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Lichen biota of the Wolin Island (Poland)

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Abstract: A list of 232 taxa of lichenized and lichenicolous fungi was recorded within the Wolin island, especially, the Wolin National Park. The findings comprise the results of field studies conducted between 1996 and 2008 and those published in earlier works. Some of them are rare in the Polish lowlands.

Key words: forest lichens, rare species, Poland

1. Introduction

The island of Wolin is an area of extraordinarily diversified surface features and rich vegetation cover. The beech forests are among especially well-preserved forest communities of original forests e.g. *Luzulo pilosae-Fagetum, Galio odoratum-Fagetum.* In the southern part of the Park, orchid beech wood (*Carici-Fagetum balticum)* occurs with 9 orchid species. Other plant communities, coastal coniferous forests with crowberry (*Empetro nigri-Pinetum)*, which developed on podsolic soils formed on mellow sands nearby Wisełka village, deserve special attention. Over 1300 vascular plant species have been recorded on the Wolin Island. Many of the species are rare and protected e.g. *Anthericum liliago* L., *Potentilla neumanniana* Rchb., *Achillea pannonica* Scheele, *Viscaria vulgaris* Röhl (Piotrowska 1955). Apart from forest areas, dunes, meadows, peat-bogs, lakes, gorges and limestone cliffs are to be found within the area under examination.

Studies on lichens of this area were initiated in 1960s (Dziabaszewski 1962). The results of those studies concerned not only lichens of the Wolin National Park but also of the Przytór Peninsula. The aim of this study was to examine the current situation of the Wolin Island lichen biota with special focus on the Wolin National Park. This paper is the second publication (the first being that of Dziabaszewski) which presents lichenological data referring to the area of the Wolin Island. It includes a list of lichens found within the examined area in 1996-2008 supplemented with species which, despite repeated investigations, had not been found before.

2. Material and methods

The basis for carrying out the analysis of lichen species composition was the data collected during the field work in the period from 1996-2008. The cartogram method was used in the study, which ensured objective elaboration of the lichen biota. For this purpose, a 1:25000 map divided into a square grid was used. It was adapted to the needs of this study through national grid concentration of the Distribution Atlas of Vascular Plants in Poland (ATPOL) (Zając 1978). In this way, a site was a square with the side length of 2.5 km. The numbering of sites is presented in Figure 1. Herbarium material was collected at each site. In order to catalogue lichens in detail when respective taxa within one site occupied several habitats, the number of their records was given. In case of common species, their material was not collected and the recording was limited to their listing.

The collected material was identified using the following identification guides and publications: Purvis *et al.* (1992), Wirth (1995), Czyżewska & Kukwa (2009) and Smith *et al.* (2009). All species were compiled in the alphabetical order. The terminology was adopted after Diederich *et al.* (2011), Ertz & Tehler (2011) and Santesson *et al.* (2004). The categories of threat (CR, EN, VU, NT, LC and DD) are given according to the

