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CONTRIBUTIONS TO THE EPIPHYTIC LICHEN FLORA OF POIANA RUSCĂ MTS, SOUTHERN CARPATHIANS (SW ROMANIA)

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Abstract: The epiphytic lichen flora of ash stands in the Poiana Ruscă Mts (Southern Carpathians, SW Romania) was studied. Altogether 28 species were recognised from a single collection. *Lecanora thysanophora* new to Romania. Further twenty species were found new to the Poiana Ruscă Mts.

Introduction

Poiana Ruscă Mts bordered by the Retezat, Ţarcu and Godeanu Mts from the south and east form the NW part of the Southern Carpathians (SE Romania) extending over about 2,640 km^2. Its average altitude ranges between 700 and 1,000 m above see level, with the highest peaks of Mt. Padeş (1,374 m) and Mt. Rusca (1,356 m), which are encircled by ridges running towards the lower regions and valleys [14].

Its geology is well known, similar to the nearby high mountains. The main bedrock is of metamorphic origin, rich in minerals. The occurrence of magmatic rocks is local; sediments are located mainly at the periphery of the mountains.

The main rivers collecting the waters of the area are the Bega and the Mureş from the north and east, the Bistra from the south, and the Timiş from the west.

The climate might be quite different depending on altitude and relief. The annual mean temperature is 2–8 °C, and the annual precipitation is 1,200–1,400 mm in the central range, where the snowcover lasts 100–150 days. The climate is more mild at the peripherial, lower regions, the annual mean temperature is 9–11 °C, the annual precipitation is just 600–700 mm, and the snowcover lasts for only 25–50 days. The prevailing wind is of NW–SE. [17, 20].

The vegetation is composed of mostly deciduous forests. The vascular flora has been studied very poorly. The vegetation history of the Roman age was investigated by Borza [3], and some ecological, phytosociological studies on the grassland areas were carried out by Arsene [1] who also considered the possibilities of terraced viniculture.

The lichen flora is also less explored. The first records originated from the excursions of Hugó Lojka in 1872 [11, 15, 16, 26]. All later authors refer to these data [2, 4, 5, 6, 7, 8, 12, 18, 22, 24, 25, 26, 27, 28]. According to the latest compilation [5] altogether the following 65 taxa were published in these sources: *Alectoria ochroleuca* (Hoffm.) Mass., *Alectoria sarmentosa* (Ach.) Ach., *Anaptychia ciliaris* (L.) Körb. ex Mass., *Aspicilia cinerea* (L.) Körb., *Bacidia banatica* A. Zahlbr., *Baeomyces rufus* (Huds.) Rabh., *Bryoria capillaris* (Ach.) Brodo et D. Hawksw., *Bryoria fuscescens* (Gyeln.) Brodo et D. Hawksw., *Candelariella vitellina* (Hoffm.) Müll.-Arg., *Cetraria islandica* (L.) Ach., *Collema flaccidum* Ach., *Collema nigrescens* (Huds.) DC., *Dibaeis baeomyces* (L.) Rambold et Hertel, *Evernia divaricata* (L.) Ach., *Evernia prunastri* L.) Ach., *Gyalecta jenensis* (Bartsch.) Zahlbr., *Heterodermia speciosa* (Wulf.) Trevis., *Icmadophila ericetorum* (L.) Zahlbr., *Lecanora allophana* (Ach.) Nyl., *Lecanora cenisia* Ach., *Lecidea confluens* (Web.) Ach., *Lecidea lithophyla* Ach., *Lecidella stigmatea* (Ach.) Hertel et

