Contribution to the lichen floras of the Białowieża Forest and the Biebrza Valley (Eastern Poland)

Laurens B. SPARRIUS

Abstract: SPARRIUS, L. B. 2003. Contribution to the lichen floras of the Białowieża Forest and the Biebrza Valley (Eastern Poland). – Herzogia **16**:155–160.

The lichen floras of two Polish National Parks were investigated. 36 species new to Białowieża Forest were found and a preliminary list of 92 species for the Biebrza National Park is presented, of which *Caloplaca flavocitrina*, *Chaenothecopsis savonica*, *Macentina stigonemoides* and *Micarea viridileprosa* are new to Poland.

Zusammenfassung: SPARRIUS, L. B. 2003. Beitrag zur Flechtenflora des Białowieża Waldes und des Biebrza Tals (Ostpolen). – Herzogia **16**: 155–160.

Die Flechtenflora zweier polnischer Nationalparke wird untersucht. 36 Neufunde werden aus dem Białowieża Wald gemeldet. Eine vorläufige Liste mit 92 Arten wird aus dem Biebrza Nationalpark vorgelegt mit *Caloplaca flavocitrina*, *Chaenothecopsis savonica*, *Macentina stigonemoides* und *Micarea viridileprosa* an Neufunden für Polen.

Key words: Lichens, Caliciales, biodiversity.

Introduction

In 2001, the author visited two National Parks in Eastern Poland, viz. the Biebrza valley and the Białowieża Forest, both in the eastern Białystok District (Fig. 1). Localities were selected carefully with the aim of revisiting rich lichen habitats previously visited by other authors and new, promising ones, including artificial and urban habitats.

Białowieża

The lichen flora of the Białowieża Forest is well known and characterized by many old-forest species, such as *Bactrospora dryina*, *Menegazzia terebrata* and *Sclerophora peronella*, which are often endangered in other European lowland forests. Several articles on Białowieża lichens have been published, including a lichen mapping survey by CIEŚLIŃSKI & TOBOLEWSKI (1988) and CIEŚLIŃSKI et al. (1992a, 1992b, 1995, 1996) and a very detailed mapping study of 1 km^2 of old-forest by CIEŚLIŃSKI & CZYŻEWSKA (1997). Although the Białowieża Forest is heavily studied by foreign ecologists for its "primeval" character, no non-Polish publications exist on its lichens.

During his stay, the author recorded 198 lichen species in the area. 36 species new to the forest were discovered. One of the surprising records was fertile *Fellhanera gyrophorica* at two sites, a species described without apothecial characters (SÉRUSIAUX et al. 2001); the new characters confirmed that the genus had been correctly applied (SPARRIUS 2002). Another species of this genus, *F. bouteillei*, was growing on *Pinus* twigs. Many sterile crusts have been overlooked in the past and were now revealed: *Caloplaca lucifuga*, *Fuscidea arboricola*, *F. pusilla*, *Lepraria lobificans*, *Mycoblastus fucatus* and *Ropalospora viridis*, all of which are

Fig. 1: Map of North-East Poland and adjacent countries, showing the border of both National Parks and the invbestigated regions (black dots).

common throughout Europe. The crust *Loxospora elatina* was probably over-estimated by CIEŚLIŃSKI & CZYŻEWSKA (1997) as represented by numerous dots in distribution maps, while the author collected this species only once.

New calicioid lichens were also found: in addition to *Chaenothecopsis pusilla*, *Ch. savonica*, characterized by its simple spores, was collected. Other interesting records are *Sclerophora farinacea*, a rare old forest species, and *Stenocybe pullatula*, a common non-lichenized species on *Alnus*, especially sunny, crispy twigs hanging over water in sheltered places.

One of the formerly well-studied habitats are erratic granitic boulders on roadsides. As in the Netherlands and Germany these boulders provide a habitat for acidophilous saxicolous species such as *Acarospora fuscata* and *Xanthoparmelia conspersa*.

Roadside *Tilia* and *Populus* are rich in lichens, one site on a crossroad in the village of Białowieża yielded 50 species on 5 trees. Common species in this habitat are *Anaptychia ciliaris*, *Chaenotheca phaeocephala*, *Physconia enteroxantha* and *Ramalina fraxinea*. New to the area in this habitat are *Anisomeridium polypori*, *Lecanora horiza*, *Lecidella scabra* and *Lepraria lobificans*.

