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Records of new, rare or overlooked lichens from the Czech Republic

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A list of 26 species of lichens and 2 lichenicolous fungi from the Czech Republic with comments is given. 11 species are new for the country: the lichens *Absconditella delutula, Aspicilia moenium, Bacidina chloroticula, Epigloea medioincrassata, Lecanora pseudistera, Micarea botryoides, Phaeocalicium compressulum, Trapeliopsis pseudogranulosa, Xanthoria calcicola* and the lichenicolous fungi *Endococcus pseudocarpus* and *Zwackhiomyces sphinctrinoides*; 4 lichens are new for Bohemia (*Agonimia tristicula, Bacidina arnoldiana, Buellia epigaea, Endocarpon psorodeum*) and 1 for Moravia (*Absconditella lignicola*). *Belonia incarnata* is new for the Šumava Mts. *Diploicia canescens, Parmelia glabra* and *Parmelia revoluta*, species which had been missing in the Czech Republic for a long period of time, were recently rediscovered. Other included lichens are very rarely found and are known from only a few localities in the Czech Republic. A large number of records are from the Protected Landscape Area Křivoklátsko, in the Rakovník District.

Key words: Czech Republic, Křivoklátsko, lichens and lichenicolous fungi, distribution, rare species.

Kocourková-Horáková J. (1998): Nové, vzácné nebo přehlížené lišejníky z České republiky. – Czech Mycol. 50: 223–239

Z České republiky je zmiňováno 26 zajímavých druhů lišejníků a 2 lichenikolní houby. Jedenáct druhů je nových pro republiku – lišejníky *Absconditella delutula, Aspicilia moenium, Bacidina chloroticula, Epigloea medioincrassata, Lecanora pseudistera, Micarea botryoides, Phaeocalicium compressulum, Trapeliopsis pseudogranulosa, Xanthoria calcicola* a lichenikolní houby *Endococcus pseudocarpus* a *Zwackhiomyces sphinctrinoides*; čtyři lišejníky jsou nové pro Čechy – *Agonimia tristicula, Bacidina arnoldiana, Buellia epigaea, Endocarpon psorodeum* a jeden pro Moravu – *Absconditella lignicola*. *Belonia incarnata* je nový druh pro Šumavu. *Diploicia canescens, Parmelia glabra* a *Parmelia revoluta* představují nedávno zjištěné druhy, které byly po velmi dlouhou dobu nezvěstné v České republice. Další uvedené lišejníky jsou velmi zřídka sbírané, známé pouze z několika málo lokalit. Velký počet uvedených druhů byl zjištěn na okrese Rakovník v chráněné krajinné oblasti Křivoklátsko.

INTRODUCTION

The majority of localities, in which the treated species were collected, are situated in Central Bohemia in the Protected Landscape Area Křivoklátsko (Biosphere Reserve) in the districts Rakovník and Beroun. Several localities of species collected in these districts are situated outside the Biosphere Reserve. The other collected species originate from various localities in the Czech Republic.

The nomenclature is mostly according to Wirth (1995). The names of several other species are according to Döbbeler (1984), Grube and Hafellner (1990), Santesson (1993) and Vězda (1959).

The four-digit numbers preceding the dates signify coordinate squares of 10 to 6 minutes (MTB grid). Species marked * are reported from the Czech Republic for the first time. Specimens of all listed species are deposited in the herbarium of the Mycological Dept. of the National Museum Prague (PRM). The other used abbreviations are used for the collectors, J. K. or J. H. = Jana Kocourková-Horáková, Pavel Kocourek = P. K., and to emphasize occurrence with apothecia = with ap.!

SPECIES LIST

***Absconditella delutula** (Nyl.) Coppins et Kilias

CENTRAL BOHEMIA, Distr. Rakovník, Přílepy, near house on old wooden beams, together with *Thelocarpon laureri,* 340 m, 5847; 3.9.1995, leg. J. H. and P. K., det. J. H. (PRM 890427).

Even if *Absconditella delutula* seems usually to occur on shaded stones, compacted soil or turf (Purvis and al. 1992: 57), our specimen was found on old wooden roof beams, which had been lying in a place exposed to the sun for two years. According to Santesson (1993:7) this species was also collected on wood in Sweden. My specimen corresponds well in almost all features with the specimen found on stone from Vězda's exsiccate collection Lichenes Rariores Exsiccati no. 41; PRM 876528) which I studied. The apothecia are only more concave, which is probably caused by the difference in substrate, which is softer. The true excipulum consists of weakly conglutinated parallel hyphae; the paraphyses are longer than the asci, not conglutinated, 0.8–1.2 μm wide, sometimes branched at the apices, which are slightly swollen up to 3.2 μm. The asci are 2-spored, 35–50 x 7–10 μm large, spores 1-septate, 10–14 × 4–5.5 μm.

The species was observed again on the mentioned sites last spring (1997), but due to the proceeding succession there a more extensive covering of the beams by *Saccomorpha icmalea* and *Trapeliopsis flexuosa* was found. Apothecia of *Absconditella delutula* were observed rarely and in an initial state of development only. Further observation is necessary, as this species could possibly be characterized as ephemerous or weak in competition.

Another specimen probably of the same species was collected in the Czech Republic by Z. Palice, but a more detailed study of its anatomy is needed (pers. comm.).