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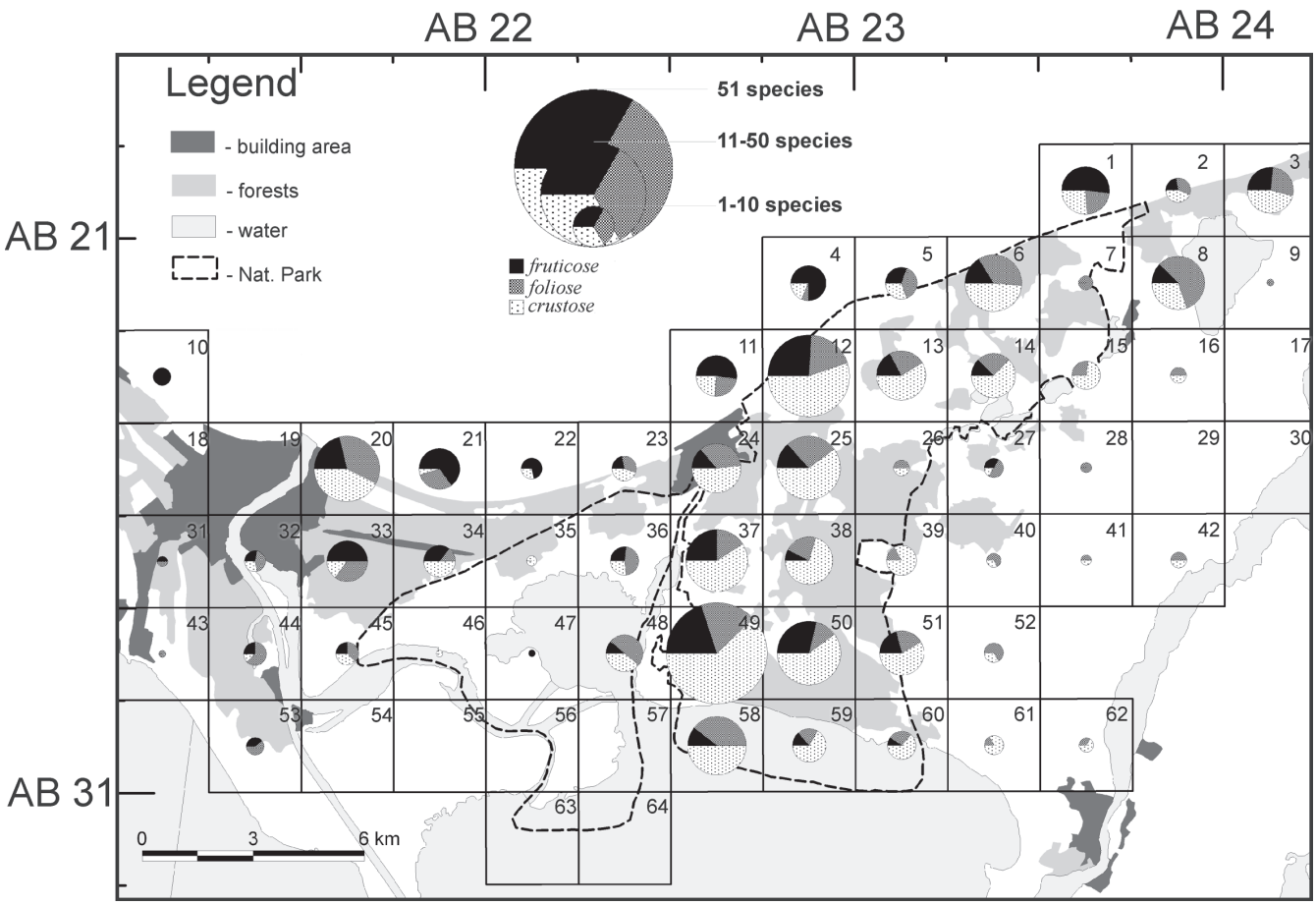

Fig. 1. Spatial distribution of lichen species and contribution of morphological forms in each

Red List of lichens threatened with extinction in Poland (Cieśliński *et al*. 2006). In total, 1277 records were collected from 64 sites. In total, 232 specimens were collected and deposited in the Lichen Herbarium of the Department of Ecology and Environmental Protection of the University of Szczecin.

3. Results

In total, the presence of 232 lichen species were recorded within the area under study, of which 88 were new species for the Wolin Island biota and 12 were the taxa already recorded in 1960s but not found at present (Appendix).

Among the lichens collected, epiphytic taxa prevailed decisively (140 species), which was undoubtedly connected with the forest character of the area under study. Among epiphytic lichens, 47 species were taxa exclusively related to specific tree species (Fig. 2). Out of all morphological forms of the species of that group, the most numerous ones were lichens with crustose thalli. The smooth bark of beech and hornbeam

