

A contribution to the lichen mycota of old beech forests in Bulgaria

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Abstract. In 2007 the epiphytic and epixylic lichen mycota of old beech forests in Bulgaria was investigated: 138 lichen species were found, of which 30 are reported as new to Bulgaria: *Acrocordia cavata*, *Bacidia arceutina*, *B. incompta*, *B. neosquamulosa*, *Biatoridium monasteriense*, *Caloplaca lucifuga*, *Cetrelia monachorum*, *Chaenotheca brachypoda*, *C. chlorella*, *C. hispidula*, *Cladonia parasitica*, *Flavoparmelia soredians*, *Hypotrachyna afrorevoluta*, *Lopadium disciforme*, *Megalaria grossa*, *Menegazzia terebrata*, *Micarea micrococca*, *M. prasina*, *Omphalina ericetorum*, *Opegrapha rufescens*, *O. vermicellifera*, *Pertusaria pustulata*, *Phaeocalicium polyporaeum*, *Placynthiella icmalea*, *Ramalina baltica*, *Rinodina efflorescens*, *Schismatomma decolorans*, *S. pericleum*, *Strigula stigmatella* and *Usnea esperantiana*; several of these are rare in Europe: *Caloplaca lucifuga*, *Cladonia parasitica*, *Megalaria grossa*, *Pertusaria pustulata* and *Strigula stigmatella*.

Key words: ancient woodland, beech forest, dead wood, lichen diversity

Introduction

Within the European research project NATMAN (Nature-based Management of beech in Europe, a multifunctional approach to forestry) over 1500 logs of *Fagus sylvatica* have been investigated in Belgium, Denmark, The Netherlands, Hungary, Slovenia and Spain (Ódor *et al.* 2005, 2006). From 19 to 26 October 2007 an international group of cryptogam specialists studied fungi, bryophytes and lichens in forests in the Central Balkan National Park and Strandzha Nature Park. This study focused mainly on dead beech wood, but living *Fagus* and *Quercus* trees were also investigated. This paper is a contribution to an inventory of lichens in Bulgarian old beech forests. The records are compared with recent literature on Bulgarian lichens (Mayrhofer *et al.* 2005; Otte 2005; Vondrák 2006; Vondrák & Slavíkova-Bayerova 2006).

Methods

The standard NATMAN methodology (Ódor & van Hees 2004; Ódor *et al.* 2005) was used to sample c. 200 pieces of beech course woody debris (CWD); lichens on both wood and bark were identified. Species data have been added to a European database and will be used to evaluate beech-CWD as a habitat for wildlife, i.e. biodiversity. Nomenclature follows Santesson *et al.* (2004) and Coppins (2002).

Site descriptions

Extensive natural beech forests cover the northern slopes of the Balkan Range located within the Central Balkan National Park (<http://www.visitcentralbalkan.net>, www.centralbalkannationalparks.org). Old beech and fir dominated

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Table 1. (Continued)