Absconditella lignicola Vězda et Pišút

CENTRAL BOHEMIA, Distr. Rakovník, Bukov, near Liščí skály, at a tributary of the Očihovecký potok, on rotten stump, 420 m, 5847, 22.2.1997, leg. J. H. and P. K., det. J. H. (PRM 890426). – EASTERN BOHEMIA, Krkonoše Mts., Velká

Úpa, in the valley Vavřincův důl, near a forest track, on a lying decaying trunk, 5360, 810 m, 4.5.1997, leg. et det. J. K. (PRM 890822). – WESTERN MORAVIA, Distr. Jihlava, below top of the hill Vysoký Kámen, on a lying decaying trunk, 640 m, 6559, 14.10.1996 leg. et det. J. H. (PRM 890845). – SOUTHERN MORAVIA, Hostýnské vrchy Mts., below nature reserve Smrdutá, on stump near the brook Bystřička, 660 m, 6672; 13.5.1995, leg. J. H. (PRM).

The species had previously been reported only once from the Czech Republic and concerned a collection by Z. Palice from the Šumava Mts. in Southern Bohemia, distributed by A. Vězda (1995) in Lichenes Rariores Exsiccati no. 191. Recently the species has been collected by Z. Palice in a number of other localities in the Šumava Mts. and several collections have also been made on other sites in Bohemia including Central Bohemia.

It seems that the species is widely distributed even in polluted areas and not so rare as supposed. The species is often overlooked due to the minute size of its apothecia and their practical invisibility when wet. It usually occurs in shaded situations on the upper parts of lying decorticated trunks or the flat surface of stumps exposed to wet conditions for long periods during the year.

The species is new for Moravia.

Absconditella sphagnorum Vězda et Poelt

CENTRAL BOHEMIA, Distr. Rakovník, Podbořánky, by the pond Horní rybník, in peat bog, on mossy overhang with *Vaccinium myrtillus*, overgrowing an old rotten stump, on *Sphagnum denticulatum*, 490 m, 5946, 4.8.1995, leg. J. H. and P. K., det. J. H. (PRM 886281). – Ibid.: 23.9.1995, leg. J. H. and P. K., det. J. H. (PRM 886508). – Ibid.: 23.9.1996, leg. J. H. and P. K., det. J. H. (PRM 890441).

The species was typically collected on *Sphagnum denticulatum* in a small peat bog. The second collection of the same locality is partly intermixed with an unidentified species of *Micarea* in pycnidial state.

The species is new for Central Bohemia.

Agonimia tristicula (Nyl.) Zahlbr.

CENTRAL BOHEMIA, Distr. Rakovník, Krakovec, below the Krakovec castle, on soil and on dead mosses, 435 m, 5947; 17.9.1997, leg. P. K., det. J. K. (PRM 891434). – Distr. Rakovník, Protected Landscape Area Křivoklátsko, near the village Roztoky and the settlement Višňová, on rhyolite near road by the river Berounka, on mosses, 250 m, 5949; 28.9.1997, leg. J. K. and P. K., det J. K. (PRM 891433). – Distr. Beroun, Protected Landscape Area Křivoklátsko, near the village Trubín on the S slope of Trubínský vrch, on diabasic rocks, on mosses, 320 m, 6050; 23.3.1997,

leg. J. H. and P. K., det. J. H. (PRM 890442). – Distr. Beroun, near the village Sv. Jan pod Skalou-Sedlec, on slope of the Sedlecké skály rocks, on diabasic soil on bryophytes, 330 m, 6050; 22.4.1993, leg. J. H. (PRM 891432).

Another collected specimen:

GERMANY, BAVARIA, Frankenalb, between Eichhofen and Eilsbrunn, on dolomite, on mosses, 20.8.1995, leg. R. Türk and J. Horáková (PRM 886282).

The thallus of *Agonimia tristicula* is composed of minute grey-green or sometimes brownish-grey lobed squamules and large black perithecia up to 0.5 mm diam. with a plicate ostiolum. In microscopical thin cross-sections the one cell thick cortical layer was seen having globose papillae on cells of the upper surface of the thalli typical of this species. A detailed description of this species is given by Coppins (1978).

The species was reported from the Czech Republic only twice by A. Vězda (1959: 48, 1960: 260) from the Jeseníky Mts. It is widely distributed in Western Europe and it is also known from Central and Mediterranean Europe including the Azores and Canary Islands. According to Wirth (1995: 128) the species is therefore characterized as an atlantic boreal-mediterranean geographic element. It grows on bark and on mosses on old broad-leaved trees or on soil and on mosses on rocks. In the localities of the Czech Republic it was found growing on mosses or on soil among mosses covering loose stones in the lower part of xerothermic slopes of diabase, spilite and rhyolite rocks. These places are often partly shaded, wet, nutrient-rich and become basic due to numerous calcite filling in cracks in lower parts of these rocks. The calcite fillings originate from the content of calcite in the substrate, which have dissolved by rain water soaking through the rocks and are consequently being redeposited in cracks or as incrustations of mosses. *Aspicilia hoffmanii, Cladonia pocillum, Leprolomma* sp., *Peltigera didactyla,* and *Physcia caesia* were closely associated species in the above mentioned finds. On soil in cracks of rocks often the calciphilous lichens *Catapyrenium rufescens, Collema tenax, Endocarpon pusillum, Toninia sedifolia* occurred. No occurrence of *Agonimia tristicula* was observed as corticolous.

Agonimia tristicula is probably more common in the Czech Republic, especially in xerothermic limestone areas, but overlooked.

