 m, on bark of *Fraxinus excelsior*, coll. Jiří Malíček & Jan Vondrák 29 November 2013 (herb. JM6354). **Slovakia**. W Carpathians, Muránska planina plateau: nature reserve Šarkanica, S-SSE-facing slope, a well-lit deciduous forest, 48°42.86'N, 19°59.42'E, on bark at exposed roots of old Fagus, alt. 645 m, 30 September 2009, Z. Palice 12957 (PRA).

Verrucaria viridigrana (DD) – 1, 2, 3, 7: Apl, Fra, Qpe, Ulm-base; Vouchers: PRA-JV24338, 24356 (containing depigmented perithecia), 24490, 24561, 24741, ZP31047. **ITS** sequenced (JV24338, 24356, 24741, ZP31047); **mtSSU** sequenced (JV24338, 24356, 24490, 24741, ZP31047). **Fig. 12H**

Verrucaria viridula (NT) – 7, 10: ca, ca-concrete; Vouchers: PRA-JV24939, 24942, ZP31749. **ITS** and **mtSSU** sequenced (JV24939).

Vezdaea acicularis (LC) – 1, 2, 3, 9, 10: as, sil-bryo, ca-bryo; Vouchers: PRA-JV20956, 23717, ZP31654.

Vezdaea aestivalis (NT) – 6: dw (Car), sil-bryo (*Thamnobryum*); Vouchers: PRA-JV24919, ZP30957.

Vezdaea retigera (DD) – 1, 10, 14: Fra, Qpe-root (also on *Peltigera*); Vouchers: PRA-JV24271, 24359.

Violella fucata (LC) – 2, 4, 5, 6, 7, 10, 13, 14: Bet, Car, Fag, Pin, Sari, dw-log; Voucher: PRA-JV24279.

Vulpicida pinastri (NT) – 2, 3, 5, 6, 9, 11: dw-log, snag; Voucher: PRA-ZP30048.

Waynea giraltiae (NEW) – 2: Qpe; Voucher: PRA-ZP30031. Recently described, inconspicuous species growing in fissures of old trees in sparse forests. Known from a few localities in Europe (van den Boom 2010, Palice et al. 2018, Ravera et al. 2018, Urbanavichus et al. 2020). The sterile thallus recorded in the study area was distinguished from *Agonimia opuntiella*, similar species but one which rarely occurs on bark. *Waynea giraltiae* has algal layer distinctly separated from the cortex which is formed by several layers of thick-walled cells. Hairs on the thallus surface are formed by a single thick-walled hypha. *Agonimia opuntiella* has an indistinct cortex and hairs are formed by several parallel hyphae.

Xanthomendoza fallax (NT) – 1, 2, 8: ca, esr; Voucher: JK4821.

Xanthoparmelia conspersa (LC) – 1, 2, 3, 4, 5, 7, 8, 9, 10, 11: sil, dw, Fra, Pin, Qpe-base, dw-log; Vouchers: JK, JM, PRA-ZP30075 (epiphytic). **TLC**: norstictic acid, stictic acid complex, usnic acid (JM13713).

Xanthoparmelia loxodes (LC) – 1, 2, 3, 4, 5, 9, 10: sil, dw; Vouchers: JK10475, JM12033, 12627, 21214, PRA-ZP31747. **TLC**: glomelliferic acid, traces of: glomellic acid, perlatolic acid and 1 fatty acid (JM12033).

Xanthoparmelia mougeotii (EN) – 3, 4, 10: sil; Vouchers: JK4001, JM12048, PRA-JV24129, 24546.

Xanthoparmelia plittii (NEW) – 2: sil; Voucher: ZP31016. **mtSSU** sequenced.

Xanthoparmelia protomatrae (NT) – 1, 2, 3, 4, 8, 9: sil, as; Vouchers: JM11946, 12643, PRA-JV20951, 21062, ZP31017, PRM758532.

Xanthoparmelia pulla agg. (LC) – 1, 3, 7, 10: sil; Vouchers: JK4833, JM216, PRA-JV20911. **TLC**: divaricatic acid, stenosporic acid, cf. glomelliferic acid (JM216; *X. pulla* s.str.).

Xanthoparmelia stenophylla (LC) – 1, 3, 5, 7, 9, 10, 11: sil.

Xanthoparmelia verruculifera (LC) – 1, 2, 3, 4, 7, 8: sil, Fra-base; Vouchers: JK, JM, PRA-JV, PRM. **TLC**: divaricatic/stenosporic acid, traces of lobaric acid (JM12039).

Xanthoria candelaria (LC) – 1, 5, 7, 9: Cra, Qpe-tw, dw; Vouchers: JK3498, PRA-JV23898.

Xanthoria elegans (LC) – 2, 7: esr, ca.

Xanthoria parietina (LC) – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14: Acam, Apl, Aps, Car, Cor, Cra, Fag, Fra, Qpe, Ulm-tw. Voucher: JK3959.

Xanthoria polycarpa (NT) – 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14: Acam, Car, Fag, Fra, Lar, Qpe-tw, dw, sil.

Xanthoria sorediata (EN) – 1: esr; Vouchers: PRA-JV23447, ZP31635. Recently known from three localities in the Czech Republic (Vondrák & Malíček 2015, Palice 2020). We recorded tens of thalli in two micro-sites within the study area. Another unpublished record is from a nearby locality: Čertova skála Nature Reserve, collected by Jana Kocourková, 1996.

