

## New lichen records from Bukovské vrchy Mts (NE Slovakia)

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Interesting findings of 100 lichens from the Bukovské vrchy Mts (Biosphere Reserve Poloniny, Slovak part) are reported as the result of recent survey work. Two species are new for Slovakia: *Fellhanera gyrophorica* and *Rinodina efflorescens*, and 34 species are reported for the first time from the studied area. The new records for the country are shortly commented as well as ecological aspects of *Agonimia repleta*, *Strigula stigmatella*, *Gyalecta ulmi* and *Belonia herculina*.

**Key words:** lichenized fungi, biodiversity, biosphere reserve, Poloniny, Eastern Carpathians

### INTRODUCTION

Bukovské vrchy Mts comprising about 690 km<sup>2</sup> and to a great extent overlapping with the territory of the National Park Poloniny, span the north-eastern tail of Slovakia. The mountains unlike the majority of the country already belong to the Eastern Carpathians. Eastern boundary coincides with the borderline of Slovakia and Ukraine as far as the Kremenec Mt. (1208 m a.s.l.), a meeting point of three countries confines – Slovakia, Poland and Ukraine. Polish state borderline from Kremenec Mt. to the spring areas of the river Udava delimit the area in the north.

Bukovské vrchy Mts are built of flysch, claystones and sandstones, which is reflected in the shape of the landscape. The mountains along the border of Slovakia and Poland range from 797 m a.s.l. to 1208 m a.s.l., the Slovak – Ukrainian ridge is dominated by Stinská Mt. (1092 m a.s.l.) and Kalnica Mt. (1004 m a.s.l.). The highest point inside the region is Veľký Bukovec Mt. (1012 m a.s.l.).

The area boasts of substantial, non-fragmented cover of beech forests, in higher altitudes and north expositions altered by beech-fir forests of pristine character. South slopes are lined with oak-beech forests. The most significant, also on

international level, is the old-growth forest Stučica, which spreads over the valley of the Stučická rieka.

The mountains fall within Unesco Biosphere Reserve Poloniny being the only trilateral reserve, unfolding on the area of three countries – Poland, Ukraine and Slovakia. Lichen diversity of Polish part comprises up to 600 species (Kiszka 1997, 1999; Kiszka, Kościelniak 1998, 2001). Recent lists of lichens from Ukrainian part include almost 430 taxa (Coppins et al. 1998, 2005).

The lichens in the Slovak area, were explored for the first time only in 1931 and 1932, when Josef Nádvořník, a teacher in the „Zakarpatska oblast“, visited the place Riaba skala during one-day excursions (e.g. Servít, Nádvořník 1935). After three decades the mountains were revisited by Ivan Pišút (Pišút 1964, 1966), later by Jiří Liška (Liška 1980). In 1989 Ivan Pišút and Anna Lackovičová started contemporary and targetted research here, later Anna Guttová and Zdeněk Palice joined them. Part of the results were already published (e.g. Pišút, Lackovičová 1992; Pišút 1995; Guttová 1997; Lackovičová 1998; Lackovičová, Guttová 2006), further taxa were included in the Checklist of Eastern Carpathian lichens without localities (Kondratyuk et al. 2003). In total, almost 300 species were recorded here. The number of species reflects also the size of the area of Poloniny in Slovakia (out of the three parts is the smallest one) and smaller diversity of substrata.

## MATERIAL AND METHODS

The most interesting results of lichenological research conducted in 1989-1994 and 2002-2004 in the territory of Bukovské vrchy Mts are presented. The specimens are kept in the collection of the Institute of Botany, Academy of Sciences of the Czech Republic, Průhonice (PRA) and of the Institute of Botany, Slovak Academy of Sciences, Bratislava (specimens without reference to the herbarium).

Abbreviations: !! – species new for Slovakia; ! – species new for the Bukovské vrchy Mts; NNR – National Nature Reserve; NR – Nature Reserve; AG – Anna Guttová; AL – Anna Lackovičová; IP – Ivan Pišút; ZP – Zdeněk Palice; *Aa* – *Abies alba*, *Acc* – *Acer campestre*, *Acpl* – *A. platanoides*, *Acps* – *A. pseudoplatanus*, *Al* – *Alnus* sp., *Alg* – *Alnus glutinosa*, *Ali* – *A. incana*, *B* – *Betula* sp., *Cb* – *Carpinus betulus*, *Fr* – *Fraxinus* sp., *Fre* – *F. excelsior*, *Fs* – *Fagus sylvatica*, *Jr* – *Juglans regia*, *Md* – *Malus domestica*, *Po* – *Populus* sp., *P* – *Pinus* sp., *Pyc* – *Pyrus communis*, *Q* – *Quercus* sp., *S* – *Salix* sp., *T* – *Tilia* sp., *Tc* – *T. cordata*, *Tp* – *T. platyphyllos*, *Ulg* – *Ulmus glabra*.