The species has recently also been collected during a BLAM field trip in Bavaria by R. Türk and J. Horáková in the above mentioned locality.

New for Bohemia.

Anaptychia ciliaris (L.) Körber ex Massal.

SOUTHERN BOHEMIA, Třeboň, on dike of the lake Vyšehrad, on bark of *Quercus robur,* 6955, c. 350 m, 11.7.1996, leg. J. H. and P. K., det. J. H. (PRM). – WESTERN MORAVIA, Českomoravská vrchovina, between Žďár nad Sázavou and

Velké Meziříčí, 2,5 km N of Záseka, on bark of *Acer platanoides*, 550 m, 6561, 22.5.1996, leg. and det. J. H. and P. K. (PRM).

In Western Moravia the species was observed in a number of about 20 living thalli in the locality, on the bark of three solitary standing maples. Only one damaged thallus was seen in the locality near Třeboň on an oak in the Protected Landscape Area Třeboňsko in Southern Bohemia.

This species is presently very rare in the Czech Republic. Its considerable decrease in the Czech Republic was already recorded by Anders in Northern Bohemia around 1935 (Anders 1936: 484), where it still had a rich occurrence in the twenties of this century. The species has been missing from Northern Bohemia for a long time.

The decrease of this species is caused mainly by a high degree of air pollution and acid rain, which have greatly affected the natural environment. Therefore, it was listed among the threatened lichen species of the Czech Republic and classified as vulnerable by Liška and Pišút (1995) due to the great decrease in its occurrence in this country.

For further information on its current distribution in the Czech Republic see Liška (1990: 44, 1994: 16).

***Aspicilia moenium** (Vainio) Thor et Timdal

CENTRAL BOHEMIA, Distr. Rakovník, Hořovičky, on banks of the brook Očihovecký potok, near pond, on concrete, 345 m, 5847, 20.1.1996 (PRM 887765). – Distr. Rakovník, Nový Dvůr u Chrášťan, on concrete by pond, 380 m, 5848, 27.6.1996, leg. J. H. and P. K., det. J. H. (PRM) – Distr. Rakovník, Chrášťany, at forest margin near gamekeeper's lodge Bory, on vertical mortar-stone wall, 380 m, 5848, 17.8.1996, leg. J. H. and P. K., det. J. H. (PRM). – Distr. Rakovník, in the town Rakovník, on concrete wall at the railway station, 320 m, 5948, 17.8.1997, leg. et det. P. K. (PRM 891428). – SOUTHERN BOHEMIA, Šumava Mts., Distr. Klatovy, in valley of the brook Hamerský potok, c. 900 m, 6947, 20.9.1990, leg. J. H. (PRM). – EASTERN BOHEMIA, Krkonoše Mts., Benecko, on vertical surface of wall, on concrete, 790 m, 5359, 10.9.1989, leg. et det. J. H. (PRM 756791). – Orlické hory Mts., Bartošovice v Orlických horách, by road, on mortar-stone wall, 595 m, 20.4.1996, leg. J. H. (PRM 887773). – SOUTHERN MORAVIA, Distr. Blansko, Křtiny, in valley of the brook Křtinský potok, on vertical wall of bridge pillar, 400 m, 2.3.1989, leg. J. Horáková and A. Vězda, det. A. Vězda (PRM).

The species had earlier not been reported from the Czech Republic, although a number of localities have been known for a longer time and the species is considered widespread and common here. It occurs in wet situations or nearby water, often on vertical mortar-stone walls in landscape depressions or on bridges over brooks.

Bacidina arnoldiana (Körber) V. Wirth et Vězda

CENTRAL BOHEMIA, Distr. Rakovník, Kolešovice, in depression near railway station, on *Salix alba*, (with ap.!), 5847, 31.3.1996, leg. J. H. and P. K., det. J. H. (PRM 887671).– Distr. Rakovník, Bukov, near Liščí skály rocks, by a tributary of the brook Očihovecký potok, on rotten stump, 420 m, 5847, 1.6.1996, leg. J. H. (PRM). – Protected Landscape Area Křivoklátsko, Distr. Rakovník, below Čertova skála rock, on bark of *Robinia pseudoacacia,* (with ap.!), 275 m, 6048, 26.5.1996, leg. J. H. and P. K., det. J. H. (PRM). – Distr. Rakovník, Protected Landscape Area Křivoklátsko, below castle Týřov, on bark of *Acer campestre,* 6048, 360 m, 5.7.1996 (PRM). – Distr. Rakovník, Protected Landscape Area Křivoklátsko, between Křivoklát and Městečko, in valley of the brook Rakovnický potok, on *Salix* sp., 270 m, (with ap.!), 5949, 11.4.1996, leg. J. H. (PRM 887766). – Distr. Rakovník, Slabce, in valley SE of the village, near pond, on bark of *Salix* sp., (with ap.!), 310 m, 6048, 27.4.1996, leg. J. H. and P. K., det. J. H. (PRM 890494, 890495, 890496, 890497, 890499). – Prague, Zbraslav, in orchard near the oxbow Krňák of the Vltava river, on bark of *Salix alba,* 220 m, 6052, 25.3.1996, leg. J. H. and P. K., det. J. H. (PRM 887679).

The generic name *Bacidina* Vězda has recently been proposed for conservation (Ekman 1996).

