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Lichens of the Jesionowe Góry Reserve in Poland

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The list of lichen species found in the Jesionowe Góry Reserve in NE Poland.

Key words: Lichens, reserve.

The "Jesionowe Góry" Reserve is located in the northern part of Puszcza Knyszyńska (forest div.: Czarna Białostocka). The protected area supports a wide variety of vascular plants, including rare and protected species. Much of the reserve area is occupied by swamp and non-forest communities which occur there. C z e r w i ń s k i and P i r o ż n i k o w (1988) described *Aceri-Tilietum mercurialetosum* from the moraine in this reserve, which is rarely known to occur in Poland. Among the four types of forest communities distinguished by S o k o ł o w s k i (1991) the above association was the most interesting as far as the lichen flora is concerned.

In total, 84 species of epiphytic and terrestrial lichens were identified in the reserve (Table 1), many of which are common in the lowlands of Poland. Special attention should be paid to such as: *Arthothelium ruanum, Pertusaria alpina, P. leioplaca, Thelotrema lepadinum* and *Usnea tuberculata.*

Hornbeam (*Carpinus*) was the most prolific in lichen species. It was covered abundantly with lichens of the *Pertusarietum amarae* (Table 2), among which *Pertusaria amara* dominated. Its thallus was usually 30 cm in diameter. It is strinking that the above species was very variable (especially soralium), tiny or even up to 0.5 cm in diameter. The phytocoenoses of *Pyrenuletum nitidae* dominated by *Graphis scripta, Opegrapha viridis* and *Pyrenula nitida* (Table 2) were found growing between the aggregates of lichens from the former association. *Lepraria incana* commonly in the lowest parts of the trunk of hornbeam. Only seven species were noted on the offshoots of this tree, particularly at the base of the trunk, e.g.: *Graphis scripta, Lecanora carpinea, Lepraria incana, Melanelia exasperatula, M. fuliginosa, Scoliciosporum chlororoccum* and *Thelotrema lepadinum.*

