

Lichens from the Una National Park (Bosnia and Herzegovina)

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Abstract: A list of 57 taxa of lichens (56 species) from the Una National Park in the north-western part of Bosnia and Herzegovina is presented. *Bacidia subincompta*, *Buellia griseovirens*, *Candelariella reflexa*, *Cetrelia monachorum*, *Fulgensia subbracteata*, *Lecanora subcarpineae*, *L. subrugosa*, and *Trapeliopsis viridescens* are new for Bosnia and Herzegovina.

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Introduction

Of the three National Parks in Bosnia and Herzegovina (i.e. Sutjeska, Kozara, Una) the Una National Park, founded in 2008, is the most recent one. It covers 19,800 ha and is located in the Una-Sana Canton close to the city Bihać in the north-western part of Bosnia and Herzegovina near the border with Croatia.

At the moment there is no comprehensive treatment of the lichen flora of Bosnia and Herzegovina, apart from the synopsis of ZAHLBRUCKNER (1890) and the records mentioned in KUŠAN (1953) and MURATI (1992, 1993). More recent floristic papers dealing with Bosnia and Herzegovina include CHRISTENSEN (1994), WECKESSER & VISNJIĆ (2005), and BILOVITZ & MAYRHOFFER (2009, this issue).

Material and methods

The lichenized fungi presented in this paper are based on a lichen collection made by Mathias SCHWAHN, who visited the Una National Park in 2009.

The specimens have been identified (using routine light microscopy techniques) with the aid of the following literature: POELT (1969), POELT & VĚZDA (1977, 1981), CLAUZADE & ROUX (1985) and WIRTH (1995). Some of the identifications required verification by using standardized thin-layer chromatography (TLC) following the protocols of WHITE & JAMES (1985) and ORANGE et al. (2001).

The specimens are preserved in the herbarium of the Institute of Plant Sciences, Karl-Franzens-University Graz (GZU), a smaller number of duplicates at the University of Bihać.

The nomenclature follows SANTESSON et al. (2004) and, for taxa not represented in this checklist, NIMIS & MARTELOS (2003) or other modern treatments. New records for Bosnia and Herzegovina are marked with an asterisk (*).



Fig. 1. Location of the Una National Park

List of sampling locations

Bosnia and Herzegovina, NW-Bosnia, Una-Sana, Una National Park, ...

- 01 = Veliki Ljutoc, S of Bihać, c. 830 m, N 44°41,942' / E 16°01,400', 27.III.2009, leg. Mathias Schwahn.
- 02 = Veliki Ljutoc, S of Bihac, c. 900 m, N 44°41,375' / E 16°02,161', 27.III.2009, leg. Mathias Schwahn.
- 03 = W of Cvjetnic and S of Kulen Vakuf, Una gorge, c. 540 m, N 44°25,466' / E 16°08,879', 27.III.2009, leg. Mathias Schwahn.

List of substrates and their abbreviations

Ace pse = *Acer pseudoplatanus*
 Fag syl = *Fagus sylvatica*
 Ost car = *Ostrya carpinifolia*
 ter-cal = on calcareous soil