The species was previously reported from the Czech Republic only from Moravia by Kovář (1905). It is particularly characterized by white conspicuous pycnidia and the dark coloured red-brown hypothecium distinguishing it from other species of this genus growing on the bark of trees.

Bacidina arnoldiana, as it now seems, could be considered a common species, but is easily overlooked, especially when lacking developed fruitbodies. It was often observed occurring in rather shaded situations in more polluted areas. It prefers bark of old mossy leaning trunks of *Salix* spec.div. especially lining brooks, but is also found in rather open habitats. The species is often observed in pycnidial state only. Although the species should prefer calcareous substrate no such find has been made by me.

New for Bohemia.

***Bacidina chloroticula** (Nyl.) Vězda et Poelt

CENTRAL BOHEMIA, Prague, Zbraslav, in an orchard near the oxbow Krňák of the Vltava river, on bark of *Malus domestica* on tree base and on small stones, 195 m, 6052, 23.3.1996, leg. J. H. and P. K., det. J. H. (PRM 890429, 890430). – Prague, Podhoří, in deciduous forest, on west exposed stony slope, on slate, 230 m s.m., 5852, 24.10.1997, leg. et det. J. K. (PRM). – Prague, Troja, on wall of Botanical Garden, on concrete, 250 m, 5852, 27.10.1997, leg. et det. J. K. (PRM).

The species seems to be toxitolerant just like the above mentioned *Bacidina arnoldiana*. It can be distinguished in having a much more inconspicuous thallus, which is thin, scurfily granular, dull to dark green, with minute apothecia 0.1–0.2 mm in diam., which become pale grey to brown yellow, often growing closely together, but it is primarily recognized by its pale hypothecium. The true excipulum is colourless, composed of swollen cells with up to 7 μm large lumina.

The species was found in rich quantities on slate stones on the bank of an oxbow of the Vltava river. In other localities it was seen growing on concrete and also on bark of *Malus* in lower parts close to the ground.

Belonia incarnata Th. Fr. et Graewe ex Th. Fr.

SOUTHERN BOHEMIA, Šumava Mts., between Horská Kvilda and Kvilda, in peat bog near Jezerní slať, on mosses, 990 m, 6947, 2.10.1990, leg. J. H. (PRM 886330). – Šumava Mts., near Horská Kvilda, in the peat bog Horskokvildská slať, 1070 m, 6947, 6.6.1993, leg. J. H. (PRM 886352).

The distribution of this species in the former Czechoslovakia was given by Vězda (1959 and 1970: 314–316). In the first contribution it was cited as *Belonia russula* var. *terrigena* (Eitn.) Keissl. The known distribution in the Czech Republic includes Sudeti occident. (Krkonoše) and Sudeti orient. (Jeseníky).

The above quoted collection of *Belonia incarnata* was discovered in the Šumava Mts., in an old trench used for military purposes years ago. It was growing on mosses covering wooden logs. In its close proximity were the lichens *Bryophagus gloeocapsa* and *Baeomyces rufus* with thalli modified by the parasitic lichen *Arthrorhaphis grisea* and associated with *Thelocarpon epibolum* (Horáková 1998 in press), and with the bryophytes *Nardia scalaris, Dicranella heteromalla* and *Pohlia nutans*.

The species is new for the Šumava Mts.

Buellia epigaea (Pers.) Tuck.

CENTRAL BOHEMIA, Prague, Velká Chuchle, nature reserve Homolka, on top of limestone rocks, on compacted soil among mosses, 280 m, 5952, 3.1.1994, leg. J. H. (PRM).

Buellia epigaea is similar to *Buellia asterella* Poelt et Schulzer. Both species are growing on dry basic soil.

Buellia epigaea is easily distinguished by the much larger and spores verrucose from the beginning and regulary 8-spored asci contrary to 4-spored asci in *Buellia asterella*. Another distinguishing character is the K – negative reaction of the thallus in *B. epigaea*.

According to Wirth (1995: 195–196) *B. epigaea* prefers soils on gypsum or overgrows mosses often together with *Fulgensia bracteata* in a gypsum variety of

the association Toninio-Psoretum. It was found in the above mentioned locality at the top of a small natural terrace filled with humus on limestone rock together with *Toninia sedifolia*. *Buellia asterella* occurs on dry, basic soil in cracks on limestone or dolomite from the lowlands to the mountains.

The only previously known locality of this species in the Czech Republic on conglomerate rocks on Tábor hill close to Moravský Krumlov in SW Moravia is given by Poelt and Schulzer (1974).

The species is new for Bohemia.

Cetraria sepincola (Ehrh.) Ach.

WESTERN BOHEMIA, Krušné hory Mts., about 2 km NE of the village Hora Sv. Šebestiána, in the peat bog Novoveské polesí with *Betula* and *Alnus*, on a branch of *Salix*, 750 m, 5445, 17.5.1996, leg. J. H. (PRM 890505). – **Southern Bohemia,** Českomoravská vrchovina Mts., Distr. Pelhřimov, Pelec, 630 m, on bark of *Prunus avium*, 6656, 24.7.1986, leg. J. H. (PRM 886399).