Table 1

Lichens of the Jesionowe Góry Reserve

Species	Habitats									
	Ag	*Bp*	*Ca*	*Cb*	*Fe*	*Qr*	*Pa*	*Ps*	ep	te
Arthonia radiata (Pers.) Ach.	·	·	+	+	·	·	·	·	·	·
Arthothelium ruanidum (Mas.) Zwckh.	·	·	+	+	·	·	·	·	·	·
Buellia punctata (Hoffm.) Mas.	·	·	+	·	·	·	·	·	·	·
Candelariella xanthostigma (Ach.) Lettau	·	·	·	·	+	·	·	·	·	·
Cetraria chlorophylla (Willd.) Vain.	+	+	·	·	+	+	·	·	·	·
C. pinastri (Scop.) Ach.	·	+	·	·	·	·	·	·	·	·
C. sepincola (Ehrh.) Ach.	+	+	·	·	·	+	·	·	·	·
Chaenotheca chrysocephala (Ach.) Th. Fr.	·	·	·	·	·	·	+	·	·	·
Ch. ferruginea (Turn. ex Sm.) Migula	·	·	·	·	·	·	+	·	·	·
Cladina ciliata (Stirt.) Trass var. *tenuis* (Flk.) Ahti et Lai	·	·	·	·	·	·	·	·	·	+
Cl. mitis (Sandst.) Hustich	·	·	·	·	·	·	·	·	·	+
Cl. rangiferina (L.) Nyl.	·	·	·	·	·	·	·	·	·	+
Cladonia cervicornis (Ach.) Flot. ssp. *verticillata* (Hoffm.) Ahti	·	·	·	·	·	·	·	·	·	+
Cl. chlorophaea (Flk.) Spreng.	+	+	·	·	+	·	·	·	+	·
Cl. coniocraea (Flk.) Vain.	+	+	·	·	+	·	+	+	+	·
Cl. cornuta (L.) Hoffm.	·	·	·	·	·	·	·	·	·	+
Cl. deformis (L.) Hoffm.	·	·	·	·	·	·	·	·	·	+
C. digitata (L.) Hoffm.	+	·	·	·	·	·	·	+	+	·
Cl. floerkeana (Fr.) Flk.	·	·	·	·	·	·	·	·	·	+
Cl. furcata (Huds.) Schard.	·	·	·	·	·	·	·	·	·	+
Cl. glauca Flk.	+	+	·	·	·	·	·	+	+	·
Cl. gracilis (L.) Willd.	·	·	·	·	·	·	·	·	·	+
Cl. macilenta Hoffm.	·	+	·	·	+	·	·	+	+	·
Cl. macilenta Hoffm. ssp. *bacillaris* Nyl.	·	·	·	·	·	·	·	+	·	·
Cl. phyllophora Hoffm.	·	·	·	·	·	·	·	·	·	+
Cl. pyxidata (L.) Hoffm.	·	·	·	·	·	·	·	·	·	+
Cl. squamosa (Scop.) Hoffm.	+	+	·	·	·	·	·	+	·	·
Cl. subulata (L.) Web. in Wigg.	·	·	·	·	·	·	·	·	·	+
Cl. uncialis (L.) Wigg.	·	·	·	·	·	·	·	·	·	+
Evernia prunastri (L.) Ach.	+	+	·	+	+	+	·	·	·	·
Graphis scripta (L.) Ach.	+	·	+	+	+	·	·	·	·	·
Hypocenomyce scalaris (Ach.) Choisy	+	+	+	+	+	+	+	+	+	·
Hypogymnia physodes (L.) Nyl.	+	+	+	+	+	+	+	+	+	·
Imshaugia aleurites (Ach.) Fr. Meyer	·	·	·	·	·	·	+	+	·	·
Lecanora allophana (Ach.) Nyl.	+	·	·	+	+	+	·	·	·	·
L. argentata (Ach.) Malma	·	·	·	·	·	+	·	·	·	·
L. carpinea (L.) Vain.	+	·	·	+	+	+	·	·	·	·
L. chlarona (L.) Nyl. [*L. pulicaris* (Pers.) Ach. ssp. *pulicaris*]	+	·	+	+	+	+	·	·	·	·
L. chlarotera Nyl.	·	·	·	·	·	+	·	·	·	·