## RESULTS AND DISCUSSION

### LIST OF SPECIES

! *Absconditella delutula* (Nyl.) Coppins & H. Kilius

SPECIMENS EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, upstream, a stump, 640 m, 2002, leg. AL & AG; Uličská kotlina basin: Uličské Krivé village, managed beech forest ca 2 km E, N48°59'15-25"/E22°28', sandstone pebbles, 500-550 m, 2002, leg. AG, AL & ZP (PRA).

***Agonimia repleta*** Czarnota & Coppins

SPECIMENS EXAMINED: Uličská kotlina basin: Uličské Krivé village, managed beech forest ca 2 km E, N48°59'15-25"/E22°28', wood of *Fs* stump, sandstone pebbles in ditch of forest road, 500-550 m, 2002, leg. AG, AL & ZP (PRA).

***Anisomeridium polypori*** (M.B. Ellis & Everh.) M.E. Barr

SPECIMENS EXAMINED: NNR Pl'aša: WNW slope, deciduous forest in a spring area, N49°06'90"/E22°23.85', *Fs*, 1127 m, 2004, leg. ZP (PRA); NNR Stučica: fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', exposed root of *Fs*, 700-740 m, 2002, leg. AG & ZP (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), sandstone pebbles in ditch of forestry-road, Javorník – a crest NE of nature reserve, N48°58'50-55"/E22°28'30", *Fre*, 750 m, 2002, leg. AG, AL & ZP (PRA); Sedlická kotlina basin: road between the villages Zboj and Nová Sedlica, a crucifix, 380 m, *Fre*, 2002, leg. AG & AL.

***Arthonia spadicea*** Leight.

SPECIMEN EXAMINED: Uličská kotlina basin: Uličské Krivé village, old-growth beech forest ca 2.5 km E, N48°59'15-25"/E22°28'10-15", *Fs*, 570-620 m, 2002, leg. AG, AL & ZP (PRA).

***Arthonia vinosa*** Leight.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, the section between the junction to Rabia skala Mt. and gamekeeper's house, *Fr*, 700-800 m, 2002, leg. AG & AL.

***Bacidia bagliettoana*** (A. Massal. & De Not.) Jatta

SPECIMEN EXAMINED: Oreničova skala place (S of NNR Pl'aša): bryophytes over sandstone rocks, 710 m, 1994, leg. IP.

***Bacidia biatorina*** (Körb.) Vain.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, upstream, *Fs*, 700 m, 2003, leg. AG & AL.

***Bacidia circumspecta*** (Nyl. ex Vain.) Malme

SPECIMEN EXAMINED: NNR Stučica: fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, leg. AG & ZP (PRA).

***Bacidia fraxinea*** Lönnr.

SPECIMENS EXAMINED: Abandoned village Ostrožnica (N of Starina water reservoir): *T*, 400 m, 1994, leg. AL & IP; Ruská kotlina basin: abandoned village Zvala, *Fre*, 480 m, 1994, leg. AL & IP; *ibid.*, abandoned village Ruské, 480 m, 1994, leg. AL & IP; the valley of the Zbojský potok stream: upwards Nová Sedlica village, the meadow „Lúka Medovej baby“, young ash grow on alluvium, *Fr*, 550 m, 2003, leg. AG & AL.

***Bacidia incompta*** (Borrer ex Hook.) Anzi

SPECIMEN EXAMINED: NNR Stučica: fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', wood of *Acps*, 700-740 m, 2002, leg. AG & ZP (PRA).

***Bacidia rubella*** (Hoffm.) A. Massal.

SPECIMENS EXAMINED: Ruská kotlina basin: abandoned village Zvala, *Fre*, 480 m, 1994, leg. AL & IP; NR Uličská Ostrá: the valley of the Ulička river between the villages Ulič and Kolbasov, *Q*, 350 m, 1993, leg. IP; the valley of the Zbojský potok

stream: upwards Nová Sedlica village, SW slope of the elevation point Jaseniny (606.0), *Acps*, 500 m, 2002, *leg. AL & AG*.

**!Bacidia subincompta** (Nyl.) Arnold

SPECIMENS EXAMINED: NNR Stučica: the valley of the stream Stučická rieka, mixed primeval forest, *Fs*, 700-740 m, 2002, *leg. AG & ZP*; Topoľa village (in the Ulička river valley): SE foot of the hill Lesík (elevation point 580), hornbeam-lime forest on a steep slope at crossroads Topoľa–Príslop–Kolbasov, N49°01.70'/E22°21.15', *Cb*, 380-400 m, 2004, *leg. ZP & J. Šárová* (PRA).

**Bacidina inundata** (Fr.) Vězda

SPECIMEN EXAMINED: Pl'áša Mt.: SW bottom in the valley of the Ruský potok stream, temporary submerged pebbles in the stream, 900 m, 1992, *leg. AL & IP*.