This formerly widespread lichen in uplands and mountain areas is presently very rare in the Czech Republic because of air pollution. It was nevertheless found in one of the very polluted and for foliose epiphytic lichens inhospitable areas of this country, in Western Bohemia, in the Krušné hory Mts. Not only *Hypogymnia physodes*, but also original spruce forests are now completely missing there. This lichen was collected on an open plateau exposed to air pollution in a small landscape depression, at the margin of a peat bog overgrown by heavily damaged trees of *Betula, Alnus* and *Salix*. Among the other associated species seen were: *Hypogymnia physodes, Parmeliopsis ambigua* and *Platismatia glauca*. *Lecanora subaurea*, an interesting saxicolous species, was also observed, together with *Lecanora soralifera* and *Stereocaulon nanodes* on metal-rich, siliceous stones along the margin of the peat bog.

The locality of *Cetraria sepincola* in the Českomoravská vrchovina Mts. mentioned by Liška and Pišút (1995) is the same as given above.

The species is listed here because of its strong decrease in localities as mentioned in the Red Book of Lichens of the Czech and the Slovak Republic, where it is placed in the category of vulnerable species. The present distribution of this species is given by Liška (1996).

Diploicia canescens (Dickson) Massal.

CENTRAL BOHEMIA, Distr. Rakovník, below steep W exposed wall of the Čertova skála rock, on spilite rocks, 285 m, 6048, 1.6.1996, leg. J. H. and P. K., det. J. H. and P. K. (PRM 890501).

The species has recently been rediscovered in the lower part of the western wall of Čertova skála. It is confirmed at this known locality, where it had been collected

by J. Suza in 1939 (Suza 1950). *Diploicia canescens* is listed in the Red Book of Lichens of the Czech and the Slovak Republic and classified as rare (Liška and Pišút 1995). The above mentioned locality is the only one currently known, but probably it still occurs in other localities discovered in the past, where it grew on rocks.

Endocarpon psorodeum (Nyl.) Blom. et Forss.

CENTRAL BOHEMIA, Distr. Rakovník, on steep slope of Čertova skála rock, on soil in spilite rock slot, 280 m, 6048, 27.5.1996, leg. J. H. and P. K., det. J. H. (PRM 890428). – Distr. Rakovník, Křivoklát, on vertical rock by a road, on volcanic rock, 280 m, 5949, 13.4.1996 (PRM 887778).

This lichen has also recently been discovered in the Czech Republic by B. Gruna in S Moravia, in the National Park Podyjí. The species resembles *Endocarpon adscendens,* but has more regularly placed overlapping squamules, which are not turned upwards. *Endocarpon psorodeum* grows on acidic rocks contrary to *Endocarpon adscendens*.

The species is new for Bohemia.

***Endococcus pseudocarpus** Nyl.

CENTRAL BOHEMIA, Protected Landscape Area Křivoklátsko, Distr. Rakovník, on steep slope of the Čertova skála rock, on soil in spilite rock slot, on *Peltula euploca*, 280 m, 6048, 10.4.1996, leg. J. H. and P. K., det. J. K. (PRM 891442, under *Zwackhiomyces sphinctrinoides*).

Endococcus cf. *pseudocarpus* Nyl. was found on *Peltula euploca*, the type host containing blue-green alga, together with the below mentioned *Zwackhiomyces sphinctrinoides* on *Lecanora pseudistera*, in the same collection on a small fragment of the rock. According to Triebel (1989: 97), who revised Nylander's holotypus, *Endococcus pseudocarpus* Nyl. could be considered as a synonym of *Endococcus perpusillus* Nyl. described from *Schaereria fuscocinerea*. It is the question, if both these taxa could belong to one lichenicolous fungus. The host *Schaereria fuscocinerea* contains a green chlorococcoid phycobiont (*Trebouxia)* as the symbiotic alga and occurs in high mountain and subalpine elevations, *Peltula euploca* contains blue-green alga and occurs in lowlands in xerothermic habitats. According to the differences in microscopical features of the revised specimens of the herbarium in Graz (GZU) we found, that *Endococcus perpusillus* occurs on a wide spectrum of hosts with a green chlorococcoid phycobiont, the current wide conception of that species and of the whole genus *Endococcus* needs a taxonomic revision.

The ascospores of our taxon are 1-septate; rather light chestnut brown, with the upper cells ellipsoid, shorter and wider than the lower ones, more round at apex

and at one-half to two thirds of the length to the septum the widest; the lower cells elongated, somewhat caudate; the septum a little thickened, up to 1 μm; contents of the spores with a lot of small drops; 15.5–20 × 5.5–6.5 μm diam.

***Epigloea medioincrassata** (Grumm.) Döbb.

CENTRAL BOHEMIA, Prague, in the valley Divoká Šárka, on plateau of Kozákova skála rock, on plant debris, 340 m, 5951, 28.10.1994, leg. J. H. (PRM 886591).

Epigloea medioincrassata was described in detail by Döbbeler (1984), who made the combination with the genus *Epigloea*. It is characterized by a thallus formed only by an inconspicuous gelatinous thin algal film, with sessile dark brown to black globose perithecia 110–190 μm diam., with a flattened apex. Perithecia are covered by a thin colourless, gelatinous layer; the apex is circularly swelling, 20 μm thick. The species is above all characterized by its 8-spored asci exhibiting a JJK+ positive reaction, dark blue in the apical part and medium blue in all the other parts, and ascospores which are 3-septate, ellipsoid to spindle-shaped, (18-)24–33(-38) × 3.5–5 μm diam., with apical thread-like appendages, which are up to 4 μm long. In the collected specimen a few ascospores with 5 septa were also found.

In our locality this species was associated with *Thelocarpon laureri* (Horáková 1998 in press).