	Ag	*Bp*	*Ca*	*Cb*	*Fe*	*Qr*	*Pa*	*Ps*	ep	ter
L. chloropolia Erichs.	·	·	·	+	+	·	·	·	·	·
L. conizaeoides Nyl. ex Cromb.	+	+	·	·	+	+	+	+	·	·
L. hageni (Ach.) Ach.	+	+	·	+	·	·	·	·	·	·
L. leptyrodes (Nyl.) Deg.	·	·	·	+.	·	·	·	·	·	·
L. saligna (Schrad.) Zahlbr.	·	·	+	+	·	·	·	·	·	·
L. symmicta (Ach.) Ach.	+	·	·	·	·	·	·	·	·	·
L. subrugosa Nyl.	·	·	·	+	·	·	·	·	·	·
L. umbrina (Erhr.) Mass.	·	·	·	·	+	·	·	·	·	·
L. varia (Ehrh.) Ach.	+	·	·	+	+	·	·	·	·	·
Lecidella elaeochroma (Ach.) Choisy	+	·	+	+	+	+	·	·	·	·
Lepraria incana (L.) Ach.	+	+	+	+	+	+	+	+	+	·
Melanelia exasperatula (Nyl.) Essl.	+	+	·	+	+	+	·	·	·	·
M. fuliginosa (Fr. ex Duby) Essl.	+	·	·	+	+	+	·	·	·	·
M. incolorata (Parr.) Essl.	·	·	·	·	+	+	·	·	·	·
Opegrapha rufescens Pers.	·	·	·	+	+	·	·	·	·	·
O. viridis Pers.	·	·	+	+	+	·	·	·	·	·
Parmelia sulcata Tayl.	+	·	+	+	+	+	·	·	·	·
Peltigera praetextata (Flk.) Zopf	·	·	·	·	·	·	·	·	+	·
P. rufescens (Weis.) Humb.	·	·	·	·	·	·	·	·	+	·
Pertusaria alpina Hepp ex Ahles	·	·	+	+	·	+	·	·	·	·
P. amara (Ach.) Nyl.	·	·	+	+	+	+	·	·	·	·
P. coccodes (Ach.) Nyl.	·	·	+	+	+	+	·	·	·	·
P. discoidea (Pers.) Malme |*P. albescens* (Huds.) Choisy et Wer. in Wer.|	·	·	·	+	+	+	·	·	·	·
P. leioplaca (D.C. in Lam et D.C.)	·	·	+	+	+	+	·	·	·	·
P. pertusa (L.) Tuck.	·	·	+	+	·	·	·	·	·	·
P. phymatodes (Ach.) Erichs. |*P. coccodes* (Ach.) Nyl. var. *phymatodes* (Ach.) Almb.|	·	·	+	+	+	+	·	·	·	·
Phlyctis argena (Ach.) Flot.	·	·	·	+	·	+	·	·	·	·
Physcia adscendens (Fr.) Oliv. em. Bitt.	+	·	·	·	·	·	·	·	·	·
Ph. dubia (Hoffm.) Lett. em. Lynge	+	·	·	·	·	·	·	·	·	·
Ph. tenella (Scop.) D.C. in Lam. et D.C.	+	·	·	·	·	·	·	·	·	·
Plastismatia glauca (L.) W. Culb. et C. Culb.	+	+	·	·	·	·	·	+	·	·
Pseudevernia furfuracea (L.) Zopf	+	+	·	·	·	+	·	+	·	·
Pyrenula nitida (Weig.) Ach.	·	·	+	+	·	·	·	·	·	·
P. nitidella (Flk. in Schaer.) Müll. Arg.	·	·	+	+	·	·	·	·	·	·
Ramalina farinacea (L.) Ach.	·	·	·	+	+	+	·	·	·	·
R. fraxinea (L.) Ach.	·	·	·	·	+	·	·	·	·	·
R. motykana Bystr.	·	·	·	·	·	+	·	·	·	·
Scoliciosporum chlorococcum (Graeve ex Stenham.) Vězda	+	+	·	+	+	+	+	+	+	·
Thelotrema lepadinum (Ach.) Ach.	·	·	·	+	·	·	·	·	·	·
Trapeliopsis granulosa (Hoffm.) Lumbsch.	·	·	·	·	·	·	·	·	·	+
Usnea tuberculata (Mot.) Bystr.	·	·	·	·	·	+	·	·	·	·
U. hirta (L.) Mot.	·	+	·	·	·	·	+	·	·	·
Xantohoria parietina (L.) Th. Fr.	·	·	+	·	+	·	·	·	·	·

Explanations: *Ag – Alnus glutinosa, Bp – Betula pendula, Ca – Corylus avellana, Cb – Carpinus betulus, Fe – Fraxinus excelsior, Qr – Quercus robur, Pa – Picea abies, Ps – Pinus sylvestris*, ep – epixylic, ter – terrestrial

Table 2

Pyrenuletum nitidae Hill. 1925 and *Pertusarietum amarae* Hill. 1925 emend. Barkm. 1968