Xylopsora caradocensis (LC) – 1, 4, 9: Pin, dw-log.

Xylopsora friesii (EN) – 2, 10: dw-snag; Vouchers: PRA-JV23734, 23694, ZP30098.

Zwackhia viridis (EN) – 3, 4, 5, 6, 7, 14: Apl, Car, Fag, Fra; Vouchers: PRA-JV20640, 20679, 23692.

References

Ametrano C. G., Knudsen K., Kocourková J., Grube M., Selbmann L. & Muggia L. (2019) Phylogenetic relationships of rock-inhabiting black fungi belonging to the widespread genera *Lichenothelia* and *Saxomyces*. – Mycologia 111: 127–160.

Aptroot A., Diederich P., van Herk C. M., Spier L. & Wirth V. (1997) *Protoparmelia hypotremella*, a new sterile corticolous species from Europe, and its fungi. – Lichenologist 29: 415–424.

Bouda F., Syrovátková L., Halda J. P., Malíček J., Palice Z. & Vondrák J. (2019) Lišejníky zaznamenané během 26. Jarního setkání Bryologicko-lichenologické sekce ČBS ve Zlatohorské vrchovině a v Jeseníkách v dubnu 2019 [Lichens recorded during the 26th Spring meeting of the Bryological and lichenological section of the CBS in Zlatohorská vrchovina hills and the Jeseníky Mts (Silesia), April 2019]. – Bryonora 64: 1–20.

Brodo I. M. & Aptroot A. (2005) Corticolous species of *Protoparmelia* (lichenized Ascomycotina) in North America. – Canadian Journal of Botany 83: 1075–1081.

Cannon P., Ertz D., Frisch A., Aptroot A., Chambers S., Coppins B., Sanderson N., Simkin J. & Wolselsey P. (2020) *Arthoniales*: *Arthoniaceae*, including the genera *Arthonia*, *Arthothelium*, *Briancoppinsia*, *Bryostigma*, *Coniocarpon*, *Diarthonis*, *Inoderma*, *Naevia*, *Pachnolepia*, *Reichlingia*, *Snippocia*, *Sporodophoron*, *Synarthonia* and *Tylophoron*. – Revisions of British and Irish Lichens 1: 3–48.

Coppins B. J. & Aptroot A. (2009) *Bacidia* De Not (1846). – In: Smith C. W., Aptroot A., Coppins B. J., Fletcher A., Gilbert O. L., James P. W. & Wolseley P. A. (eds), The lichens of Great Britain and Ireland, p. 189–207, The British Lichen Society, London.

Coppins B. J. & Earland–Bennett P. M. (2009) *Cyrtidula* Minks (1876). – In: Smith C. W., Aptroot A., Coppins B. J., Fletcher A., Gilbert O. L., James P. W. & Wolseley P. A. (eds), The lichens of Great Britain and Ireland, p. 368–369, The British Lichen Society, London.

Coppins B. J. & Orange A. (2009) *Arthopyrenia* A. Massal. (1852). – In: Smith C. W., Aptroot A., Coppins B. J., Fletcher A., Gilbert O. L., James P. W. & Wolseley P. A. (eds), The lichens of Great Britain and Ireland, p. 171–181, The British Lichen Society, London.

Ekman S. & Tønsberg T. (2002) Most species of *Lepraria* and *Leproloma* form a monophyletic group closely related to *Stereocaulon*. – Mycological Research 106: 1262–1276.

Ertz D., Sanderson N., Łubek A. & Kukwa M. (2018) Two new species of *Arthoniaceae* from old-growth European forests, *Arthonia thoriana* and *Inoderma sorediatum*, and a new genus for *Schismatomma niveum*. – Lichenologist 50: 161–172.

Friebes G. (2011) Über sieben interessante, in der Steiermark nachgewiesene Schlauchpilze (Ascomycota). – Joannea Botanik 9: 5–22.

Gaya E. (2009) Taxonomical revision of the *Caloplaca saxicola* group (*Teloschistaceae*, lichen-forming *Ascomycota*). – Bibliotheca Lichenologica 101: 1–191.

Giavarini V. & Sérusiaux E. (2009) *Byssoloma* Trevisan (1853). – In: Smith C. W., Aptroot A., Coppins B. J., Fletcher A., Gilbert O. L., James P. W. & Wolseley P. A. (eds), The lichens of Great Britain and Ireland, p. 239–240, The British Lichen Society, London.

Giralt M. (2001) The lichen genera *Rinodina* and *Rinodinealla* (lichenized *Ascomycetes*, *Physciaceae*) in the Iberian Peninsula. – Bibliotheca Lichenologica 79: 1–160.

Giralt M., Obermayer W. & Mayrhofer H. (1993) *Rinodina poeltiana* spec. nov. (lichenized *Ascomycetes*, *Physciaceae*) a new corticolous blastidiate species from Austria. – Herzogia 9: 709–714.

Grube M., Lindblom L. & Mayrhofer H. (2001) Contributions to the lichen flora of Crete: a compilation of references and some new records. – Studia Geobotanica 20: 41–59.

Guzow-Krzemińska B., Sérusiaux E., van den Boom P. P. G., Brand A. M., Launis A., Łubek A. & Kukwa M. (2019) Understanding the evolution of phenotypical characters in the *Micarea prasina* group (*Pilocarpaceae*) and descriptions of six new species within the group. – MycoKeys 57: 1–30.