**Belonia herculina** (Rehm ex Lojka) Hazsl.

SPECIMENS EXAMINED: NNR Pl'áša: SW slope, *Fs* by the stream, 870 m, 1992, *leg. AL & IP*; Part Javorník: NNR Rožok (SE of Uličské Krivé village), upper part, 650-700 m, *Fs*, 2002, *leg. AG, AL & ZP*; NNR Stučica: fir-beech forest in steep slope, N49°04'15-20"/E22°32'15-20", *Fs*, 750-800 m, 2002, *leg. AG & ZP* (PRA); *ibid.*, fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', *Acps, Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA); *ibid.*, well-lit beech forest below the main crest, between points Čierťaz and Hrubky, N49°05'30"/E22°31'30", *Fs*, 1050-1100 m, 2002, *leg. AG & ZP* (PRA); Packova Kýčera Mt.: WSW–W slope (N of Nová Sedlica village), N49°04'/E22°32'20", *Fs*, 750 m, 2002, *leg. AG & ZP* (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), uppermost part of old-growth beech forest, N48°58'45"/E22°28'10-15", *Fs*, 600-640 m, 2002, *leg. AG, AL & ZP* (PRA).

**!Biatora chrysantha** (Zahlbr.) Printzen

SPECIMENS EXAMINED: NNR Pl'áša: WNW slope, deciduous forest in a spring area, N49°06.90'/E22°23.85', *Acps, Fs*, 1127 m, 2004, *leg. ZP* (PRA); NNR Stučica: fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', *Aa*, 700-740 m, 2002, *leg. AG & ZP* (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), lowermost part, old-growth beech forest, N48°58'50-55"/E22°27'35-40", over mosses on *Fs* trunk, 470-480 m, 2002, *leg. AG, AL & ZP* (PRA).

**!Biatora efflorescens** (Hedl.) Räsänen

SPECIMEN EXAMINED: NNR Pl'áša: WNW slope, deciduous forest in a spring area, N49°06.90'/E22°23.85', *Fs*, 1127 m, 2004, *leg. ZP* (PRA).

**Biatora globulosa** (Flörke) Fr. [= *Bacidia globulosa*, sec. Printzen 2004]

SPECIMENS EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, *Acps*, 1100 m, 1992, *leg. AL & IP*; *ibid.*, the ridge, *Acps*, 1150 m, 1992, *leg. IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, a pond, *Ulg*, the bark of the pond, 620 m, 2002, *leg. AG & AL*; *ibid.*, a clearing Skoňová, *Q*, 500 m, 2003, *leg. AG & AL*; Part Javorník: the summit of the border ridge between Prípor Mt. and NNR Rožok (SE of Uličské Krivé village), around the border stone no 74, *Acps*, 780 m, 2002, *leg. AG, AL & ZP*.

**Biatora vernalis** (L.) Fr.

SPECIMEN EXAMINED: NNR Stučica: fir-beech forest in the valley of Stučická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

***Biatoridium monasteriense*** J. Lahm ex Körb.

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

***Calicium glaucellum*** Ach.

SPECIMEN EXAMINED: NR Udava: SW periphery, *Aa* (rotten trunk), 650 m, 1994, *leg. IP*.

***Calicium salicinum*** Pers.

SPECIMEN EXAMINED: NR Udava: SW periphery, *Aa* (rotten trunk), 650 m, 1994, *leg. IP*.

***Caloplaca decipiens*** (Arnold) Blomb. & Forssell

SPECIMEN EXAMINED: Sedlická kotlina basin: Nová Sedlica village, concrete wall, 430 m, 1992, *leg. AL & IP*.

***Caloplaca herbidella*** (Hue) H. Magn.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, *Fr*, 700-800 m, 2002, *leg. AG & AL*.

***Catillaria alba*** Coppins & Vězda

SPECIMEN EXAMINED: NNR Stužica: Kremenec Mt., SW slope, fir-beech forest, N49°05'/E22°33'15", wood of *Aa*, 960-980 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Chaenotheca chrysocephala*** (Ach.) Th. Fr.

SPECIMENS EXAMINED: NR Udava: SW periphery, *Aa* (rotten stump) – 610 m, *Aa* – 630 m, 1994, *leg. AL & IP*; Abandoned village Ostrožnica (N of Starina water reservoir): wood, 400 m, 1994, *leg. AL & IP*.

***Chaenotheca furfuracea*** (L.) Tibell

SPECIMEN EXAMINED: NR Udava: SW periphery, *Aa* (rotten trunk), 610 m, 1994, *leg. AL & IP*.

***Cladonia arbuscula*** (Wallr.) Flot. subsp. *mitis* (Sandst.) Ruoss

SPECIMENS EXAMINED: Ruská kotlina basin: arenaceous soil below Ruské sedlo mountain pass N of the abandoned Ruské village, 600 m, 1992, *leg. AL & IP*; *ibid.*, abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*.

***Cladonia cariosa*** (Ach.) Spreng.

SPECIMENS EXAMINED: Ruská kotlina basin: below Ruské sedlo mountain pass N of the abandoned Ruské village, arenaceous soil, 600 m, 1992, *leg. AL & IP*; *ibid.*, the valley of the Ruský potok stream, arenaceous soil, 650 m, 1992, *leg. AL & IP*.