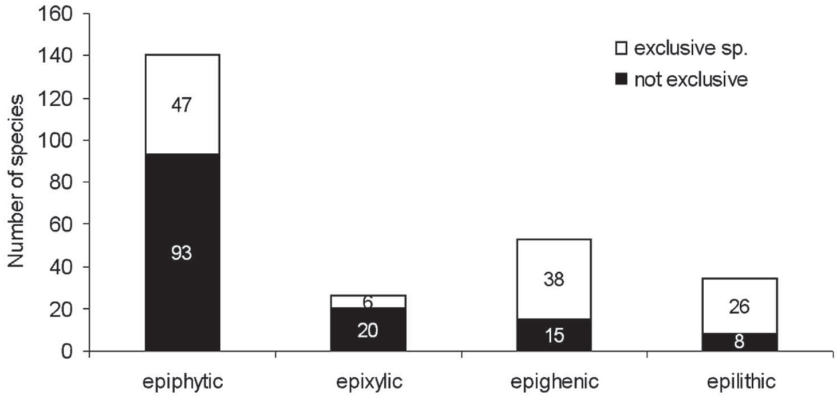

Fig. 2. Share of ecological groups in exclusive and not exclusive species of lichen biota of the Wolin Island

tree favoured the development of crustose lichens which constituted nearly half of the total number of epiphytic species (61 taxa, 44%). The lichens most frequently settling at the base of trunks of these phorophytes included: *Coeniogonium pineti* and *Porina aenea*. Slightly above the base, the following lichens were to be found: *Arthonia radiata, Graphis scripta*, *Acrocordia gemmata* and *Pyrenula nitida*. These species are a characteristic element of the Pomeranian beech forests.

From among 140 epiphytic species recorded within the area under study, 82 ones were found on beech tree bark, out of which 25 species were the exclusive taxa related to venerable old beech trees (Fig. 3). These species included: *Arthonia byssacea*, *A. didyma*, *A. punctiformis*, *A. ruana*, *A. spadicea*, *A. vinosa*, *Bacidia beckhausii*, *B. incompta*, *Chrysotrix candelaris*, *Imshaugia aleurites*, *Lecania cyrtella*, *Lecanora albella*, *L. umbrina*, *Lepraria jackii*, *Melanelixia subargentifera*, *Menegazzia terebrata*, *Mycoblastus sanguinarius*, *Ochrolechia androgyna*, *O. arboreta*, *Opegrapha niveoatra*, *Pertusaria coccodes*, *P. coronata*, *P. hymenea*, *P. pseudocorallina* and *Usnea subfloridiana*. All these species were very rare and rare taxa were found in single locations only in well-preserved fragments of tree stands within the limits of the Wolin National Park.

Apart from beech trees, oak trees were other phorophyte species on which the largest numbers of epiphytic species were found. Despite a considerably smaller contribution in tree stands of the Wolin Island, these trees were overgrown by 81 species of epiphytic lichens, out of which 12 were specific taxa (Fig. 3). They included: *Bacidia rubella*, *Biatora efflorescens*, *Chaenotheca phaeocephala*, *Ch. stemonea*, *Flavoparmelia caperata*, *Lecania naegelii*, *Parmeliopsis hyperopta*, *Pertusaria flavida*, *Physcia dubia*, *Physconia perisidiosa*, *Punctelia subrudeca* and *Rinodina pyrina*.

On the smooth bark of hornbeam trees, 23 lichen species were recorded (Fig. 3). Three species could be found exclusively on hornbeam tree bark: *Arthonia exilis*, *Bacidina phacodes* and *Pyrenula nitidella*. They were supplemented by a rich biota of lichens related to the bark of alder, ash, birch, and pine trees (Fig. 3).

Along roads and around rural buildings, there were many single growing trees to be found. The lichen biotas of roadside trees had different character from those of forest tree lichen flora, which was connected, among other things, with their greater insolation and lower air humidity. The richest lichen biota was observed on roadside ash and poplar trees. On these two phorophytes, 43 lichen species were recorded.

On stumps, old wooden fences and felled logs, 26 epixylic species were recorded, of which 6 were exclusive species. They included: *Calicium abietinum*, *C. trabinellum*, *C. viride*, *Candelariella vitellina*, *Catinaria atropurpurea* and *Micarea denigrata*.