	Centr. Balkan Nat. Park			Strandzha Nat. Park				
	1 ^a	2	3	4	5	6	7	
<i>Buellia erubescens</i>							x	Q
<i>Calcium abietinum</i>	x				x		x	W, F
<i>Calicium salicinum</i>					x			Q
* <i>Caloplaca lucifuga</i>				x				Q
<i>Caloplaca obscurella</i>							x	M
<i>Candelariella reflexa</i>	x							F
<i>Candelariella xanthostigma</i>					x	x		F
<i>Cetrelia cetrarioides</i> s. lat.						x		F
* <i>Cetrelia monachorum</i> ^{O & M}		x						F
<i>Cetrelia olivetorum</i>		x	x					F
* <i>Chaenotheca brachypoda</i>		x						C
* <i>Chaenotheca chlorella</i>					x			Q
* <i>Chaenotheca hispidula</i>				x	x			Q
<i>Chaenotheca trichialis</i>							x	Q
<i>Chrysothrix candelaris</i>					x		x	Q, F
<i>Cladonia caespiticia</i>		x				x		S
<i>Cladonia chlorophaea</i>							x	F
<i>Cladonia coniocraea</i>	x	x			x	x	x	F
<i>Cladonia digitata</i>					x			F
<i>Cladonia fimbriata</i>		x		x	x	x	x	Q
<i>Cladonia foliacea</i>							x	S
<i>Cladonia furcata</i>	x					x	x	Q
<i>Cladonia macilenta</i>						x	x	Q
* <i>Cladonia parasitica</i>							x	W
<i>Cladonia squamosa</i>				x				R/m
<i>Cladonia uncialis</i>				x				R/m
<i>Collema flaccidum</i>	x				x			F
<i>Collema subflaccidum</i>	x							F
<i>Dermatocarpon luridum</i>		x						R
<i>Evernia prunastri</i>	x	x		x	x	x	x	E, Q
<i>Flavoparmelia caperata</i>	x	x	x	x	x	x	x	F
* <i>Flavoparmelia soledians</i>		x			x	x		F
<i>Fuscopannaria leucophaea</i>		x						R
<i>Graphis scripta</i>	x	x		x	x		x	F
<i>Gyalecta ulmi</i>				x	x		x	Q
<i>Haematomma ochroleucum</i>				x	x			F
<i>Hypogymnia physodes</i>	x				x		x	Q, F
* <i>Hypotrachyna afrorevoluta</i>		x						F
<i>Hypotrachyna revoluta</i>	x							F
<i>Lasallia pustulata</i>		x		x				R
<i>Lecanora albella</i>					x		x	F
<i>Lecanora allophana</i>						x		Q
<i>Lecanora argentata</i>	x	x	x					F
<i>Lecanora chlarotera</i>	x	x		x	x		x	F
<i>Lecanora expallens</i>	x	x		x	x	x	x	E, P

Table 1. (Continued)

	Centr. Balkan Nat. Park		Strandzha Nat. Park					
	1 ^a	2	3	4	5	6	7	
<i>Lecanora glabrata</i>	x	x	x	x	x		x	F
<i>Laecanora symmicta</i>					x			Q
<i>Lecidella elaeochroma</i>	x	x		x	x	x	x	F
<i>Lepraria incana</i>	x	x			x		x	F
<i>Lepraria lobificans</i>	x	x	x				x	F
<i>Leptogium cyanescens</i>	x		x					F
<i>Leptogium lichenoides</i>	x	x	x	x	x			F, Q
<i>Lobaria pulmonaria</i>	x	x	x	x	x		x	F, Q, OF
* <i>Lopadium disciforme</i>	x							F
* <i>Megalaria grossa</i>				x				Q, OF
<i>Megalaria laureri</i>	x			x	x		x	F
<i>Melanelia exasperatula</i>					x			Q
<i>Melanelia fuliginosa</i>	x	x		x	x	x	x	Q
<i>Melanelia subaurifera</i>							x	A, Q
* <i>Menegazzia terebrata</i>		x	x					F, OF
* <i>Micarea micrococca</i>						x		W
* <i>Micarea prasina</i>	x					x		W
<i>Mycocalicium subtile</i>	x	x						F, C
<i>Nephroma laevigatum</i>							x	Q, OF
<i>Nephroma parile</i>	x	x						F, OF
<i>Normandina pulchella</i>	x							F
<i>Ochrolechia androgyna</i>		x			x		x	F
* <i>Omphalina ericetorum</i>							x	F
<i>Opegrapha atra</i>					x			F
* <i>Opegrapha rufescens</i>	x				x			Q
<i>Opegrapha varia</i>	x	x			x			F
* <i>Opegrapha vermicellifera</i>	x			x			x	F, Q
<i>Opegrapha viridis</i>	x					x		F, OF
<i>Opegrapha vulgata</i>					x		x	F
<i>Parmelia saxatilis</i>		x		x				R
<i>Parmelia submontana</i>		x						Q
<i>Parmelia sulcata</i>	x	x	x	x	x	x	x	F
<i>Parmeliella triptophylla</i>	x						x	F, Q
<i>Parmelina pastillifera</i>	x		x					F
<i>Parmelina tiliacea</i>				x			x	Q
<i>Parmotrema chinense</i>		x	x			x	x	F, R, S
<i>Peltigera collina</i>		x						R
<i>Peltigera leucophlebia</i>							x	S
<i>Peltigera horizontalis</i>	x	x	x				x	F, Q, R, S
<i>Peltigera lactucifolia</i>	x							F
<i>Peltigera praetextata</i>	x	x	x	x	x	x	x	F, Q
<i>Peltigera rufescens</i>		x					x	Q, S
<i>Pertusaria albescens</i>	x	x		x	x	x	x	F
<i>Pertusaria amara</i>		x		x	x		x	F, Q
<i>Pertusaria coccodes</i>						x		Q