***Cladonia phyllophora*** Hoffm.

SPECIMEN EXAMINED: Ruská kotlina basin: abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*.

***Cladonia polycarpoides*** Nyl.

SPECIMENS EXAMINED: Ruská kotlina basin: abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*; Runianska kotlina basin: Runina village, grasslands above the village, bare soil, 620 m, 2002, *leg. AL & AG*; Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, on sandy soil, 450 m, 2002, *leg. ZP* (PRA).

**!Cladonia ramulosa** (With.) J.R. Laundon

SPECIMEN EXAMINED: NNR Šípková: Šípková Mt., the ridge, *Fs*, 1000 m, 1992, *leg. IP*.

**Cladonia rangiferina** (L.) Weber ex F.H. Wigg.

SPECIMEN EXAMINED: NNR Stučica: Kamenná lúka Mt., on soil among *Vaccinium myrtillus*, 1200 m, 2003, *leg. AG*.

**Cladonia rangiformis** Hoffm.

SPECIMEN EXAMINED: Ruská kotlina basin: below Ruské sedlo mountain pass N of the abandoned Ruské village, arenaceous soil, 600 m, 1992, *leg. IP*.

**Cladonia rei** Schaer.

SPECIMEN EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N part, open slopes ca 50 m from the field station of NP Poloniny, on soil, 450 m, 2002, *leg. AG*.

**Cladonia symphy carpia** (Flörke) Fr.

SPECIMENS EXAMINED: Ruská kotlina basin: the valley of the Ruský potok stream, sandstone rocks, 515 m, 1994, *leg. AL & IP*; *ibid.*, abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*.

**Cladonia verticillata** (Hoffm.) Schaer.

SPECIMEN EXAMINED: Ruská kotlina basin: abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*.

**Collema auriforme** (With.) Coppins & J.R. Laundon

SPECIMEN EXAMINED: Ruská kotlina basin: the valley of the Ruský potok stream, on the foot of the Pláša hill, 750 m, over bryophytes on sandstone rocks, 1992, *leg. AL & IP*.

**Collema fuscovirens** (With.) J.R. Laundon

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, fissures of sandstone rocks, 1130 m, 1992, *leg. IP*.

**Dermatocarpon leptophyllum** (Ach.) K.G.W. Lång

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, arenaceous rocks, 1130 m, 1992, *leg. IP*.

NOTE. The species is drafted in the Checklist of lichens of Slovakia (Pišút et al. 1996, 1998) based on Poelt's report from the Vysoké Tatry Mts (Poelt 1962, 1969). His information was, however, general, since he did not mention specific locality. The entry from Bukovské vrchy Mts is the first confirmed information on the occurrence of this rare species in Slovakia.

**Dermatocarpon luridum** (With.) J.R. Laundon

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, temporary inundated sandstone rocks, 1130 m, 1992 *leg. IP*.

**!Dermatocarpon miniatum** (L.) W. Mann

SPECIMEN EXAMINED: NR Šípková: sandstone rock below the top, 980 m, 1992, *leg. IP*.

**!Diplotomma epipolium** (Ach.) Arnold

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, sandstone rocks, 1130 m, 1992, *leg. IP*.



**!!*Fellhanera gyrophorica*** Sérus., Coppins, Diederich & Scheideg.

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', on *Fs* over bryophytes and on bark directly, 700-740 m, 2002, leg. AG & ZP (PRA).

***Fuscidea fagicola*** (Zschacke) Hafellner & Türk [= *F. cyathoides* var. *corticola* (Fr.) Kalb, sec. Hafellner & Türk 2001]

SPECIMEN EXAMINED: NNR Stužica: beech forest on the crest Čiert'áž–Hrúbky–Kremenec, N49°05.57'/E22°31.56', *Fs*, 1110 m, 2004, leg. ZP & J. Šárová (PRA).

***Gyalecta jenensis*** (Batsch) Zahlbr.

SPECIMENS EXAMINED: NR Šípková: between the pass Sedlo pod Šípkovou and the village Ruské, sandstone rock, 850 m, 1992, leg. AL & IP; NNR Pl'aša: Pl'aša Mt., SW slope, place called „Pod alpínkou“, sandstone, 750 m, 1992, leg. AL & IP.

***Gyalecta flotowii*** Körb.

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in steep slope above the Stužická rieka, N49°04'15-20"/E22°32'15-20", *Fs*, 750-800 m, 2002, leg. AG & ZP (PRA); *ibid.*, fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, leg. AG & ZP (PRA).

***Gyalecta ulmi*** (Sw.) Zahlbr.

SPECIMEN EXAMINED: Topol'a village (in the Ulička river valley): SE foot of the hill Lesík (elevation point 580), hornbeam-lime forest on a steep slope at crossroads Topol'a–Príslop–Kolbasov, N49°01.70'/E22°21.15', on dead bryophytes on sandstone boulder, 380-400 m, 2004, leg. ZP & J. Šárová (PRA).