On bare sandy soil, 53 lichen species were recorded (Fig. 2). Among epigeic lichens, specific species (38 taxa) with fruticose thallus prevailed which were represented, above all, by taxa of the *Cladonia* genus. Development of epigeic lichens in the forests of the Wolin National Park was strongly limited due to thick litter layer of the beech forest. Occasionally, *Baeomyces rufus, Collema tenax*, *Diploschistes muscorum* and *Dibaeis baeomyces* were found. Epigeic lichens could

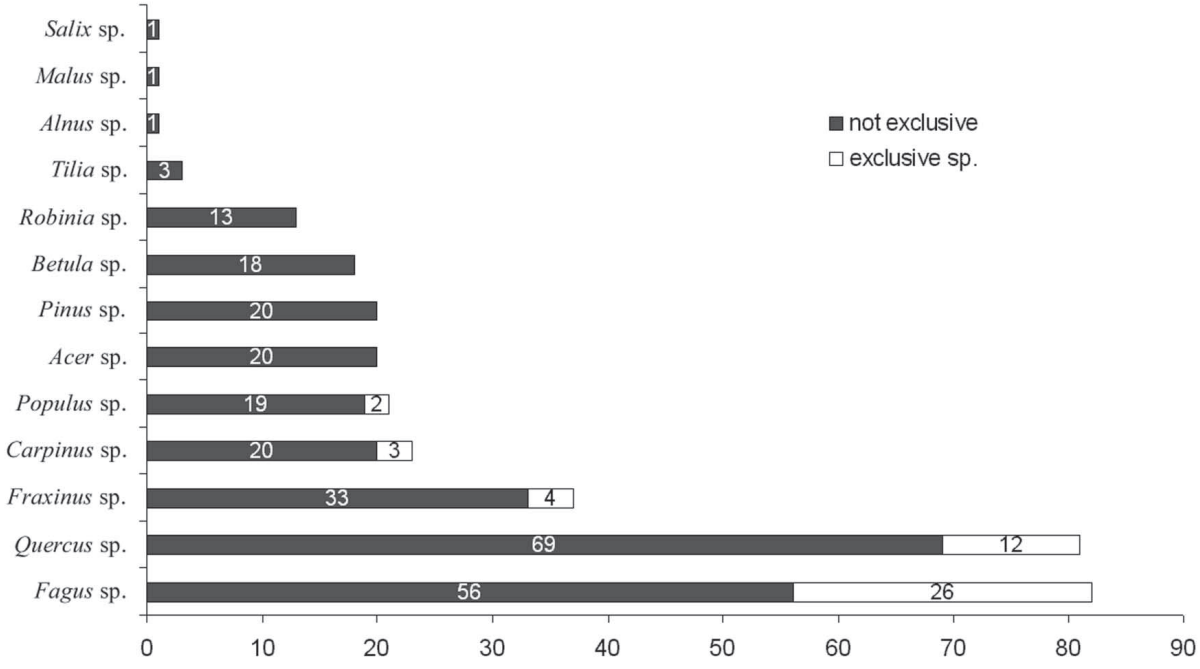

Fig. 3. The share of epiphytic lichens on examined trees

also be found by forest roads, on forest clearing fringes and in pine greenwoods. The species found most frequently included: *Cladonia fimbriata, C. subulata, C. furcata, C. uncialis* and *Peltigera didactyla*.

The biota of lichens found on dunes and in their close vicinity was of slightly different character. On barren sandy soil, in locations with large insolation, numerous species could be found, occurring also in cleared pine tree stands. They included, among others: *Cetraria aculeata, C. islandica, Cladonia arbuscula, C. cervicornis, C. ciliata, C. glauca* and *C. gracilis.*

Within the area of the Wolin Island, only few natural habitats for epilithic lichens were found. They included glacial erratics and forest stones. Among 34 epilithic species, constituting 15% of the Wolin Island lichen biota, 26 species represented specific ones. In this ecological group, crustose species prevailed. The most frequent epilithic species were: *Acarospora fuscata, Lecanora polytropa* and *Trapelia coarctata*. Rarely observed taxa included: *Acarospora veronensis, Lecidea fuscoatra, Lepraria neglecta, Trapelia obtegens* and *T. placodioides*.