Leuckert, *Leptogium cyanescens* (Rabenh.) Körb., *Leptogium lichenoides* (L.) Zahlbr., *Leptogium saturninum* (Dicks.) Nyl., *Lobaria amplissima* (Scop.) Forss., *Lobaria pulmonaria* (L.) Hoffm., *Megalaria laureri* (Hepp ex Th. Fr.) Hafellner, *Nephroma laevigatum* Ach., *Nephroma parile* (Ach.) Ach., *Nephroma resupinatum* (L.) Ach., *Pannaria leucophaea* (Vahl.) P. M. Jorg., *Parmelia borreri* (Sm.) Turner, *Parmotrema chinense* (Osbeck) Hale et Ahti, *Peltigera aphtosa* (L.) Willd. em. Gyeln., *Peltigera horizontalis* (Huds.) Baumg., *Peltigera venosa* (L.) Hoffm., *Pertusaria hymenea* (Ach.) Schaer., *Platismatia glauca* (L.) W. Culb. et C. F. Culb., *Porpidia crustulata* (Ach.) Hertel & Knoph. in Hertel, *Porpidia macrocarpa* (DC. in Lam. et DC.) Hertel et A. J. Schwab in Hertel, *Protoparmelia badia* (Hoffm.) Hafellner, *Punctelia subrudecta* (Nyl.) Krog, *Pyrenula nitida* (Weig.) Ach., *Ramalina calicaris* (L.) Fr., *Ramalina thrausta* (Ach.) Nyl., *Rhizocarpon alpicola* (Anzi) Rabenh., *Rhizocarpon badioatrum* (Flk. ex Spreng.) Th. Fr., *Rhizocarpon cinereovirens* (Müll.-Arg.) Vain., *Rhizocarpon distinctum* Th. Fr., *Rhizocarpon petraeum* (Wulfen) Mass., *Rhizocarpon polycarpum* (Hepp) Th. Fr., *Solorina saccata* (L.) Ach., *Sphinctrina turbinata* (Pers.) D' Not., *Sticta fuliginosa* (Hoffm.) Ach., *Sticta sylvatica* (Huds.) Ach., *Strigula stigmatella* (Ach.) R. Harris, *Tephromela atra* (Huds.) Hafellner, *Trapeliopsis viridescens* (Schrad.) Coppins et P. James, *Umbilicaria polyphylla* (L.) Baumg., *Usnea florida* (L.) Weber ex F. H. Wigg., *Usnea hirta* (L.) Weber ex Wigg., *Usnea longissima* Ach., and *Usnea perplectans* Stein. *Candelariella aurella* (Hoffm.) A. Zahlbr. was mistakenly cited from Poiana Ruscă Mts, because the referred specimen was collected by Cretzoiu and Servít at Belobresca in Banat.

Material and Methods

Our field study was carried out on 17 July, 2003 in old ash stands (*Carici remotae-Fraxinetum excelsioris*) along the Bega river at the village Bega Luncani close to the peak Strâmbu (799 m), on the NW side of Poiana Ruscă Mts (Fig. 1). These stands provide a special, humid, relatively light rich microclimate, which is especially favourable for certain epiphytic lichens. All the specimens were collected from bark of *Fraxinus excelsior*. The identified specimens were deposited in the lichen collection of the Hungarian Natural History Museum in Budapest (BP). Nomenclature follows Santesson et al. [23].

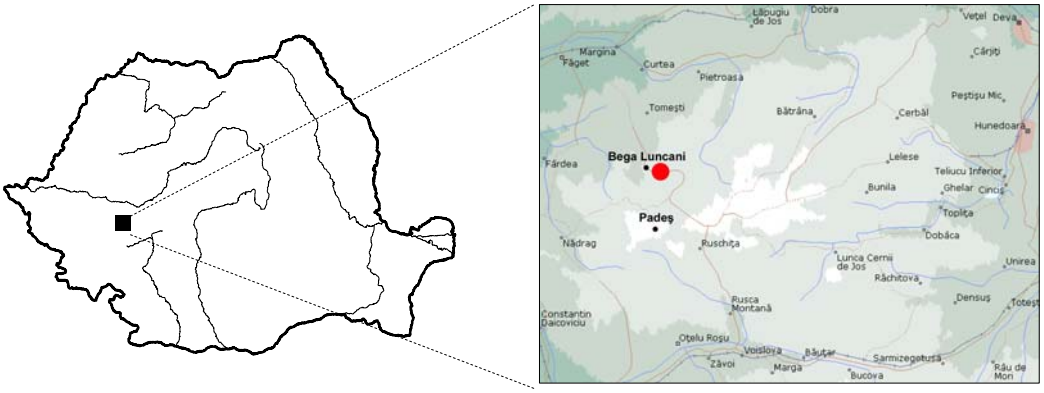

Fig. 1: Location of the study area

Results and Discussion

Out of the following 28 epiphytic lichen species recognised in our material one species (*Lecanora thysanophora*) is new to Romania, and 20 further species proved to be new for Poiana Ruscă Mts (boldface in the list) according to the referred literature.