***Lecanora pseudistera** Nyl.

CENTRAL BOHEMIA, Protected Landscape Area Křivoklátsko, Distr. Rakovník, 1 km NE of Nezabudice, Nezabudické skály rocks, on slate rocks, on loose stone, 320 m, 5948, 3.9.1997 (PRM 891435). – Distr. Rakovník, on steep slope of Čertova skála rock, on soil in spilite rock slot, 280 m, 6048, 10.4.1996, leg. J. H. and P. K., det. J. H. (PRM 891442, sub *Zwackhiomyces sphinctrinoides*). – Distr. Beroun, near the village of Trubín, on the SW slope of Trubínský vrch, on diabasic rocks, 340 m, 6050; 23.3.1997, leg. J. H. and P. K., det. J. H. (PRM 890445).

The species was collected in dry xerothermic localities on steep slopes of rather basic and nutrient-rich acid rocks. According to Wirth (1995: 481) and in correspondence with our observations *Lecanora pseudistera* occurs in habitats in communities with *Rhizocarpon disporum* and *Lecanora demissa*. In our localities it was found with the following accompanying lichens and lichenicolous fungi: *Agonimia opuntiella* (syn. *Phaeophyscia opuntiella* – see Vězda 1997), *Candelariella vitellina, Lecanora demissa, Lecanora garovaglii, Leproloma membranaceum, Melanelia loxodes, Peltula euploca* (with the above listed *Endococcus* cf. *pseudocarpus* on thallus squamules), *Phaeophyscia orbicularis, Rhizocarpon disporum, R. geographicum, Xanthoparmelia conspersa* and *Zwackhiomyces sphinctrinoides* on *Lecanora pseudistera*. *Endococcus* cf. *pseudocarpus* was mentioned above, *Zwackhiomyces sphinctrinoides* is listed below.

L. pseudistera is partly similar to *L. campestris*. In our localities it could be well distinguished by the orange-brown colour of its apothecia and by the light grey, greenish tinged colour of the thallus. Areoles of the thallus are frequently more squamulose than bullate, as is the case in *L. campestris*. The thalline excipulum of apothecia in mature state is generally persistent but becomes thinner with age, a true excipulum is developed and persistent. In the microscopical cross-section of apothecia *L. pseudistera* differs in the groups of large crystals in the medulla of the thalline excipulum which do not dissolve in a KOH solution contrary to the small crystals present in the excipulum of apothecia of *L. campestris*.

The species seems to be very rare. From Central Europe it is reported from Germany only and its distribution is characterized as boreal-central European with a more southern distribution. According to Clauzade and Roux (1985) it is missing in all of Western Europe, but it was recently found in Portugal (Alonso and Egea 1995).

The species is considered conspecific with *L. ripartii* sensu Poelt, but not sensu Nylander according to Wirth (1995: 481). Under that name it was recorded in Sardinia (Nimis, Poelt 1987).

***Micarea botryoides** (Nyl.) Coppins

WEST BOHEMIA, Krušné hory Mts., Nejdek, on slope of Blatenský vrch, in the Vlčí jámy pits, on vertical rock, on granite, 1000 m, 5642; 24.6.1993, leg. J. H. (PRM, 886910).

The species, collected in rich quantities in the mentioned locality is prepared to be issued in A. Vězda's Lichenes rariores exsiccati. The locality is exceptional due to the presence of ice covered walls of the pits until the summer.

Micarea botryoides is well characterized by minute stipitate black pycnidia. Up to 8 pycnidia were observed in the pycnidiophores. The growth of pycnidiophores is in fact enabled by the dying off of pycnidia situated below them and newly arrising pycnidia on the older ones. In our material anastomosing of pycnidiophores growing in close proximity to each other was observed.

This interesting species has been discovered quite recently in a number of localities in the Šumava Mountains by Z. Palice (in prep.). Localities situated closest to the territory of the Czech Republic were discovered by Berger and Türk (1993) in Upper Austria in the Danube valley.

Micarea lithinella (Nyl.) Hedl.

CENTRAL BOHEMIA, Distr. Rakovník, Bedlno, on S slope of Tobiášův vrch, on small stones on the ground among roots of fallen trunk, together with *Thelocarpon laureri*, 485 m, 5846, 19.3.1997, leg. J. H. (PRM 890450).

This species was observed typically growing with *Trapelia* sp. and *Thelocarpon laureri*. The apothecia in our collection are dull pink-yellow, the hypothecium is straw-yellow. Ascospores aseptate, 8–10 × 3,5–4.5(-5) μm, ovoid to fusiform-ellipsoid, paraphyses simple, up to 1,2 μm wide. Hymenium in cross-section K-, thallus C-.

According to literature data concerning the occurrence of lichen-forming fungi in the Czech Republic (Vězda 1980) this species was previously known from Železné hory Mts., Eastern Bohemia (Kalenský 1906). This specimen has not been seen by me. In the Czech Republic the species was recently also collected by Z. Palice (in press.).

The species is probably more common in the Czech Republic but overlooked.

Omphalina hudsoniana (Jenn.) Bigelow

CENTRAL BOHEMIA, Distr. Rakovník, Podbořánky, Bor forest near peat bog, on peat, 520 m, 5946, 7.7.1996, leg. J. H. and P. K., det. J. H. (PRM 890418).

Omphalina hudsoniana and *O. umbellifera* were found growing together in the same locality in rather open areas in a spruce forest.