A different group of species related to bedrock comprised lichens that settle anthropogenic floors, e.g. concrete posts, walls and slabs. They were mostly calciphilous taxa. They included common species, such as: *Caloplaca decipiens* (13 records), *Candelariella aurella* (11 records), *Lecanora dispersa* (9 records) and *Lecanora muralis* (18 records).

The largest number of lichen species was found in 4 squares with the following numbers: 49 (163 species), 12 (121 species), 20 (74 species) and 37 (70 species) (Fig. 1). The abundance of species found in these squares was connected with large habitat diversity.

A relatively large number of lichens was also recorded on dunes and in forests adjacent to them, among others, in sites: 6 (44 species), 11 (23 species) and 1 (30 species).

4. Discussion

Factors that influence the limitation of biodiversity include many stress elements, among which the most important one is, undoubtedly, the anthropogenic factor (Falińska 1996). This thesis is confirmed by species poverty in the eastern part of the island where farming has been conducted for years.

In other incomplete sites occurring within the limits of the studied area, a small number of species was connected with the reduced study area within a square or the presence of large water bodies.

Lichen biota species belonging to primeval forest relics found in the Wolin Island deserve special attention (Cieśliński *et al.* 1996; Czyżewska 1997; Czyżewska & Cieśliński 2003). They included: *Arthonia byssacea, Bacidina arnoldiana, Bryoria implexa, Buellia disciformis, Lecanora albella, Menegazzia terebrata, Mycoblastus sanguinarius, Alyxoria atra, Opegrapha vermicellifera, Pertusaria pertusa, Pyrenula nitida* and *P. nitidella*.

Within the limits of the Wolin National Park, 194 species were found, of which 100 taxa were lichens occurring exclusively within the Park limits. Outside the Park area, 120 species were recorded out of which only 26 taxa were lichens not observed within the area of the Wolin National Park. First of all, they included species overgrowing concrete bowls of the Przytór Peninsula (Fig. 4). Out of the species exclusively observed within the Park area, most were very rare and rare taxa in the scale of the whole Western Pomerania (Fałtynowicz 1992). The number of species in respective sites depended, first of all, on habitat abundance and diversity and site size.

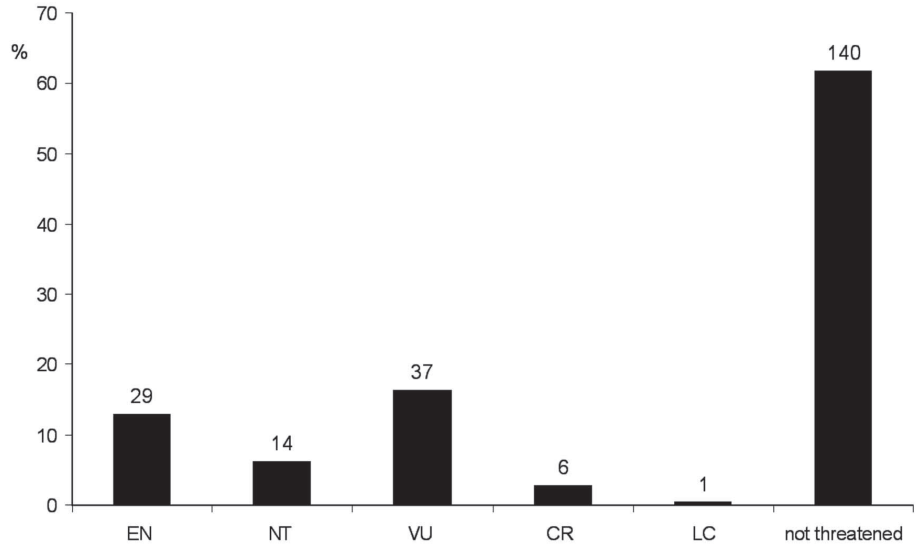

Fig. 4. Exclusive and not exclusive species of lichen biota outsider and inside Wolin National Park