Epiphytic associations	*Pyrenuletum nitidae*		*Pertusarietum amarae*	
	Habitats and number of reveales			
	Cb – 12	*Ca* – 18	*Cb* – 15	*Fe* – 7
Ch. *Arthonietala radiatae* Barkm. and *Graphidion scriptae* Barkm.				
Graphis scripta	2 . V	3 . V	1 . V	+ . V
Arthonia radiata	+ . II	+ . V	+ . V	+ . III
Lecidella elaeochroma	+ . IV	1 . V	+ . III	+ . III
Ch. Ass.				
Pyrenula nidita	+ . V	1 . IV	.	.
P. nitidella	1 . V	2 . V	+ . 1	+ . 1
Opergrapha viridis	+ . 1	+ . III	.	+ . 1
Pertusaria amara	+ . III	.	4 . V	3 . V
P. pertusa	+ . I	+ . II	+ . II	+ . 1
P. phymatodes	+ . I	.	+ . III	+ . 1
P. discoidea	.	.	+ . IV	+ . 2
Accompanying species				
Pertusaria coccodes	.	.	+ . 1	+ . 1
Arthothelium ruaum	+ . I	+ . I	+ . I	.
Pertusaria alpina	+ . I	+ . I	+ . II	.
P. leioplaca	.	+ . I	+ . II	+ . I
Lecanora chloropolia	+ . I	.	+ . 1	+ . 1
Opegrapha rufescens	+ . I	+ . I	+ . 1	.
Lecanora chlarona	+ . I	+ . I	+ . 1	.
L. carpinea	+ . 1	–	+ . 1	+ . I
Melanelia exasperatula	+ . 1	.	+ . 1	.
Hypogymnia physodes	+ . I	+ . I	+ . 1	+ . I
Lecanora hageni	+ . I	.	+ . 1	+ . I
Sporadic species				
Parmelia sulcata	+	.	+	.
Evernia prunastri	.	.	+	+
Lepraria incana	+	+	+	.
Ramalina farinacea	.	.	.	+

Explanations: Ca – *Corylus avelana*, Cb – *Carpinus betulus*, Fe – *Fraxinus excelsior*

Few species of lichens were encountered on old ash trees (*Fraxinus*) growing at the top of the moraine hill. Small aggregates of *Lepraria incana* and *Hypocenomyce scalaris*, as well as *Cladonia coniocraea* (primary thalli), *C. chlorophaea, C. macilenta, Opegrapha rufescens* and *Scoliciosporum chlorococcum*. In the ash pole forest species of the *Pertusarietum amarae* (Table 2) were identified at the margin of the moraine. In the undergrowth such species as *Evernia prunastri, Graphis scripta, Hypogymnia physodes, Lecanora allophana, L. carpinea, L. chlorana, L. chloropolia, Lecidella elaeochroma, Melanelia exasperatula, M. fuliginosa, Parmelia sulcata, Petrusaria coccodes, P. leioplaca, Ramalina farinacea, Opegrapha rufescens* and *O. viridis*.

A higher number of lichen species was observed on old oak trees (*Quercus*) growing in light and unsheltered places on the moraine. The dominating species were: *Evernia prunastri, Hypogymnia physodes, Melanelia fuliginosa, Parmelia sulcata* and *Ramalina farinacea. Lecanora allophana, L. chlarona, L. conizaeoides, Lepraria incana* were observed (especially in the fissures of the bark in the lowest parts of the trunk) as well as *Petrusaria amara* and *P. coccodes* (Table 1).

In the reserve, a high proportion of birch (*Betula*) in all the forest communities was noted. On the oldest trees growing at the top of the moraine, *Hypocenomyce scalaris* and *Lepraria incana* formed only few aggregates in the fissures of the bark. At the foot of the slope *Hypogymnia physodes* and *Scoliciosporum chlorococcum* were found growing abundantly on the birch. Their thalli covered almost entirely the surface of the lowest parts of the trunk. In adddition to the above lichens, the following species occurred commonly: *Cetraria chlorophylla, C. sepincola, Evernia prunastri, Lecanora conizaeoides, Platismatia glauca* and *Pseudevernia furfuracea*. The base of the trunk was usually covered with the primary thalli of lichens of the genus *Cladonia*, among which were the aggregates of *Hypocenomyce scalaris* and *Lepraria incana*.