This is one of the lowest situated localities of this otherwise well known and widespread species in mountains in the border areas of the Czech Republic.

The species had so far not been reported from Central Bohemia.

Omphalina umbellifera (L.:Fr.) Quélet

CENTRAL BOHEMIA, Distr. Rakovník, Podbořánky, Bor forest, on peat, 520 m, 5946, 7.7.1996 (PRM 890421). – Prague, in the valley Dolní Šárka, near the church of Sv. Matěj, on a N slope with *Calluna*, on the ground, 5852, 9.1994, leg. J. Váňa (PRM).

The species was found in the Podbořánky locality on an inconspicuous rather open place in a partly boggy spruce forest near a peat bog, growing together with *Omphalina hudsoniana* and some *Cladonia* species.

Parmelia glabra (Schaerer) Nyl.

NORTH-EASTERN MORAVIA, Protected Landscape Area Beskydy Mts., Horní Lomná, on bark of *Fraxinus excelsior*, 605 m, 6477, 28.10.1995, leg. J. H. and P. K., det. J. H. (PRM 887602).

The specimen represents the only currently known collection from the Czech Republic, although the observed thallus was about 20 cm in diam. The species was considered probably extinct in the Czech Republic. The species is similar to

P. acetabulum, but it is characterized by a darker brown, not dark greyish green-brown thallus. It is distinguished from other brown *Parmelia* species by the C+red reaction of the medulla and the echinulate margin of the apothecia.

The fact that in only two days of investigation in this area several presently rare species were found, is due to the only slight impact of air pollution. Other species observed here were *Parmelia acetabulum, Parmelia submontana, Parmelia tiliacea, Ramalina fraxinea, Ramalina fastigiata, Ramalina farinacea, Usnea filipendula, Usnea hirta, Physconia distorta, Physconia enteroxantha, Hypogymnia bitteri* and the below mentioned *Phaeocalicium compressulum.*

Parmelia glabra was still one of the most common epiphytic lichens in the fifties of this century in warmer regions of Moravia.

Parmelia revoluta Flörke

CENTRAL BOHEMIA, Distr. Rakovník, 1 km NE of Nezabudice, Nezabudické skály, on slate rocks, on loose stone, 320 m, 5949, 13.4.1996, leg. J. H. and P. K. (PRM 887769).

The species had not been seen in the Czech Republic for long a time. In 1996 it was collected on a steep slope of shale rocks above the river Berounka, where it probably occurred in the past on the bark of trees when the air was less polluted. This formerly widely distributed species is very likely extinct in all of the previously known localities in the Czech Republic. A small piece of thallus was collected to confirm that the species exhibits a C+ positive pink-red reaction of the medulla.

This is the only currently known locality of this species in the Czech Republic.

Parmelia submontana Nádv. ex Hale

EASTERN BOHEMIA, Železné hory Mts., Horní Bradlo, on bank of the Chrudimka river, on mossy bark of *Populus nigra,* 420 m, 6260, 8.5.1995, leg. J. H. (PRM 887609). – NORTH-EASTERN MORAVIA, Protected Landscape Area Beskydy Mts., Horní Lomná, on mossy bark of *Tilia,* 605 m, 6477, 28.10.1995, leg. J. H. (PRM 887470).

The species is very similar to *Parmelia sulcata* and *P. subrudecta.* From the former it differs by a combination of the following characters: loosely attached, more elongated, little branched lobes with involute lateral margins and raised apices, small orbicular soralia with isidia-like soredia and fewer rhizines that are simple or only rarely forked (Purvis et al. 1992). From the latter species it differs mainly by the dark lower surface of the thallus. *Parmelia sulcata* does not become so green when wet as *P. submontana.* It usually grows in lower parts of exposed mossy trunks of *Acer* and *Alnus*, preferably in moist conditions of mountain areas. It is distributed in upland and mountain areas of Central, Eastern and South-Eastern Europe, where it is relatively widely and rather commonly distributed.

The species is presently very rare in the Czech Republic because of air pollution. It currently occurs, except for the above mentioned localities, in one locality near Chudenice in Western Bohemia, in c. 5 recently discovered localities in the Šumava Mts. and in the Jihlavské vrchy Mts. and Jeseníky Mts. in Moravia in one locality each. In the Red Data Book of the Czech and Slovak Republics it is classified as an endangered species (Liška and Pišút 1995).

***Phaeocalicium compressulum** (Nyl. ex Vainio) A. Schmidt

NORTH-EASTERN MORAVIA, Protected Landscape Area Beskydy Mts., Horní Lomná, 2 km SW of the village, on bank of the Lomná brook, on twigs of *Alnus viridis*, 700 m, 6477, 28.10.1995, leg. J. H. and P. K., det. J. H. (PRM 887564).

Phaeocalicium compressulum occurs on thin living or dying twigs of *Alnus viridis* only. It was found when looking for the unlichenized species *Stenocybe pullatula*, another representative of the family Caliciaceae.

Phaeocalicium compressulum is characterized by compressed apothecia with a thicker stalk than *Stenocybe pullatula*. The asci are cylindrical, in the upper part with a thickened wall, the spores are uniseriately arranged in the asci, grey-brown, shorter and narrower than in *Stenocybe pullatula*, 9–14 × 4–5.5 μm diam.

Stenocybe pullatula has very subtile, slender apothecia up to 0,8 mm in height only without a distinct compression of the cups, cylindrical asci uniformly thickened at the apex and ascospores of the same colour as the preceding species, 13–18 × 4–5 μm large. It occurs on withered or dying slender twigs of *Alnus incana* and *Alnus glutinosa*.