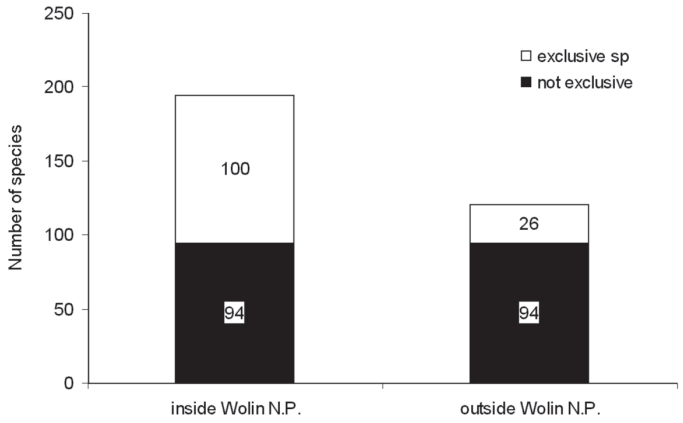

Fig. 5. Number of lichen species in particular Red List categories (Cieśliński *et al*. 2006)
Explanations: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Near Threatened, LC – Least Concerned

According to the division proposed by Cieśliński *et al*. (1996) and valid in Poland since 2006, 86 taxa out of 231 lichen species recorded within the area of the Wolin Island were included in one of 5 categories of threat. The largest number of species was found in the category of vulnerable taxa (VU), i.e. 37 lichens. Slightly smaller number of taxa (29) was included in the category of endangered species (EN). In the category of near threatened species (NT), 14 lichens were listed, while 6 taxa were included in the category of critically endangered species (CR); the latter included: *Bacidia laurocerasi*, *Bryoria implexa, Chrysotrix candelaris, Menegazzia terebrata, Pertusaria hymenea* and *P. pseudocorallina* (Fig. 5).

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Appendix. List of species

For each species, a type of floor on which it is found and site numbers are given. * – new species for the Wolin Island's biota, ● – unconfirmed species, ♦ – lichenicolous fungus, □ – found in the National Park; CR – Critically Endangered, EN – Endangered, VU – Vulnerable, NT – Near Threatened, LC – Least Concern