Halda J. (1999) Příspěvek k poznání lichenoflóry Orlických hor 2. [Contribution to the knowledge of the lichen flora in Orlické hory Mts] – Acta Musei Richnoviensis (Sect. natur.) 6: 1–32.

Halda J. P. (2017) Lišejníky ledovcového karu Velká kotlina v Hrubém Jeseníku [Lichens of the Velká kotlina glacial cirque in the Hrubý Jeseník Mts (Grossen Kessel, Hohe Gesenke)]. – Acta Musei Richnoviensis (sect. natur.) 24: 7–52.

Halda J. P., Kocourková J., Lenzová V., Malíček J., Müller A., Palice Z., Uhlík P. & Vondrák J. (2017) Lišejníky zaznamenané během 22. Jarního setkání Bryologicko-lichenologické sekce ČBS v Moravském krasu v dubnu 2015 [Lichens recorded during the 22th Spring

meeting of the Bryological and lichenological section of the CBS in the Moravian Karst (Czech Republic), April 2015]. – Bryonora 59: 1–23.
Hertel H. & Printzen C. (2004) *Lecidea*. – In: Nash T. H. III et al. (eds), Lichen flora of the Greater Sonoran Desert Region, p. 287–309, Arizona State University, Tempe, USA.
Ihlen P. G. (2004) Taxonomy of the non-yellow species of *Rhizocarpon* (*Rhizocarpaceae*, lichenized *Ascomycota*) in the Nordic countries, with hyaline and muriform ascospores. – Mycological Research 108: 533–570.
Jørgensen P. M. (1994) Further notes on European taxa of the lichen genus *Leptogium*, with emphasis on the small species. – Lichenologist 26: 1–29.
Jüriado I., Kaasalainen U. & Rikkinen J. (2017) Specialist taxa restricted to threatened habitats contribute significantly to the regional diversity of *Peltigera* (Lecanoromycetes, Ascomycota) in Estonia. – Fungal Ecology 30: 76–87.
Knudsen K., Adams J. N., Kocourková J., Wang Y., Ortañez J. & Stajich J. E. (2020) The monophyletic *Sarcogyne canadensis–wheeleri* clade, a newly recognized group sister to the European *Acarospora glaucocarpa* group. – Bryologist 123: 11–30.
Knudsen K. & Kocourková J. (2020a) *Acarosporaceae* of Belarus. – Herzogia 33: 394–406.
Knudsen K. & Kocourková J. (2020b) Two poorly-known species of European *Acarospora* (*Acarosporaceae*). – Herzogia 33: 1–8.
Kocourková J. (2000) Lichenicolous fungi of the Czech Republic (the first commented checklist). – Sborník Národního Musea v Praze, Řada B 55: 59–169.
Kocourková-Horáková J. (1998) Distribution and ecology of the genus *Thelocarpon* (*Lecanorales*, *Thelocarpaceae*) in the Czech Republic. – Czech Mycology 50: 271–302.
Kondratyuk S. Y., Lőkös L., Farkas E., Kärnefelt I., Thell A., Yamamoto Y. & Hur J.-S. (2020) Three new genera of the *Teloschistaceae* proved by three gene phylogeny. – Acta Botanica Hungarica 62: 109–136.
Koukol O., Hofmann T. A. & Piepenbring M. (2017) *Dendroseptoria mucilaginosa*: a new anamorphic fungus with stauroconidia and phylogenetic placement of *Dendroseptoria*. – Mycological Progress 16: 1065–1070.
Liška J. & Palice Z. (2010) Červený seznam lišejníků České republiky (verze 1.1) [Red List of lichens of the Czech Republic (version 1.1)]. – Příroda 29: 3–66.
Liška J., Palice Z. & Slavíková Š. (2008) Checklist and Red List of lichens of the Czech Republic. – Preslia 80: 151–182.
Malíček J. (2013) Lišejníky Týnčanského krasu [Lichens of the Týnčany Karst (Central Bohemia)]. – Zprávy České botanické společnosti 48: 143–162.
Malíček J. (2020) Lišejníky NPR Kohoutov na Křivoklátsku [Lichens of the Kohoutov National Nature Reserve in the Křivoklát region]. – Bryonora 66: 25–33.
Malíček J. (2021) Příspěvek k poznání lišejníků NP Podyjí [Contribution to the lichen biota of Podyjí National Park (South Moravia)]. – Bryonora 68: 10–22.
Malíček J., Palice Z., Bouda F., Czarnota P., Halda J. P., Liška J., Müller A., Peksa O., Svoboda D., Syrovátková L., Vondrák J. & Wagner B. (2008) Lišejníky zaznamenané během 15. Jarního setkání Bryologicko-lichenologické sekce ČBS na Sedlčansku [Lichens recorded during 15th Spring meeting of the Bryological and lichenological section CBS in the Sedlčany region]. – Bryonora 42: 17–30.
Malíček J., Palice Z. & Vondrák J. (2014) New lichen records and rediscoveries from the Czech Republic and Slovakia. – Herzogia 27: 257–284.
Malíček J., Palice Z. & Vondrák J. (2018a) Additions and corrections to the lichen biota of the Czech Republic. – Herzogia 31: 453–475.