***Haematomma ochroleucum*** (Neck.) J.R. Laundon

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, S-W slope of the elevation point Jaseniny (606.0), *Acps*, 500-580 m, 2002, leg. AL & AG.

**!*Hypocenomyce caradocensis*** (Leight. ex Nyl.) P. James & Gotth. Schneid.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, beech-fir forest at the foot of Rabia skala, *Aa*, 900 m, 2002, leg. AG & AL.

***Imshaugia aleurites*** (Ach.) S.L.F. Meyer

SPECIMEN EXAMINED: Uličská kotlina basin: park in the Ulič village, dry trunk of *P*, 315 m, 1993, leg. AL & IP.

***Ionaspis ceracea*** (Arnold) Hafellner & Türk

SPECIMEN EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, on sandstone pebbles, 450 m, 2002, leg. ZP (PRA).

***Lecanactis latebrarum*** (Ach.) Arnold

SPECIMEN EXAMINED: Oreničova skala place (S of NNR Pl'aša): sandstone rocks, 710 m, 1994, leg. AL & IP.

***Lecanora albella*** (Pers.) Ach.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, downstream, *Alg*, 450-480 m, 2002, leg. AL & AG.

***Lecanora strobilina*** (Spreng.) Kieff.

SPECIMEN EXAMINED: Topoľa village (in the Ulička river valley): SE foot of the hill Lesík (elevation point 580), hornbeam-lime forest on a steep slope at crossroads Topoľa–Príslop–Kolbasov, N49°01.70'/E22°21.15', *Cb*, 380-400 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Lecanora subcarpinea*** Szatala

SPECIMEN EXAMINED: Topoľa village (in the Ulička river valley): SE foot of the hill Lesík (elevation point 580), hornbeam-lime forest on a steep slope at crossroads Topoľa–Príslop–Kolbasov, N49°01.70'/E22°21.15', *Cb*, 380-400 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Lecanora subrugosa*** Nyl.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, SW slope of the elevation point Jaseniny (606.0), *Acps*, 500 m, 2002, *leg. AL & AG*.

***Lecidea pullata*** (Norman) Th. Fr.

SPECIMEN EXAMINED: NNR Stužica: Hrubky Mt., *Fs* on the ridge, 1170 m, 1989, *leg. IP, det. V. Wirth*.

***Lepraria rigidula*** (de Lesd.) Tønsberg

SPECIMEN EXAMINED: NNR Stužica: beech forest on the crest Čiert'áž–Hrubky–Kremenec, N49°05.57'/E22°31.56', *Fs*, 1110 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Lobaria pulmonaria*** (L.) Hoffm.

SPECIMENS EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, NW foot of the elevation Kanský hrb (682.3), *Acps*, 500-550 m, 2002, *leg. AL & AG*; *ibid.*, elevation point Jaseniny (606.0), S-W slope, *Acps*, 500-580 m, 2002, *leg. AL & AG*.

***Melanohalea elegantula*** (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch

SPECIMENS EXAMINED: Osadné village: gamekeeper's lodge in the valley of the Udava river NE of the village, *Tc*, 550 m, 1994, *leg. AL & IP*; Príslop village (in the Ulička river valley): *Tp*, 380 m, 1993, *leg. IP*.

***Melanohalea laciniatula*** (H. Olivier) O. Blanco, A. Crespo, Essl., D. Hawksw. & Lumbsch

SPECIMEN EXAMINED: Osadné village: gamekeeper's lodge in the valley of the Udava river NE of the village, *Tc*, 550 m, 1994, *leg. AL & IP*.

***Menegazzia terebrata*** (Hoffm.) A. Massal.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, SW slope of the elevation point Jaseniny (606.0), *Acps*, 500 m, 2002, *leg. AL & AG*.

***Micarea erratica*** (Körb.) Hertel, Rambold & Pietschm.

SPECIMEN EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, on sandstone pebbles, 450 m, 2002, *leg. ZP* (PRA).



***Micarea lithinella*** (Nyl.) Hedl.

SPECIMENS EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, on sandstone pebbles, 450 m, 2002, *leg. ZP* (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), a crest NE of the reserve, N48°58'50-55"/E22°28'30", sandstone pebble, 750 m, 2002, *leg. AG, AL & ZP* (PRA).

***Mycobilimbia pilularis*** (Körb.) Hafellner & Türk

SPECIMEN EXAMINED: Oreničova skala place (S of NNR Pl'aša): bryophytes over sandstone rocks, 710 m, 1994, *leg. IP*.

***Mycobilimbia tetramera*** (De Not.) Vitik., Ahti, Kuusinen, Lommi & T. Ulvinen

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

***Ochrolechia androgyna*** (Hoffm.) Arnold

SPECIMENS EXAMINED: NNR Pl'aša: Pl'aša Mt., SW slope, *Fs*, 930 m, 1992, *leg. AL & IP*; *ibid.*, ridge below the summit, *Fs*, 1100 m, 1992, *leg. AL & IP*; NNR Jarabá skala: Riaba skala Mt., S slope, *Aa*, 950 m, 1992, *leg. AL & IP*; NR Udava: SW periphery, *Aa* (rotten stump), 610 m, 1994, *leg. AL & IP*.