Pieter van den Boom kindly sent the author an unpublished list of species made during a field trip with Harrie Sipman in 1988. An important species that could not be found again was *Lobaria pulmonaria*, which should be common in the area according to the maps in CIEŚLIŃSKI & CZYŻEWSKA (1997).

Two species in the list below, viz. *Caloplaca flavocitrina* and *Chaenothecopsis savonica* are reported here as new to Poland according to the checklist of FAŁTYNOWICZ (2002). The former one is a common species in built-up areas in Western Europe (e.g. in the Netherlands, APTROOT et. al. 1999), but has rarely been collected in many countries.

List of species

Species new to the Białowieża Forest area, together with substrate, habitat and herbarium numbers (in brackets), are listed. Species marked with an asterisk were also recorded by Sipman & van den Boom in 1988 (unpublished). The nomenclature follows SCHOLZ (2000).

Anisomeridium polypori: bark fissures of roadside *Tilia*
Arthonia didyma: smooth bark of young *Carpinus* in old forest [4916]
Aspicilia contorta: concrete of railway station
Bagliettoa baldensis: concrete of railway station
Bryoria capillaris: *Pinus* in coniferous forest [5038]
Caloplaca flavocitrina: concrete of railway station
****Caloplaca lucifuga***: bark fissures of old *Quercus* in forest [4976, with *Buellia erubescens*]
Chaenothecopsis savonica: on *Phlyctis argena* on old *Quercus* in forest [4952]
Cladonia rei: disturbed soil in heathland [4998]
Fellhanera bouteillei: *Picea* twigs [4918 with *Usnea filipendula*, 4971]
Fellhanera gyrophorica: *Fraxinus*, *Quercus* and wood in old forest [4978, 4985, 4940]
Fuscidea arboricola: *Fraxinus* in old forest [5091 (TLC!)]
Fuscidea pusilla: *Carpinus* in old forest [4929 (TLC!)]
Lecania rabenhorstii: concrete of railway station
****Lecanora horiza***: well-lit roadside trees in village
Lecidella scabra: granite boulders and well-lit roadside trees [4951 (TLC!)]
Lepraria lobificans: shaded bark and over mosses on rock [4928]
Leproloma vouauxii: shaded *Fraxinus* bark [5029]
Leptogium schraderi: disturbed soil on old railway track [4909]
Lichenoconium xanthoriae: on *Xanthoria polycarpa* on wayside *Populus* [4970]
Micarea peliocarpa: *Alnus* in swamp forest [5043]
Moelleropsis humida: disturbed soil [4993]
****Mycoblastus fucatus***: bark of broadleaved trees [4915]
Peltigera membranacea: base of mossy *Pinus* trunk [4962]
Phaeopyxis punctum: as a parasite on *Cladonia coniocraea* on wood of *Picea* [4927]
****Placynthiella icmalea***: wood, erratic granite boulder and acid soil [4938]
Rhizocarpon reductum: granite boulder in grassland
Rinodina pityrea: roadside *Fraxinus* in village
Ropalospora viridis: *Alnus* and *Fraxinus* in old forest [5050, 5052 (TLC!)]
Sarcosagium campestre: disturbed soil on old railway track [4913]
Sclerophora farinacea: bark fissures of mature *Ulmus* in forest [4954]
Scoliciosporum pruinosum: *Carpinus* in old forest [4984]
Stenocybe pullatula: *Alnus* twigs [4934]
Trapelia placodioides: granite boulder in grassland
Verrucaria glaucina: concrete of railway station
Verrucaria muralis: concrete and pebbles [4911]
Verrucaria tectorum: concrete of railway station
Verrucaria viridula: mortar and brick of monument in village