Malíček J., Palice Z., Vondrák J., Łubek A. & Kukwa M. (2018b) *Bacidia albogranulosa* (*Ramalinaceae*, lichenized *Ascomycota*), a new sorediate lichen from European old-growth forests. – MycoKeys 44: 51–62.
Malíček J. & Vondrák J. (2016) Zajímavé nálezy lišejníků ve středním Povltaví II. – saxikolní druhy [Interesting records of lichens in the Middle Vltava Region II. – saxicolous species]. – Bryonora 58: 46–65.
Mayrhofer H. (1984) Die saxicolen Arten der Flechtengattungen *Rinodina* und *Rinodinella* in der Alten Welt. – The Journal of the Hattori Botanical Laboratory 55: 327–493.
Mayrhofer H., Denchev C. M., Stoykov D. Y. & Nikolova S. O. (2005) Catalogue of the lichenized and lichenicolous fungi in Bulgaria. – Mycologia Balcanica 2: 3–61.
Mayrhofer H. & Poelt J. (1979) Die saxicolen Arten der Flechtengattung *Rinodina* in Europa. – Bibliotheca Lichenologica 12: 1–186.
Miadlikowska J., Lutzoni F., Goward T., Zoller S. & Posada D. (2003) New approach to an old problem: incorporating signal from gap-rich regions of ITS and rDNA large subunit into phylogenetic analyses to resolve the *Peltigera canina* species complex. – Mycologia 95: 1181–1203.
Mitchell J. K., Garrido-Benavent I., Quijada L. & Pfister D. H. (2021) *Sareomycetes*: more diverse than meets the eye. – IMA Fungus 12**:** 6.
Mugambi K. & Huhndorf S. M. (2010) Multigene phylogeny of the *Coronophorales*: morphology and new species in the order. – Mycologia 102: 185–210.
Nannfeldt J. A. (1975) Stray studies in the *Coronophorales* (Pyrenomycetes) 4–8. – Svensk Botanisk Tidskrift 69: 289–335.
Nascimbene J. (2014) Increasing the knowledge on the epiphytic lichens of South Tyrol: a contribution from a three-years project. – Gredleriana 14: 111–126.
Nimis P. L. (2016) The lichens of Italy – a second annotated catalogue. – EUT Edizioni Università di Trieste, Trieste.
Nimis P. L., Hafellner J., Roux C., Clerc P., Mayrhofer H., Martellos S. & Bilovitz P. O. (2018) The lichens of the Alps – an annotated checklist. – MycoKeys 31: 1–634.
Orange A. (2009) Two parasitic species of *Placopyrenium* (*Verrucariaceae*) from freshwater habitats in north-west Europe. – Lichenologist 41: 131–139.
Orange A. (2014a) Two new or misunderstood species related to *Verrucaria praetermissa* (*Verrucariaceae*, lichenized Ascomycota). – Lichenologist 46: 605–615.
Orange A. (2014b) *Porpidia irrigua*, a new species related to *P. contraponenda*. – Lichenologist 46: 269–284.
Otálora M. A. G., Martínez I., Molina M. C., Aragón G. & Lutzoni F. (2008) Phylogenetic relationships and taxonomy of the *Leptogium lichenoides* group (*Collemataceae*, Ascomycota) in Europe. – Taxon 57: 907–921.
Palice Z. (1999) New and noteworthy records of lichens in the Czech Republic. – Preslia 71: 289–336.
Palice Z. (2020) Some additions to and elucidations of the lichen biota of Český kras (Bohemian Karst, Central Bohemia, Czech Republic). – Bryonora 65: 9–21.
Palice Z., Malíček J., Peksa O. & Vondrák J. (2018) New remarkable records and range extensions in the central European lichen biota. – Herzogia 31: 518–534.
Peksa O. (2006) *Calicium parvum* (*Caliciaceae*) – a new calicioid lichen to the Czech Republic. – Silva Gabreta 12: 51–56.
Pykälä J., Kantelinen A. & Myllys L. (2019) Taxonomy of the *Verrucaria kalenskyi* – *V. xyloxena* species complex in Finland. – Nova Hedwigia 109: 489–511.

Ravera S., Vizzini A., Cogoni A., Aleffi M., Benesperi R., Bianchi E., von Brackel W., Cataldo D., D'Antonio C., Di Nuzzo L., Favero Longo S. E., Gheza G., Isocrono D., Matteucci E., Martellos S., Morosini L., Nimis P. L., Ongaro S., Poponessi S., Puntillo D., Sguazzin F. & Tretiach M. (2018) Notulae to the Italian flora of algae, bryophytes, fungi and lichens: 5. – Italian Botanist 5: 31–43.

Roux C. (2020) Lectotypification de *Verrucaria leptotera* f. *inconspicua* Nyl. (syn. *Arthopyrenia inconspicua* (Nyl.) J. Lahm ex Körb.). – Bulletin de la Societé Linnéenne de Provence 71: 87–89.

Roux C., Nordin A., Tibell L. & Sohrabi M. (2011c) Quelques espèces d'Aspicilia peu connues ou nouvelles des Pyrénées-Orientales (France). – Bulletin de la Société Linnéenne de Provence, n° spécial 14: 177–227.

Roux C., Sérusiaux E., Bricaud O. & Coppins B. (2004) Le genre *Strigula* (lichens) en Europe et en Macaronésie [The genus *Strigula* (Lichens) in Europe and Macaronesia]. – Bibliotheca Lichenologica 90: 1–96.