***Opegrapha varia*** Pers.

SPECIMENS EXAMINED: NNR Jarabá skala: Riaba skala Mt., below the ridge, *Acpl*, *Fs*, 900 m, 1992, *leg. AL & IP*; *ibid.*, the ridge, *Ulg*, 980 m, 1992, *leg. IP*; NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA); the valley of the Zbojský potok stream: upwards Nová Sedlica village, SW-W slope of the elevation Jaseniny (606.0), *Acps*, 500-580 m, 2002, *leg. AL & AG*.

***Opegrapha vermicellifera*** (Kunze) J.R. Laundon

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Acps*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

***Opegrapha viridis*** (Pers. ex Ach.) Behlen & Desberger

SPECIMENS EXAMINED: Part Javorník: NNR Rožok (SE of Uličské Krivé village), old-growth beech forest, N48°58'40-45"/E22°27'50"-28'10", *Fs* near a brooklet, 500-600 m, 2002, *leg. AG, AL & ZP* (PRA); the valley of the Zbojský potok stream: upwards Nová Sedlica village, upstream, *Fs*, 680 m, 2002, *leg. AL & AG*.

***Opegrapha vulgata*** Ach.

SPECIMENS EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Acps*, 700-740 m, 2002, *leg. AG & ZP* (PRA); *ibid.*, the valley of the Stužická rieka river, the upper part, below the place called „Antošova lúka“, *Aa*, 700 m, 1989, *leg. IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, the meadow „Lúka Medovej baby“, young ash grow, *Fr*, 550 m, 2003, *leg. AG & AL*.

***Parmelia submontana*** Nádv. ex Hale

SPECIMENS EXAMINED: NNR Jarabá skala: Riaba skala Mt., below the ridge, *Ac*, 950 m, 1992, *leg. AL & IP*; *ibid.*, the ridge, *Acpl* (strongly leaning trunk), 1100 m, 1992, *leg. AL & IP*; NNR Pl'aša: ridge below the summit, *Fs* (leaning trunk), 1100 m, 1992, *leg. AL & IP*; NNR Stužica: well-lit beech forest below the ridge, between points Čierťaz and Hrubky, N49°05'30"/E22°31'30", *Acps*, 1100 m, 2002, *leg. AG &*

ZP (PRA); NR Udava: spring area of the Udava river, *Acps* (leaning trunk), 720 m, 1994, *leg. AL & IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, *Fr*, 700-800 m, 2002, *leg. AG & AL*.

***Peltigera polydactylon*** (Neck.) Hoffm.

SPECIMEN EXAMINED: Ruská kotlina basin: abandoned village Ruské, the hill S of the Ruský potok river, *B* (basis), 550 m, 1994, *leg. AL & IP*.

***Peltigera rufescens*** (Weiss) Humb.

SPECIMENS EXAMINED: Oreničova skala place (S of NNR Pľaša): bryophytes over sandstone rocks, 710 m, 1994, *leg. AL & IP*; Ruská kotlina basin: abandoned village Ruské, the hill S of the Ruský potok river, arenaceous soil, 550 m, 1994, *leg. AL & IP*.

***Pertusaria coccodes*** (Ach.) Nyl.

SPECIMENS EXAMINED: NNR Pľaša: W-NW slope, deciduous forest in a spring area, N49°06.90'/E22°23.85', *Fs*, 1127 m, 2004, *leg. ZP (PRA)*; NR Udava: spring area of the Udava river, *Acps*, 720 m, 1994, *leg. AL & IP*.

***Pertusaria coronata*** (Ach.) Th. Fr.

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., the top, *Ac*, 1150 m, 1992, *leg. AL & IP*.

***Pertusaria hemisphaerica*** (Flörke) Erichs.

SPECIMEN EXAMINED: NNR Stužica: the valley of the stream Stužická rieka, mixed old-growth forest, *Fs*, 700-740 m, 2002, *leg. AG & ZP*.

***Pertusaria pertusa*** (Weigel) Tuck.

SPECIMENS EXAMINED: NR Šípková: *Acps*, 970 m, 1992, *leg. AL & IP*; NNR Jarabá skala: Riaba skala Mt., below the ridge, *Fs*, 900 m, 1992, *leg. AL & IP*.

***Phaeophyscia chloantha*** (Ach.) Moberg

SPECIMEN EXAMINED: NNR Stužica: vrchol Čierťaže, *Fs*, 1050 m, 1989, *leg. IP*.