Anaptychia ciliaris (L.) Körb.
Arthonia cinnabarina (DC.) Wallr. – new to Poiana Ruscă Mts.

Bacidia arceutina (Ach.) Arnold – new to Poiana Ruscă Mts.
Cetrelia olivetorum (Nyl.) W. L. Culb. et C. F. Culb. – new to Poiana Ruscă Mts.
Evernia prunastri (L.) Ach.
Flavoparmelia caperata (L.) Hale – new to Poiana Ruscă Mts.
Graphis scripta (L.) Ach. – new to Poiana Ruscă Mts.
Heterodermia speciosa (Wulfen) Trevis.
Lecanora allophana Nyl.
Lecanora carpinea (L.) Vain. – new to Poiana Ruscă Mts.
Lecanora chlarotera Nyl. – new to Poiana Ruscă Mts.
Lecanora thysanophora **R. C. Harris – new to Romania**
Lecidella achristotera (Nyl.) Hertel et Leuckert – new to Poiana Ruscă Mts.
Lobaria pulmonaria (L.) Hoffm.
Melanelia fuliginosa (Fr. ex Duby) Essl. subsp. ***glabratula*** (Lamy) Coppins – new to Poiana Ruscă Mts.
Melanelia subaurifera (Nyl.) Essl. – new to Poiana Ruscă Mts.
Opegrapha atra Pers. – new to Poiana Ruscă Mts.
Opegrapha rufescens Pers. – new to Poiana Ruscă Mts.
Parmelia sulcata Taylor – new to Poiana Ruscă Mts.
Parmotrema chinense (Osbeck) Hale et Ahti
Peltigera praetextata (Flörke ex Sommerf.) Zopf – new to Poiana Ruscă Mts.
Pertusaria albescens (Huds.) M. Choisy et Werner – new to Poiana Ruscă Mts.
Pertusaria amara (Ach.) Nyl. – new to Poiana Ruscă Mts.
Phlyctis argena (Spreng.) Flot. – new to Poiana Ruscă Mts.
Physcia adscendens H. Olivier – new to Poiana Ruscă Mts.
Physconia perisidiosa (Erichsen) Moberg – new to Poiana Ruscă Mts.
Punctelia subrudecta (Nyl.) Krog
Ramalina farinacea (L.) Ach. – new to Poiana Ruscă Mts.

Regarding the growth forms 46% of the species belong to the crustose, 46% to the foliose and 8% to the fruticose growth form.

Lecanora thysanophora (Fig. 2) was described in 2001 [10] as a common North American lichen species. In the last four years it was also detected in several places in Europe: e.g. in Austria [30], in Germany [21, 29], in Lithuania [19], in Poland [13], and in Slovakia [9], mainly from trees with smooth bark (like *Fagus* and *Carpinus*) under humid conditions. It can be distinguished from other morphologically similar sorediate species by the remarkable, characteristic, fibrous, whitish prothallus along the margin of the thallus and its chemistry.

Only very few records of *Arthonia cinnabarina* (Fig. 3) have been published from Romania [18]. It might be more frequent but probably overlooked. Its conspicuous red apothecia are very characteristic and easily recognised.

Heterodermia speciosa, *Lobaria pulmonaria* and *Parmotrema chinense* preferring this habitat of humid, light rich, subatlantic microclimate are also not frequent. On the other hand, Xanthorion species (like *Candelariella*, *Phaeophyscia*, *Physcia*, *Physconia*, *Xanthoria*, etc. species) otherwise very frequent on this nutrient rich substrate, are represented here very poorly. Other common species abundant everywhere (like *Hypogymnia physodes*, *Pseudevernia furfuracea*, etc.) are also absent here.