Roux C. & Uriac P. (2018) Lichens et champignons lichénicoles observés dans quelques localités de la Drôme septentrionale granitique. – Bulletin de la Société Linnéenne de Provence 69: 97–105.

Sanderson N. A. & Purvis O. W. (2009) *Ramonia* Stizenb. (1862). – In: Smith C. W., Aptroot A., Coppins B. J., Fletcher A., Gilbert O. L., James P. W. & Wolseley P. A. (eds), The lichens of Great Britain and Ireland, p. 788–790, The British Lichen Society, London.

Santesson R., Moberg R., Nordin A., Tønsberg T. & Vitikainen O. (2004) Lichen-forming and lichenicolous fungi of Fennoscandia. – Museum of Evolution, Uppsala University, Uppsala.

Sérusiaux E. (1998) Deux nouvelles espèces de *Byssoloma* Trev. (lichens, *Pilocarpaceae*) d'Europe occidentale et de Macaronésie [Two new species of *Byssoloma* Trev. (Lichenes, *Pilocarpaceae*) from western Europe and Macaronesia]. – Cryptogamie, Bryologie–Lichénologie 19: 197–209.

Sérusiaux E., Diederich P., Brand A. M. & van den Boom P. (1999) New or interesting lichens and fungi from Belgium and Luxembourg. 8. – Lejeunia 162: 1–95.

Servít M. (1955) Nové lišejníky. Lichenes novi. – Rozpravy Československé Akademie Věd 65: 1–45.

Sheard J. W. (2010) The lichen genus *Rinodina* (*Lecanoromycetidae, Physciaceae*) in North America, north of Mexico. – National Research Council of Canada, NRC Research Press, Ottawa.

Sheard J. W. (2018) A synopsis and new key to the species of *Rinodina* (Ach.) Gray (*Physciaceae*, lichenized Ascomycetes) presently recognized in North America. – Herzogia 31: 395–423.

Sherwood M. A. (1977) The ostropalean fungi. – Mycotaxon 5: 1–277.

Šoun J. (2010) První nález *Calicium montanum* v České republice [First record of *Calicium montanum* in the Czech Republic]. – Bryonora 46: 19–23.

Šoun J., Vondrák J., Søchting U., Hrouzek P., Khodosovtsev A. & Arup U. (2011) Taxonomy and phylogeny of the *Caloplaca cerina* group in Europe. – Lichenologist 43: 113–135.

Šoun J., Vondrák J. & Bouda F. (2015) Vzácné a málo známé druhy lišejníků Třebíčska a okolí [Rare and little known species in the Třebíč Region and its surroundings]. – Bryonora 56: 1–23.

Spribille T., Fryday A. M., Pérez-Ortega S., Svensson M., Tønsberg T., Ekman S., Holien H., Resl P., Schneider K., Stabentheiner E., Thüs H., Vondrák J. & Sharman L. (2020)

Lichens and associated fungi from Glacier Bay National Park, Alaska. – Lichenologist 52: 61–181.
Stordeur R., Breuss O., Eckstein J., Grünberg H., Kison H.-U., Schiefelbein U., Schultz M. & Thüs H. (2020) Beiträge zur Flechtenflora Sachsen-Anhalts und Thüringens. – Herzogia 33: 377–393.
Suza J. (1921) Čtvrtý příspěvek k lichenologii Moravy [Fourth contribution to lichenology of Moravia]. – Sborník Klubu přírodovědného v Brně 3: 1–50.
Suza J. (1931) Srovnávací studie o lišejníkové floře serpentinů (Mohelno, Gurhof a Kraubath) [A comparative study on lichens of serpentinites]. – Sborník Přírodovědecké společnosti v Moravské Ostravě 6: 231–256.
Suza J. (1942) Česká xerthermní oblast a lišejníky [The Czech xerothermic area and its lichens]. – Věstník Královské české společnosti nauk 1941/18: 1–38.
Suza J. (1947) Praebohemikum a lišejníky [Praebohemicum and its lichens]. – Věstník Královské české společnosti nauk 1946/10: 1–34.
Svoboda D., Halda J. P., Malíček J., Palice Z., Šoun J. & Vondrák J. (2014) Lišejníky Českého krasu: shrnutí výzkumů a soupis druhů [Lichens of the Český kras/Bohemian Karst (Central Bohemia, Czech Republic): a summary of previous surveys and a checklist of the area]. – Bohemia centralis 32: 213–265.
Thüs H., Orange A., Gueidan C., Pykälä J., Ruberti C., Lo Schiavo F. & Nascimbene J. (2015) Revision of the *Verrucaria elaeomelaena* species complex and morphologically similar freshwater lichens (*Verrucariaceae*, Ascomycota). – Phytotaxa 197: 161–185.
Triebel D. (1989) Lecideicole Ascomyceten. Eine Revision der obligat lichenicolen Ascomyceten auf lecideoiden Flechten. – Bibliotheca Lichenologica 35: 1–278.
Tripp E. A. & Lendemer J. C. (2019) Highlights from 10+ years of lichenological research in Great Smoky Mountains National Park: celebrating the United States National Park Service Centennial. – Systematic Botany 44: 943–980.
Türk R. & Hafellner J. (2017) Zweiter Nachtrag zur Bibliographie der Flechten in Österreich [Second supplement to the bibliography of lichens in Austria]. – Stapfia 104: 1–137.
Urbanavichus G., Vondrák J., Urbanavichene I., Palice Z. & Malíček J. (2020) Lichens and allied non-lichenized fungi of virgin forests in the Caucasus State Nature Biosphere Reserve (Western Caucasus, Russia). – Herzogia 33: 90–138.
van den Boom P. P. G. (2010) *Waynea giraltiae*, a new lichen species from the Iberian Peninsula. – Lichenologist 42: 29–33.
van den Boom P. P. G., Brand A. M., Coppins B. J. & Sérusiaux E. (2017) Two new species in the *Micarea prasina* group from Western Europe. – Lichenologist 49: 13–25.
van den Boom P. P. G. & Etayo J. (2001) Two new sorediate species of lichens in *the Catillariaceae* from the Iberian Peninsula. – Lichenologist 33: 103–110.
van Nieuwenhuijzen E. J., Miadlikowska J. M., Houbraken J. A. M. P., Adan O. C. G., Lutzoni F. M. & Samson R. A. (2016) Wood staining fungi revealed taxonomic novelties in Pezizomycotina: new order Superstratomycetales and new species *Cyanodermella oleoligni*. – Studies in Mycology 85: 107–124.
Verkley G. J. M. (1999) A monograph of the genus *Pezicula* and its anamorphs. – Studies in Mycology 44: 1–180.
Vězda A. (1966) Flechtensystematische Studien IV. Die Gattung *Gyalidea* Lett. – Folia Geobotanica et Phytotaxonomica 1: 311–340.
Vězda A. (1978) Neue oder wenig bekannte Flechten in der Tschechoslowakei II. – Folia Geobotanica et Phytotaxonomica 13: 397–420.