Thelomma ocellatum (Körber) Tibell

SOUTHERN BOHEMIA, Šumava Mts., Filipova Huť, on upper part of fence post, 1130 m, 6947, 5.6.1993, leg. J. H. (PRM 89420). – Šumava Mts., Milná near Frymburk, on upper part of fence posts, 770 m, 7250, 13.5.1995, leg. J. H. and P. K., det. J. H. (PRM 887036).

This representative of the family Caliciaceae has recently been distributed in Lichenes rariores exsiccati no. 189 by Vězda (1995) as a species collected for the first time in the Czech Republic. Recently it was collected on logs of an older fence by a group of Czech and Moravian lichenologists investigating a number of localities in the Šumava Mts. The previously found specimens are those mentioned above.

***Trapeliopsis pseudogranulosa** Coppins et James

NORTHERN BOHEMIA, Lužické hory Mts., between Horní Podluží and Jířetín pod Jedlovou, on grassy slope, in upper part of phonolitic stone wall on terrace, on

mosses, 500 m, 5153, 17.4.1993, leg. J. H. (PRM 887057). – SOUTHERN BOHEMIA, Distr. Benešov, on slope of Mt. Velký Blaník, in beech forest, on soil, 540 m, 6355, 24.6.1995, leg. J. H. and P. K., det. J. H. (PRM 887061).

This species described by Coppins (1984) was not earlier reported from the Czech Republic. It should be common and widely distributed according to the distribution given in the mentioned paper. It may occur in Czech and Moravian herbaria under various names in collections made by earlier lichenologists.

Trapeliopsis pseudogranulosa is characterized by most usually green-grey thalli with farinose soralia, which can form up to 20 cm large patches. The yellow-orange patches of the thalli quickly turn purple after adding a KOH solution. Apothecia are usually absent. Both reported finds are sterile. The species grows on various acidic substrates in humid, shaded situations.

Umbilicaria subglabra (Nyl.) Harm.

SOUTHERN BOHEMIA, Šumava Mts., Mt. Valy, on rocky SW slope, on granite, 990 m, 6847, 1.6.1989. leg. J. Horáková and A. Vězda (PRM).

The above detailedly located site of this species is the one briefly mentioned by Liška et Pišút (1995). The distribution of this species in the former Czechoslovakia is given by Lisická (1980).

This is the second currently known Czech locality of this species classified as rare in the Red Data Book.

***Xanthoria calcicola** Oxner

CENTRAL BOHEMIA, Protected Landscape Area Křivoklátsko: Distr. Rakovník, Křivoklát, on upper part of old brick post in a fence, 270 m, 5949, 20.5.1997, leg. et det. J. K. (PRM 891431). – Distr. Beroun, Hudlice, near the village Stará Ves, on S slope of diabasic rocks, 340 m, 6049, 23.3.1997, leg. J. H. and P. K., det. J. H. (PRM 890432).

The species is characterized by a red-orange or red-brown thallus, the upper surface of which is formed by convex, coarse granules. Apothecia are developed rather rarely. It grows in dry, warm, open sites in lowland to submontainous areas, especially on calcareous rock or nutrient-rich stonework.

Regenerating damaged thalli of *Xanthoria parietina* can sometimes be confused with this species.

Zwackhiomyces sphinctrinoides Nyl.

CENTRAL BOHEMIA, Protected Landscape Area Křivoklátsko, Distr. Rakovník, on steep slope of Čertova skála, on soil in spilite rock slot, matrix: *Lecanora pseudistera*, 280 m, 6048, 10.4.1996, leg. J. H. and P. K., det. J. K. (PRM 891442).

A parasymbiotic fungus was observed on the areoles of the thallus *Lecanora pseudistera* collected on the above mentioned locality, most likely belonging to *Zwackhiomyces sphinctrinoides* (Zwackh) Grube et Hafellner, species of the genus established by Grube and Hafellner (1990) for a group of several species formerly placed in an ascomycete called "*Didymella*" *sphinctrinoides*. The genus *Zwackhiomyces* is above all characterized by a granular castaneous pigment intercellularly deposited in the wall of perithecioid subglobose ascomata composed of round bilaterally compressed cells; a hamathecium of filiform, richly branched and anastomosed elements; fissitunicate, cylindrical 4-, 6- or 8-spored asci with a wall of several layers with endotunica gradually thickened to apex; 1-septate, elongate-ellipsoid hyaline verruculose spores constricted at the septum and cells of somewhat different size with the upper cell larger, broader and rounder at apex than the lower. The size of asci 70–100 × 10.5–14 μm and ascospores 16–23 × 4.5–8 μm, given by Grube and Hafellner (1990: 328) for *Zwackhiomyces sphinctrinoides*, is somewhat larger compared with the measurements of our material, where asci with mature spores were only 53–60 × 10–12.5 μm in size and spores only close to the lower limit of 15–16.5 × 5.5–6.5 μm. The small size of the ascospores can be caused by the number of 8 spores observed in the asci, which should be more usually 6-spored. In all other features our material corresponds with the description given by Grube and Hafellner for this species. Until now the fungus had been known from the type locality only, where it was collected on several species of lichens, but originally described as growing on *Lecanora campestris*, which is closely related to *L. pseudistera* (Grube and Hafellner 1990: 327).

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