List of lichenized fungi

- Acrocordia gemmata* (Ach.) A.Massal.: 01 (Ace pse), 02 (Ace pse)
Anaptychia ciliaris (L.) Körb.: 03 (Ost car)
- **Bacidia subincompta* (Nyl.) Arnold: 02 (Ace pse)
**Buellia griseovirens* (Turner & Borrer ex Sm.) Almb.: 02 (Ace pse)
- **Candelariella reflexa* (Nyl.) Lettau: 03 (Ost car)
**Cetrelia monachorum* (Zahlbr.) W.L.Culb. & C.F.Culb.: 01 (Ace pse), 02 (Ace pse)
Chrysothrix candelaris (L.) J.R.Laundon: 01 (Ace pse)
Cladonia convoluta (Lam.) Anders: 03 (ter-cal)
Cladonia furcata (Huds.) Schrad. subsp. *furcata*: 03 (ter-cal)
Cladonia pyxidata (L.) Hoffm.: 03 (ter-cal)
Cladonia rangiformis Hoffm.: 03 (ter-cal)
Cladonia symphylicarpa (Flörke) Fr.: 03 (ter-cal)
- Evernia prunastri* (L.) Ach.: 03 (Ost car)
- **Fulgensia subbracteata* (Nyl.) Poelt: 03 (ter-cal)
Fuscidea stiriaca (A.Massal.) Hafellner: 02 (Fag syl)
- Lecanora argentata* (Ach.) Malme: 01 (Ace pse)
Lecanora chlarotera Nyl.: 01 (Ace pse), 02 (Fag syl)
**Lecanora subcarpineae* Szatala: 03 (Ost car)
**Lecanora subrugosa* Nyl.: 02 (Fag syl)
Lecidella achrostotera (Nyl.) Hertel & Leuckert: 01 (Ace pse), 03 (Ost car)
Lecidella elaeochroma (Ach.) M.Choisy: 03 (Ost car)
Lepraria rigidula (de Lesd.) Tønsberg: 01 (Ace pse)
Lobaria amplissima (Scop.) Forssell: 02 (Ace pse)
Lobaria pulmonaria (L.) Hoffm.: 01 (Ace pse), 02 (Ace pse)
- Melanelixia fuliginosa* (Duby) O.Blanco et al. subsp. *fuliginosa*: 01 (Ace pse), 02 (Ace pse)
Melanelixia fuliginosa subsp. *glabratula* (Lamy) J.R.Laundon: 01 (Ace pse)
Melanelixia subaurifera (Nyl.) O.Blanco et al.: 01 (Ace pse), 02 (Ace pse), 03 (Ost car)
Melanohalea exasperata (De Not.) O.Blanco et al.: 03 (Ost car)
- Parmelia saxatilis* (L.) Ach.: 01 (Ace pse), 02 (Ace pse, Fag syl)
Parmelia submontana Nádv. ex Hale: 02 (Fag syl)
Parmelia sulcata Taylor: 01 (Ace pse), 02 (Ace pse), 03 (Ost car)
Parmelina pastillifera (Harm.) Hale: 03 (Ost car)
Parmelina quercina (Willd.) Hale var. *quercina*: 03 (Ost car)
Peltigera horizontalis (Huds.) Baumg.: 02 (Ace pse)
Peltigera rufescens (Weiss) Humb.: 02 (Ace pse)

- Pertusaria albescens* (Huds.) M.Choisy & Werner var. *albescens*: 01 (Ace pse), 02 (Ace pse)
Pertusaria amara (Ach.) Nyl.: 01 (Ace pse), 02 (Ace pse, Fag syl)
Pertusaria coccodes (Ach.) Nyl.: 01 (Ace pse), 02 (Ace pse)
Pertusaria flavida (DC.) J.R.Laundon: 02 (Ace pse, Fag syl)
Pertusaria leioplaca DC.: 01 (Ace pse)
Phaeophyscia orbicularis (Neck.) Moberg: 03 (Ost car)
Phlyctis agelaea (Ach.) Flot.: 02 (Fag syl)
Phlyctis argena (Spreng.) Flot.: 01 (Ace pse), 02 (Ace pse)
Physcia adscendens (Fr.) H.Olivier: 03 (Ost car)
Physcia leptalea (Ach.) DC.: 03 (Ost car)
Physcia stellaris (L.) Nyl.: 03 (Ost car)
Physconia distorta (With.) J.R.Laundon: 02 (Ace pse)
Pleurosticta acetabulum (Neck.) Elix & Lumbsch: 03 (Ost car)
Psora decipiens (Hedw.) Hoffm.: 03 (ter-cal)

Ramalina farinacea (L.) Ach.: 01 (Ace pse), 02 (Fag syl), 03 (Ost car)
Ramalina fastigiata (Pers.) Ach.: 03 (Ost car)
Ramalina fraxinea (L.) Ach. var. *calicariiformis* (Nyl.) Hue: 03 (Ost car)
Rinodina sophodes (Ach.) A.Massal.: 03 (Ost car)

Scoliciosporum umbrinum (Ach.) Arnold: 02 (Fag syl)
Squamarina lentigera (Weber) Poelt: 03 (ter-cal)

**Trapeliopsis viridescens* (Schrad.) Coppins & P.James: 01 (Ace pse)
Xanthoria parietina (L.) Th.Fr.: 03 (Ost car)

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