Vězda A. & Liška J. (1999) Katalog lišejníků České Republiky [A catalogue of lichens of the Czech Republic]. – Botanický ústav ČSAV, Průhonice.
Vondrák J., Kocourková J., Palice Z. & Liška J. (2007) New and noteworthy lichens in the Czech Republic – genus *Caloplaca*. – Preslia 79: 163–184.
Vondrák J. & Liška J. (2010) Changes in distribution and substrate preferences of selected threatened lichens in the Czech Republic. – Biologia 65: 595–602.
Vondrák J. & Malíček J. (2015) *Teloschistaceae* Velké kotliny a Petrových kamenů v Hrubém Jeseníku [Teloschistaceae of the localities Velká kotlina and Petrovy kameny in the Hrubý Jeseník Mts]. – Bryonora 56: 45–55.
Vondrák J., Merkulova O. & Redchenko O. (2010) Several noteworthy lichens found in the foothills of the Šumava Mts, South Bohemia, Czech Republic. – Bryonora 45: 31–35.
Wirth V., Hauck M. & Schultz M. (2013) Die Flechten Deutschlands. Band 1, 2. – Ulmer, Stuttgart.

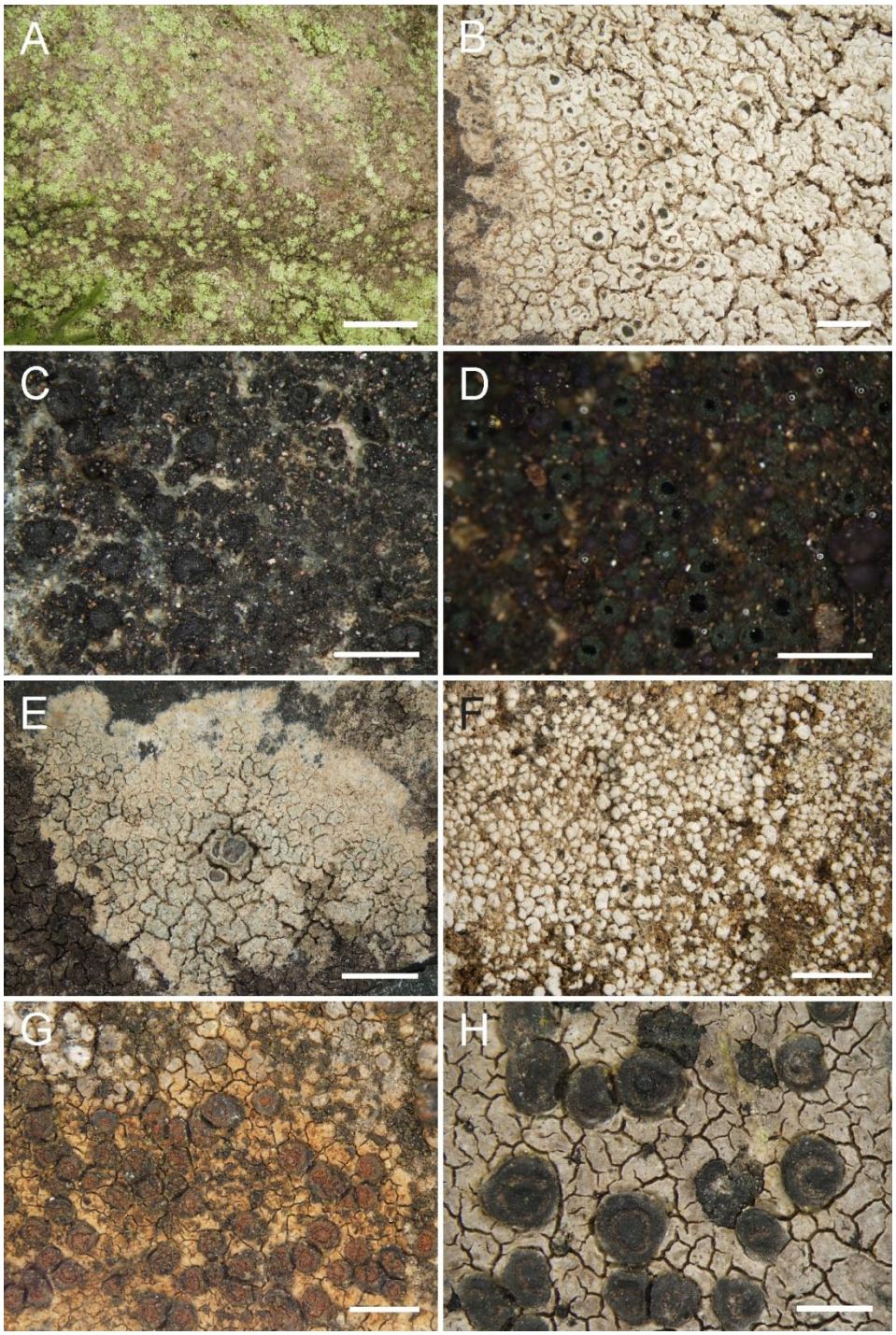


Fig. 10. Known unknowns. A, *Bacidina* sp. 1 (PRA-JV24355); B, *Circinaria* sp. (PRA-JV24719); C, D, *Stigmidium* sp. (PRA-JV20985) on a cyanolichen crust, C, in dry state, D, wetted; E, *Myriolecis* sp. (PRA-JV23493); F, Trapeliaceae sp., extensive sterile crust (PRA-JV21130); G, H, *Rhizocarpon* sp., G, thallus of older, rusty red and umbonate apothecia (PRA-JV24544), H, thallus with umbonate apothecia without rusty pruina. Scales: A, B, E–G – 1 mm; C, D, H – 0.5 mm.