Hypogymnia was the most frequently ancountered species on the oldest entirely (to 100 %) the surface of the bark. In addition the following species were observed: *Lecanora carpinea, L. coenizaeoides, L. pidicaris, Phascia adscendens, Ph. dubia* and *Ph. tenella*. Species which occurred rarely were as follows: *Evernia prunastri, Melanelia exasperatula, M. fuliginosa, Parmelia sulcata* and *Pseudevernia furfuracea*. The following species with single thalli were identified: *Cetraria chlorophylla, C. sepincola, Graphis scripta, Lecanora symicta, Lecidella elaeochroma* and *Parmeliopsis ambigua*. In the alder pole forest crustaceous forms of lichen were found growing on the bark of these trees.

In the mised forest, hazel (*Corylus*) prevails an it is, in part, responsible for the specific physiognomy of these forest community. Moreover the lichen flora of this tree is very rich in epiphytic species. The highest number of lichen species was observed on dead and decaying branches of hazel. Crustaceous forms of the *Pyrenuletum nitidae* association prevail (Table 2). The lower branches of hazel were covered abundantly with the thalli of *Lecidella elaeochroma* and *Lepraria incana*. In addition such rare species as *Pertusaria alpina* and *P. leioplaca* were observed.

Lime (*Tilia*), elm (*Ulmus*) and maple (*Acer*) comprise a low admixture in the forest communities. A low number of lichen species was encountered on those trees.

The presence of the following species was noted: *Hypogymnia physodes, Melanelia exasperatula, M. fuliginosa* and *Parmelia sulcata*. Species with single thallus were as follow: *Cetraria chlorophylla, Evernia prunastri* and *Ramalina farinacea*. Species with single thallus were as follows: *Certaria chlorophylla, Evernia prunastri* and *Ramalina farinacea*. Large aggregates of such species as *Lepraria incana* were found growing at the base of the trunks.

The epiphytic flora of pine (*Pinus*) is not very diversified with respect to species composition. Only *Hypocenomyce scalaris* and *Lepraria incana* occurred in the fissure of the bark of the oldest trees. Sterile thalli of *Chaenotheca ferruginea* and *Cladonia coniocraea* were oberved only at few sites. *Hypogymnia physodes* was the most common lichen in the pine forest. It occurred abundantly from the base of the trunk up to the crown of the trees. *Platismatia glauca, Pseudevernia furfuracea, Usnea hirta* formed small populations whereas *Parmeliopsis ambigua* grew sporadically. Species of the genus *Cladonia* were found growing at the base of the trunk of pine.

Only few species were identified on the bark of spruce (*Picea*). The following species occurred occasionally on old trees: *Chaenotheca chrysocephala, Hypocenomyce scalaris, Lecanora conizaeoides, Lepraria incana*. The thalli of foliose and fruticose lichens mostly were obsent. *Hypogymnia physodes* occurred abundantly on young plants of spruce, even on the youngest branches and needles.

On the stups of trees which had decaded in great measure the following species occurred: *Cladonia chlorophaea, C. coniocraea, C. digitata, C. floerkeana, C. glauca* and *Peltigera praetextata*. On the stumps of trees which were slightly decayed such species as *Imshaugia aleurites* and *Parmeliopsis ambigua* were found growing solitarily.

Large aggregates of terrestrial lichens were observed only in the immediate protection zone of the reserve.

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Porosty rezerwatu Jesionowe Góry

S t r e s z c z e n i e

Flora porostów rezerwatu Jesionowe Góry charakteryzuje się dużą liczbą gatunków, zwłaszcza epifitycznych. Zidentyfikowano 84 gatunki. Jest wśród nich kilka rzdkich: *Pertusaria alpina, P. leioplaca, P. pertusa, Pyrenula nitida, P. nitidella, Thelotrema lepadinum*. Porosty te rosną na korze grabu oraz na korze obumarłych gałązek jesionu i leszczyny. Opisano dwa zespoły nadrzewne: *Pertusarietum amarae* i *Pyrenuletum nitidae*. Składem gatunkowym są one zbliżone do wyróżnionych w rezerwacie Budzisk (B y s t r e k A n i s i m o w i c z, 1981).