Biebrza Valley

The Biebrza Valley has never been studied for its lichen flora, although considerable research has been carried out on the vascular plants (e.g. *Dianthus superbus*, *Pulsatilla patens*) (e.g. WERPACHOWSKI 2000). The author visited the east side of the south basin, near the village of Nowa Wieś. Far from the river the landscape is formed of arable land and sand dunes planted with pine forest. Along roadsides, a *Calluna* vegetation is present with many species of *Peltigera* and *Cladonia*, *C. deformis* and *C. phyllophora* occurring most frequently. The lichen flora

inside the pine forest was dominated by *Hypogymnia* spp. and *Plastimatia glauca* on bark and by *Cetraria islandica* on the forest floor in open situations. The low, riverine area consists of moorland (dominated by *Carex appropinquata*) interspersed with small sand hills, on which the vegetation varies from small *Alnus* trees to *Quercus* and *Betula* trees, being slightly calcareous grassland on top, with some *Cladonia* species. *Micarea viridileprosa* and *Macentina stigonemoides*, new to Poland, were also found. The list of all 92 recorded species provides a preliminary checklist of lichens of the Biebrza National Park. The nomenclature follows SCHOLZ (2000), except for subspecies of *Cladonia*, which are recognized at species level here. Records which are not indicated as a herbarium specimen are mainly based on field annotations.

Collection sites

Biebrza Valley, west of Nowa Wieś, 26 July 2001,

1) Road to Stójka, 300 m east of 'G. Pierciowa'. Alt. 110 m. Road through meadows and conifer forest; roadside *Cladina* heaths. UTM (WGS-84): 34UFE1009.
2) Road and meadows near Stójka, site called 'G. Pierciowa'. Alt. 116 m. Conifer forest with *Picea*, *Pinus* and *Juniperus*; wooden fence posts; roadside *Cladina* heaths. UTM (WGS-84): 34UFE072098.
3) Along roadside of Carska Droga bordering the National Park, between Stójka and Strymień; near concrete bridge; *Alnus* bog forest; *Salix* and *Carpinus* along roadside. UTM (WGS-84): 34UFE066089.

South basin of the Biebrza Valley, inside the National Park, west of Nowa Wieś, 26-27 July 2001,

4) Bagno Ławki, along road 'Grobla Honczarowska'; *Alnus* bog forest. UTM (WGS-84): 34UFE049078.
5) Bagno Ławki at west end of road 'Grobla Honczarowska'; sandy hillock in swamps called 'Pogorzały', with slightly calcareous heath and scattered *Quercus* trees. UTM (WGS-84): 34UFE022068.
6) Bagno Podlaskie. Sandy hillock in swamps called 'Grądy Stójka', with slightly calcareous heath and scattered *Quercus* trees. UTM (WGS-84): 34UFE051095.
7) Bagno Podlaskie. Sandy hillock in swamps called 'Grądy Dębowe', with slightly calcareous heath and scattered *Quercus* trees. UTM (WGS-84): 34UFE049093.
8) Bagno Podlaskie. Sandy hillock in swamps called 'Grądy Leszczynowe', with slightly calcareous heath and scattered *Quercus* trees. UTM (WGS-84): 34UFE044094.

Abbreviations

w	rotten wood	Q	*Quercus*
s	dune sand, slightly calcareous	S	*Salix*
as	acid soil	U	*Ulmus*
B	*Betula*	g	granite (erratic boulders along road)
C	*Corylus*	co	concrete
D	*Pinus*	h	hard wood
N	*Alnus*	(hb)	Herbarium Sparrius
P	*Populus*	(hb+)	filed within another specimen