Fig. 2: ***Lecanora thysanophora***

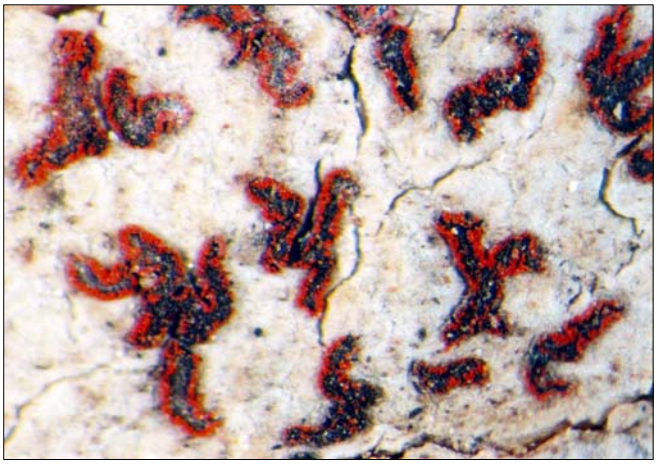

Fig. 3: ***Arthonia cinnabarina***

Conclusions

The high diversity and abundance of certain epiphytic lichens, the presence of several rare species, as well as the absence of anthropogenic species indicate that the studied area along the Bega river is not or less influenced by air pollution or other anthropogenic impact. Gallery forests along the inundation area of the rivers belonging to the vulnerable habitats should be protected together with their special and valuable flora and fauna.

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CONTRIBUŢII LA STUDIUL FLOREI LICHENOLOGICE EPIFITICE DIN MUNŢII POIANA RUSCĂ (CARPAŢII MERIDIONALI, ROMÂNIA)

(Rezumat)

Flora şi vegetaţia cormofită a Munţilor Poiana Ruscă este puţin cunoscută [1, 3], iar în ceea ce priveşte flora de licheni, Lojka în anul 1872 - în urma unei excursii în Munţii Retezat şi Poiana Ruscă - a publicat o listă cu 66 specii de licheni. Datele lui Lojka au fost preluate [2, 4, 5, 6, 8, 12, 18, 22, 24, 25, 26, 27, 28], dar nu au fost verificate.

Cercetările noastre s-au desfăşurat la Bega Luncani, în partea nord-vestică, zona inferioară-mijlocie a Munţilor Poiana Ruscă, la cca. 3 km de satul Luncanii de Jos, sub Vf. Strâmbului, la altitudinea de 700 m, în

asociația vegetală *Carici remotae – Fraxinetum excelsioris.* Cercetările s-au efectuat pe parcursul lunii iulie 2003. Microclima specială, umedă şi destul de bogată în lumină a favorizat instalarea unei flore criptogamice epifite diverse şi abundente.

In urma studiului efectuat în frăsinetul din apropierea localității Bega Luncanilor, s-au identificat 28 specii de licheni epifiți , dintre care doar 7 se regăsesc şi în lista lui Lojka, deci 21 specii de licheni sunt noi pentru Poiana Ruscă. Repartiția lor după forma de creştere este: 46% crustoşi, 46% folioşi, iar 8% fruticuloşi.

Lecanora thysanophora este o specie nouă pentru lichenoflora României, iar specia *Arthonia cinnabarina* este foarte rară, a fost identificată doar în două localitați din țară (Băile Herculane şi Ciucea). La fel sunt considerate specii rare *Heterodermia speciosa*, *Lobaria pulmonaria* şi *Parmotrema chinense*, care preferă biotopurile cu microclimă atlantică, umedă şi bogată în lumină.

Pe scoarța frasinului – bogată în substanțe nutritive – în general se instalează şi domină specii aparținând alianței **Xanthorion,** specii care lipsesc sau au o acoperire slabă aici. La fel lipsesc speciile epifite comune *Hypogymnia physodes şi Pseudevernia furfuracea*.

Diversitatea şi abundența lichenilor epifiți, numărul mare al speciilor rare şi în acelaş timp lipsa speciilor antropofile, ne îndreptățește să tragem concluzia, că pădurea cercetată de noi este sănătoasă, lipsită de intervenție umană şi de poluare atmosferică. Pădurea de luncă, formată din esențe tari, dominată de frasin, intră în categoria habitatelor vulnerabile, ca urmare trebuie ocrotită, împreună cu flora şi vegetația sa specifică.