Table 1. (Continued)

	Centr. Balkan Natl. Park		Strandzha Nat. Park					
	1 ^a	2	3	4	5	6	7	
<i>Pertusaria coronata</i>		x						F
<i>Pertusaria flavida</i>		x		x	x	x	x	Q
<i>Pertusaria hemisphaerica</i>				x		x	x	F
<i>Pertusaria hymenea</i>					x		x	F
<i>Pertusaria leioplaca</i>				x			x	F
<i>Pertusaria pertusa</i>	x	x		x	x	x	x	F
* <i>Pertusaria pustulata</i>	x				x			F, OF
* <i>Phaeocalicium polyporaenum</i>							x	Tri
<i>Phaeophyscia endophoenicea</i>	x						x	F
<i>Phaeophyscia orbicularis</i>				x			x	Q
<i>Phlyctis agelaea</i>				x	x		x	F, C
<i>Phlyctis argena</i>	x	x	x	x	x	x	x	F, C
<i>Physcia adscendens</i>				x				Q
<i>Physcia aipolia</i>				x				Q
<i>Physcia tenella</i>				x				Q
<i>Physconia distorta</i>				x	x			Q
<i>Physconia enteroxantha</i>				x	x	x	x	Q
* <i>Placynthella icmalea</i>	x							F (M.micr.)
<i>Platismatia glauca</i>			x					F
<i>Pleurosticta acetabulum</i>				x				Q
<i>Pseudevernia furfuracea</i>			x	x				Q
<i>Pseudosagedia aenea</i>	x				x			F
<i>Pyrenula nitida</i>	x	x	x	x	x	x	x	F, C
* <i>Ramalina baltica</i>		x		x		x		Q
<i>Ramalina calicaris</i>							x	Q
<i>Ramalina farinacea</i>	x	x	x	x	x	x	x	F, Q
<i>Ramalina fastigiata</i>				x				Q
<i>Ramalina pollinaria</i>				x				R
* <i>Rinodina efflorescens</i>							x	F
* <i>Schismatomma decolorans</i>					x		x	Q
* <i>Schismatomma pericleum</i>				x				Q
* <i>Strigula stigmatella</i>	x							F
<i>Thelotrema lepadinum</i>	x							F
<i>Trapelia coarctata</i>						x	x	R
<i>Usnea chaetophora</i>		x						F
* <i>Usnea esperantiana</i>		x						Q
<i>Usnea subfloridana</i>		x						Q
<i>Xanthoria parietina</i>							x	P
<i>Xanthoparmelia conspersa</i>		x					x	R
<i>Xanthoparmelia somloensis</i>		x		x				R
<i>Xylographa parallela</i>		x						W

^a 1. Boatin. 2. Tsarichina. 3. Severen Djendem. 4. Kamuka. 5. Silkosia. 6. Marina Reka. 7. Sredoka

^b C: *Carpinus*, F: *Fagus*, M: *Malus*, P: *Populus*, Q: *Quercus*, R: rock, S: soil, Sa: *Sambucus*, Tri: *Trichaptum*, W: wood, OF: Old Forest

*new to Bulgaria

O & M sensu Obermayer & Mayrhofer (2007)

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