***Phaeophyscia endophoenicea*** (Harm.) Moberg

SPECIMENS EXAMINED: Kolbasov village (in the Ulička river valley): alder-grow on the bank of the Ulička stream, *S*, 330 m, 1993, *leg. IP*; NNR Pľaša: Pľaša Mt., S slope, *Fs*, 1130 m, 1992, *leg. AL & IP*; Part Nastaz: the valley of the Ublianka stream (NW of od Kalná Roztoka village): *Acc*, 450 m, 1993, *leg. IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, open meadow, *Fr*, 440 m, 2003, *leg. AG & AL*; Uličská kotlina basin: Uličské Krivé village, managed beech forest ca 2 km E, N48°59'15-25"/E22°28', *Fs*, 500-550 m, 2002, *leg. AG, AL & ZP (PRA)*.

***Phaeophyscia pusilloides*** (Zahlbr.) Essl.

SPECIMENS EXAMINED: NNR Stužica: Kamenná lúka Mt., *Fs*, 1150 m, 1989, *leg. IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, the meadow „Lúka Medovej baby“, young ash grow, *Fr*, 550 m, 2003, *leg. AG & AL*.

**!*Porina aenea*** (Wallr.) Zahlbr.

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, a stand with young *Fraxinus* and *Alnus* trees, *Fr*, 460 m, 2003, *leg. AG & AL*.

***Porina chlorotica*** (Ach.) Müll. Arg.

SPECIMENS EXAMINED: Part Javorník: NNR Rožok (SE of Uličské Krivé village), E part of the reserve, on the rock by the stream, 340-400 m, 2002, *leg. AG, AL & ZP*;

ibid., old-growth beech forest, N48°58'40-45"/E22°27'50"-28'10", sandstone stones, 500-600 m, 2002, *leg. AG, AL & ZP* (PRA).

***Ramalina fastigiata*** (Pers.) Ach.

SPECIMEN EXAMINED: Topoľa village (in the Ulička river valley): yard on a hill around orthodox wooden church, N49°02.68'/E22°21.39', *Acps*, 395 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Ramalina fraxinea*** (L.) Ach.

SPECIMEN EXAMINED: Part Nastaz: valley N of Kalná Roztoka village, *Fre*, 350 m, 1993, *leg. AL & IP*

***Rhizocarpon distinctum*** Th. Fr.

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, sandstone rocks, 1130 m, 1992, *leg. IP*.

***Rhizocarpon geminatum*** Körb.

SPECIMEN EXAMINED: NNR Jarabá skala: Riaba skala Mt., S slope, sandstone rocks, 1130 m, 1992, *leg. IP*.

**!!*Rinodina efflorescens*** Malme

SPECIMEN EXAMINED: Topoľa village (in the Ulička river valley): yard on a hill around orthodox wooden church, N49°02.68'/E22°21.39', *Acps*, 395 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Ropalospora viridis*** (Tønsberg) Tønsberg

SPECIMENS EXAMINED: Kolbasov village (in the Ulička river valley): S of the village, *Ali*, 330 m, 1993, *leg. IP*; the valley of the Zbojský potok stream: upwards Nová Sedlica village, *Alnetum incanae* downstream, *Ali*, 470 m, 2003, *leg. AG & AL*; ibid., stand with young *Fraxinus* and *Alnus* trees, *Al*, 460 m, 2002, *leg. AG & AL*; NNR Pl'áša: Pl'áša Mt., WNW slope, beech forest, N49°07.18'/E22°23.51', *Fs*, 942 m, 2004, *leg. ZP* (PRA).

**!*Sarcosagium campestre*** (Fr.) Poetsch & Schied.

SPECIMEN EXAMINED: Part Javorník: NNR Rožok (SE of Uličské Krivé village), lowermost part, old-growth beech forest, N48°58'50-55"/E22°27'35-40", *Fs*, 450-470 m, 2002, *leg. AG, AL & ZP* (PRA).

**!*Scoliciosporum umbrinum*** (Ach.) Arnold

SPECIMEN EXAMINED: The valley of the Zbojský potok stream: upwards Nová Sedlica village, mouth of the valley, open meadow, *Fr*, 440 m, 2003, *leg. AG & AL*.

***Strigula stigmatella*** (Ach.) R.C. Harris

SPECIMENS EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA); ibid., fir-beech forest in steep slope, N49°04'15-20"/E22°32'15-20", on sandstone pebbles, 750 m, 2002, *leg. AG & ZP* (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), old-growth beech forest, N48°58'50-55"/E22°27'35-40", over mosses on *Fs* trunk, 470-480 m, 2002, *leg. AG, AL & ZP* (PRA).

***Tephromela grumosa*** (Pers.) Hafellner & Cl. Roux

SPECIMEN EXAMINED: NNR Pl'áša: sandstone rock on the top, 1160 m, 1992, *leg. AL & IP*.

***Thelocarpon laureri*** (Flot.) Nyl.

SPECIMENS EXAMINED: Ruská kotlina basin: the road between Ruské sedlo mountain pass N of the abandoned Ruské village, bare wood, 600 m, 1992, *leg. AL & IP*; Part Veľký Bukovec: Ruský Potok village, wooden fence, 400 m, 1993, *leg. IP*.

***Thelotrema lepadinum*** (Ach.) Ach.

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

***Thrombium epigaeum*** (Pers.) Wallr.

SPECIMEN EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, on sandy soil, 450 m, 2002, *leg. ZP* (PRA).