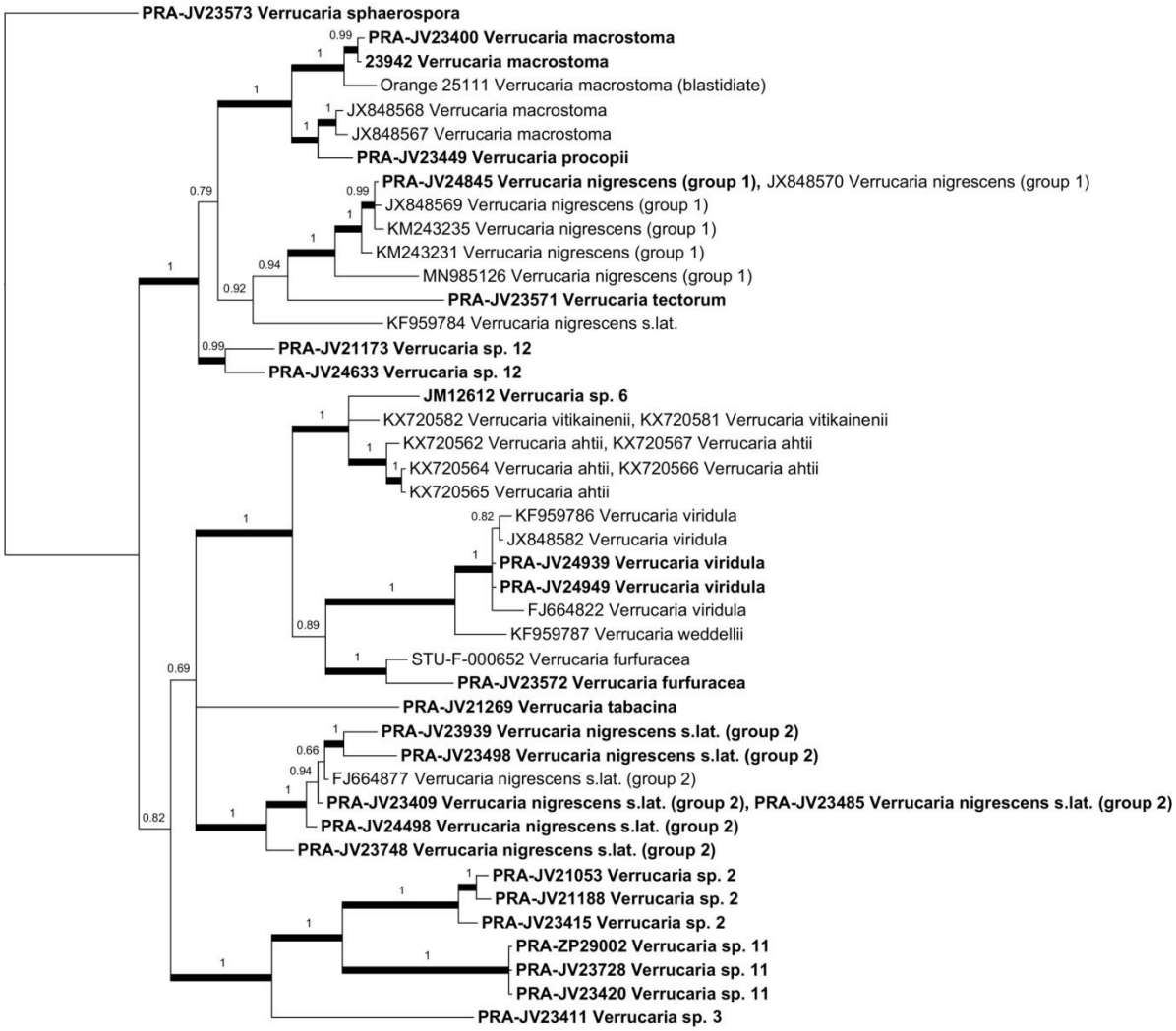


Fig. 11. Phylogenetic tree of the *Verrucaria nigrescens*/*V. viridula* complex and related taxa based on ITS sequence data. SYM model with gamma distribution was used as a model of sequence evolution. The tree was constructed using Bayesian inference run for 87000 generations, and was rooted with *Verrucaria sphaerospora* (PRA-JV23573). Numbers on branches indicate posterior probabilities. Bold lines indicate branches with posterior probabilities >0.95.

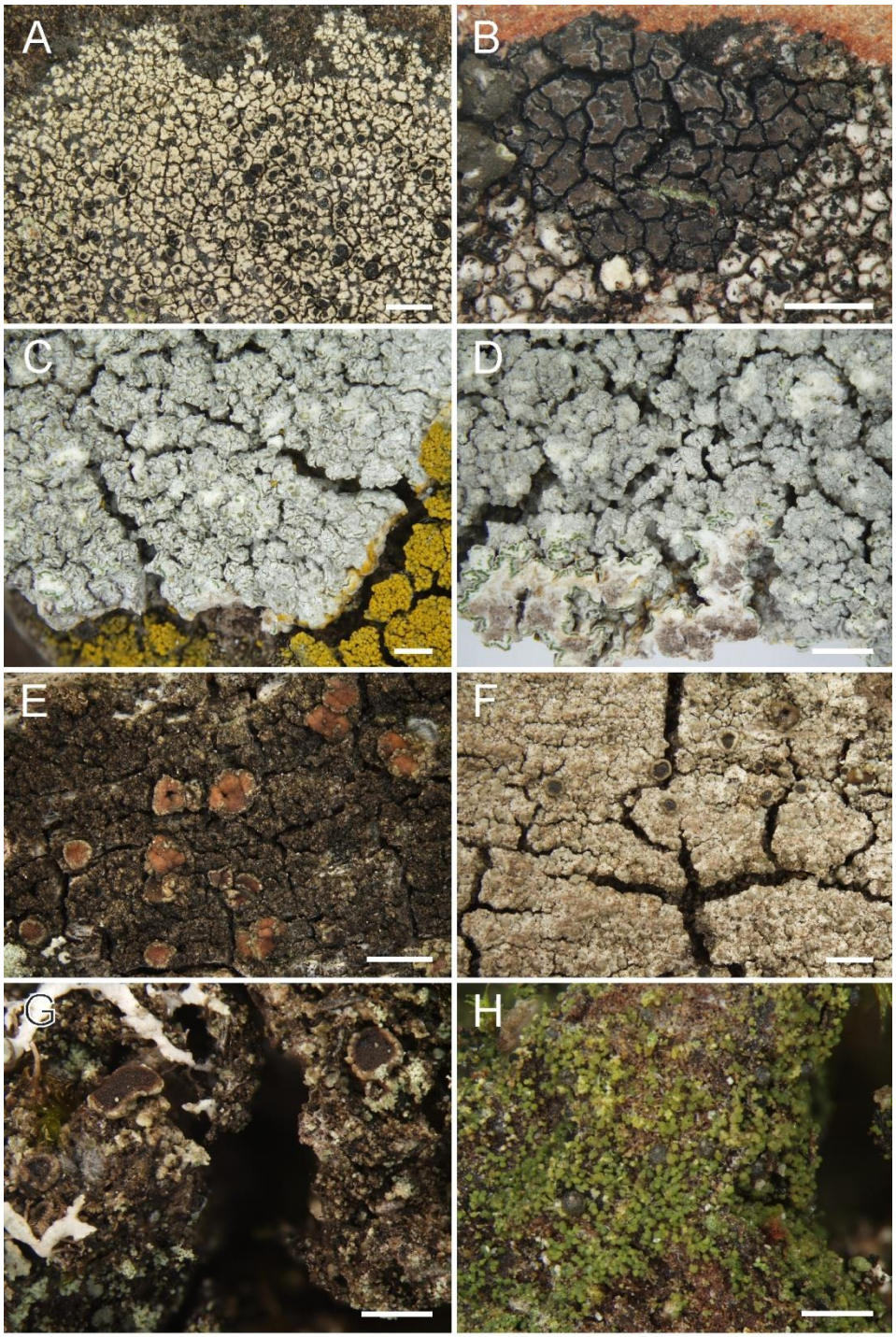


Fig. 12. Valuable records. A, *Buellia ocellata* (PRA-JV21275); B, *Immersaria cupreoatra* (PRA-JV23490); C, D, *Pertusaria stalactiza* (PRA-JV23412), C, outer appearance, D, detail with a section in the coralloid thallus; E, *Protoparmelia oleagina*, fertile (PRA-JV24320); F, *Protoparmelia hypotremella*, fertile (PRA-ZP29015), with *Tremella wirthii* in the right upper corner; G, *Rinodina poeltiana*, fertile (PRA-JV24063); H, *Verrucaria viridigrana* (PRA-ZP31047). Scales: A–F – 1 mm; G, H – 0.5 mm.