List of recorded taxa in the Biebrza Valley

Acarospora fuscata 1g
Amandinea punctata 2U, 3S, 5S, 6P
Anisomeridium polypori 4S, 5S(hb)
Bryoria fuscescens 2h(hb)
Buellia aethalea 1g
Caloplaca citrina 2U, 3co, 3S
Caloplaca decipiens 3co, 7co
Caloplaca lithophila 1g, 3co, 7co
Caloplaca saxicola 7co
Candelariella aurella 3co, 7co
Candelariella vitellina 1g
Cetraria aculeata 1s(hb)
Cetraria chlorophylla 2D(hb), 8Q
Cetraria islandica 1s(hb)
Cetraria sepincola 2D(hb), 2h
Chaenotheca chrysocephala 8Q
Cladina arbuscula 1s(hb), 7as, 8s
Cladina rangiferina 1s(hb)
Cladonia cenotea 2w(hb)
Cladonia chlorophaea 8Q
Cladonia coniocraea 8s(hb+)
Cladonia cornuta 1s(hb)
Cladonia deformis 1s(hb)
Cladonia digitata 4S
Cladonia fimbriata 1s(hb), 2D, 6as, 6P, 7as, 8s
Cladonia furcata 1s(hb), 7as, 8s(hb+)
Cladonia gracilis 2s(hb)
Cladonia grayi 2D, 8Q
Cladonia macilenta 1s(hb+), 2D, 2h, 7as, 8s
Cladonia phyllophora 1s(hb)
Cladonia ramulosa 2w(hb)
Cladonia rangiformis 7s(hb)
Cladonia scabriuscula 8s(hb+)
Cladonia squamosa 8s(hb)
Cladonia subulata 1s(hb)
Cladonia uncialis 1s(hb)
Evernia prunastri 2h, 3S, 6Q, 8Q
Hypocenomyce scalaris 3S, 8Q
Hypogymnia physodes 2D(hb+), 2D(hb+), 2h(hb+), 4S, 5S(hb+), 6P, 7Q, 8Q
Hypogymnia tubulosa 2h, 4S
Imshaugia aleurites 2D(hb)
Lecanora albescens 3co, 7co
Lecanora argentata 4S
Lecanora carpinea 6Q, 8Q
Lecanora chlarotera 3C, 4N, 4S, 6P
Lecanora conizaeoides 8Q
Lecanora dispersa 1g, 2h(hb+), 2h, 2D(hb+), 3co, 6P, 7co
Lecanora expallens 2U, 5S, 6Q
Lecanora hagenii 4N, 5S(hb+), 7co
Lecanora muralis 1g, 7co
Lecanora symmicta 4N, 5S(hb+), 6P
Lecidella elaeochroma 5S, 6Q
Lepraria incana 2U, 3S, 6Q, 8Q
Macentina stigonemoides 2U(hb)
Melanelia subaurifera 4S, 6P, 8Q
Micarea denigrata 5S(hb+)
Micarea prasina s.l. 2h(hb+)
Micarea viridileprosa 4N(hb)
Mycoblastus fucatus 3C
Neofuscelia pulla 1g(hb, TLC! stenosporic, divaricatic acid)
Opegrapha vermicellifera 2U
Parmelia sulcata 2U, 3S, 4S, 4N, 5S(hb+), 6P, 7Q, 8Q
Parmeliopsis ambigua 2B, 6Q
Peltigera canina 1s(hb)
Peltigera neckeri 1as(hb)
Peltigera rufescens 1s(hb)
Pertusaria amara 3S
Phaeophyscia nigricans 7co
Phaeophyscia orbicularis 2U, 3co, 7co
Phlyctis argena 2U
Physcia adscendens 1g, 2U, 3S, 7co
Physcia aipolia 5S
Physcia caesia 1g, 3co
Physcia stellaris 5S
Physcia tenella 1g, 2U, 3S, 5S(hb+), 6Q, 6P, 7co, 7Q
Physconia grisea 2U, 3S
Placynthiella icmalea 2D, 8Q
Placynthiella oligotropha 7as
Platismatia glauca 2h, 2B, 2D, 8Q
Pleurosticta acetabulum 3S
Pseudevernia furfuracea 2h
Ramalina farinacea 2U, 3S
Rinodina gennarii 1g, 3co
Rinodina pityrea 2U(hb)
Strangospora pinicola 2h(hb), 4N(hb)
Trapeliopsis granulosa 2h, 2B, 6Q
Usnea hirta 2D(hb, TLC!)
Verrucaria nigrescens 3co
Vulpicida pinastri 2h, 5S(hb)
Xanthoria candelaria 6Q
Xanthoria parietina 2U, 3co, 6Q, 7co, 8Q
Xanthoria polycarpa 4S, 5S(hb+), 5S(hb+), 6P, 8Q

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Address of the author

Laurens B. Sparrius, Kongsbergstraat 1, NL-2804 XV Gouda, the Netherlands.
E-mail: sparrius@dds.nl