***Trapelia corticola*** Coppins & P. James

SPECIMENS EXAMINED: NNR Stužica: Kremenec Mt., SW slope, fir-beech forest, along Kamenistý potok brook, N49°05'/E22°33', rotten wood and of *Aa*, 900 m, 2004, *leg. ZP & J. Šárová* (PRA); *ibid.*, dry wood, 900 m, 2002, *leg. AG & ZP* (PRA).

***Trapelia glebulosa*** (Sm.) J.R. Laundon [= *T. involuta*, *sec. Laundon 2005*]

SPECIMEN EXAMINED: Nová Sedlica village: mountain pass "Sedlo pod Čiert'ážou", N49°05'/E22°31', sandstone, 1100 m, 2004, *leg. ZP & J. Šárová* (PRA).

***Verrucaria dolosa*** Hepp

SPECIMENS EXAMINED: Sedlická kotlina basin: Nová Sedlica village, N49°03'15-20"/E22°31'10", in ditch at roadside near the field station of NP Poloniny, sandstone pebble, 450 m, 2002, *leg. ZP* (PRA); Part Javorník: NNR Rožok (SE of Uličské Krivé village), a crest NE of the reserve, 48°58'50-55"/E22°28'30", sandstone pebble, 750 m, 2002, *leg. AG, AL & ZP* (PRA).

***Vězdaea aestivalis*** (Ohl.) Tscherm.-Woess & Poelt

SPECIMEN EXAMINED: NNR Stužica: fir-beech forest in the valley of Stužická rieka, N49°04'30-45"/E22°31'20"-22°32', *Fs*, 700-740 m, 2002, *leg. AG & ZP* (PRA).

The list reports and documents the most interesting findings of 100 lichens from Bukovské vrchy Mts (mostly from the small scale protected areas – National Nature Reserves and National Reserves), two of which are new for Slovakia and 34 new for the Bukovské vrchy Mts.

Several findings are interesting from ecological viewpoint. *Agonimia repleta*, obligatorily growing as an epiphyte, but recorded also on a clayey soil (Czarnota 2003), was found on sandstone pebbles in the studied area. An epiphyte *Strigula stigmatella* was also once recorded on sandstone pebble here. Similarly, *Gyalecta ulmi*, was collected in Bukovské vrchy Mts on dead bryophytes on a sandstone boulder. There are more records of this species from limestone or lime containing rocks in Slovakia, e.g. from Bachureň Mts., Branisko Mts., Kysucká vrchovina Mts, Pieniny Mts or Tatry Mts (Lackovičová, Guttová 2006). *Belonia herculina*, collected mostly in the Carpathians – apart from outlying localities in Slovenia and Caucasus (Arup et al. 2001; Otte 2004), was reported only from beech in Slovakia. Now it was collected on *Acer pseudoplatanus*. A second specimen from *A. pseudoplatanus* was found during revision of the material kept in BRA (Nízke Tatry Mts, Latiborská hoľa, 1200 m, 1972, *leg. Vězda*, BRA; not published so far).

Brief comments on the novelties for Slovakia:

*Fellhanera gyrophorica* – a recently described corticolous species with similar appearance to *Micarea pycnidiphora* Coppins & P. James. It has been so far reported from Central and Eastern European countries, including neighbouring Ukrainian Carpathians (Kostrino, Zhornava). It appears to be confined to well-preserved, old-growth/pristine broad-leaved forests (Sérusiaux et al. 2001; Czyżewska et al. 2001, 2005; Motiejūnaitė, Prigodina-Lukošienė 2002).

*Rinodina efflorescens* – a sorediate corticolous, mild-temperate species of humid woodlands and parklands in Scandinavia, British Isles, Central Europe, the Pyrénées and North America (Mayrhofer, Moberg 2002; Nimis 2003).

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## Nowe dane o porostach z gór Bukowské vrchy (Słowacja Północno-Wschodnia)

### Streszczenie

W pracy przedstawiono 100 gatunków porostów z gór Bukowské vrchy, słowackiej części międzynarodowego, polsko-słowacko-ukraińskiego rezerwatu biosfery „Karpaty Wschodnie”, znanej jako Park Narodowy Połoniny.

Spośród prezentowanych porostów 34 gatunki są publikowane po raz pierwszy z badanego obszaru (!); dwa z nich: *Fellhanera gyrophorica* i *Rinodina efflorescens* to jednocześnie taksony nowe dla Słowacji (!!). Dla pozostałych 66 gatunków podano nowe stanowiska.

Na uwagę zasługują nowe dane ekologiczne odnoszące się do gatunków uważanych za obligatoryjne epifity, mianowicie *Agonimia replata* (tylko okazjonalnie na gliniastej glebie) i *Strigula stigmatella* rosną tutaj na otoczkach piaskowcowych, a *Gyalecta ulmi* – na obumarłych mszakach zasiedlających piaskowcowe bloki skalne.