Acarospora fuscata (Schrad.) Th. Fr.; *A. veronensis* A. Massal.; *Acrocordia gemmata* (Ach.) A. Massal. – VU; *Alyxoria varia* (Pers.) Ertz & Tehler – NT; *Anaptychia ciliaris* (L.) Körb. – EN; *Arthonia atra* (Pers.) A. Schneid.* – EN; *A. byssacea* (Weigel) Almq. * – EN; *A. didyma* Körb. * – EN; *A. dispersa* (Schrad.) Nyl. * – VU; *A. exilis* (Flörke) Anzi * – VU; *A. galactinaria* Leight. ♦; *A. punctiformis* Ach. * – EN; *A. radiata* (Pers.) Ach.; *A. ruana* A. Massal. * – NT; *A. spadicea* Leight. *; *A. vinosa* Leight. * – NT; *A. calcarea* (L.) Mudd *; *A. cinerea* (L.) Körb.; *Aspicilia caesiocinerea* (Malbr.) Arnold; *Bacidia bagliettoana* (A. Massal. & De Not.) Jatta *; *B. beckhausii* Körb. * – VU; *B. incompta* (Borrer) Anzi * – EN; *B. laurocerasi* (Duby) Zahlbr. ● – CR; *B. rosella* (Pers.) De Not. – EN; *B. rubella* (Hoffm.) A. Massal. * –VU; *Bacidina arnoldiana* (Körb.) V. Wirth & Vězda * – NT; *B. phacodes* (Körb.) Vězda *; *Baeomyces rufus* (Huds.) Rebent.; *Biatora efflorescens* (Hedl.) Räsänen * – VU; *Bryoria fuscescens* (Gyeln.) Bordo & D. Hawksw. – VU; *B. implexa* (Hoffm.) Bordo & D. Hawksw. * – □, CR; *Buellia disciformis* (Fr.) Mudd * – □, VU; *B. griseovirens* (Sm.) Almb. * – □; *B. punctata* (Hoffm.) A. Massal. – □; *Calicium abietinum* Pers. * – □, VU; *C. salicinum* Pers. – □, VU; *C. trabinellum* (Ach.) Ach. * – □, EN; *C. viride* Pers. – □, VU; *Caloplaca chlorina* (Flot.) H. Olivier – □, EN; *C. citrina* (Hoffm.) Th. Fr. – □; *C. decipiens* (Arnold) Blomb. & Forssell – □; *C. holocarpa* (Ach.) A. E. Wade – □; *C. lactea* (A. Massal.) Zahlbr. * – □; *C. luteoalba* (Turner) Th. Fr. ● – EN; *C. oasis* (A. Massal.) Szatala ●; *C. saxicola* (Hoffm.) Nordin – □; *Candelaria concolor* (Dicks.) Stein – □; *Candelariella aurella* (Hoffm.) Zahlbr. – □; *C. coralliza* (Nyl.) H. Magn. – □; *C. vitellina* (Hoffm.) Müll. Arg. – □; *C. xanthostigma* (Ach.) Lettau – □; *Catinaria atropurpurea* (Schaer.) Vězda & Poelt * – □, EN; *Cetraria aculeata* (Schreb.) Fr. – □; *C. islandica* (L.) Ach. – □, VU; *Chaenotheca brachypoda* (Ach.) Tibell * – □, EN; *Ch. chrysocephala* (Ach.) Th. Fr. * – □; *Ch. ferruginea* (Sm.) Mig. – □; *Ch. furfuracea* (L.) Tibell * – □, NT; *Ch. phaeocephala* (Turner) Th. Fr. – □, EN; *Ch. stemonea* (Ach.) Müll. Arg. – □, EN; *Ch. trichialis* (Ach.) Th. Fr. – □, NT; *Chrysotrix candelaris* (L.) J. R. Laundon * – □, CR; *Cladonia arbuscula* (Wallr.) Flot. subsp. *arbuscula* * – □; *C. cariosa* (Ach.) Spreng. – □; *C. cenotea* (Ach.) Schaer. – □; *C. cervicornis* (Ach.) Flot. – □; *C. chlorophaea* (Sommerf.) Spreng. – □; *C. ciliata* Stirt. *; *C. coccifera* (L.) Willd. – □; *C. coniocraea* (Flörke) Spreng. – □; *C. convoluta* (Lam.) Anders – □; *C. cornuta* (L.) Hoffm. * – □; *C. crispata* (Ach.) Flot. ●; *C. deformis* (L.) Hoffm. – □; *C. digitata* (L.) Hoffm. – □; *C. fimbriata* (L.) Fr. – □; *C. floerkeana* (Fr.) Flörke – □; *C. foliacea* (Huds.) Willd. – □; *C. furcata* (Huds.) Schrad. subsp. *furcata* – □; *C. glauca* Flörke – □; *C. gracilis* (L.) Willd. – □; *C. macilenta* Hoffm. – □; *C. mitis* Sandst. – □; *C. ochrochlora* Flörke ●; *C. phyllophora* Hoff. – □; *C. pleurota* (Flörke) Schaer. – □; *C. portentosa* (Dufour) Coem. – □; *C. pyxidata* subsp. *pocillum* (Ach.) Schaer. * – □; *C. pyxidata* (L.) Hoffm. subsp. *pyxidata* – □; *C. ramulosa* (With.) J. R. Laundon – □; *C. rangiferina* (L.) F. H. Wigg. – □; *C. rangiformis* Hoffm. – □; *C. squamosa* Hoffm. – □; *C. stellaris* (Opiz) Pouzar & Vězda ● – EN; *C. subulata* (L.) F. H. Wigg. – □; *C. uncialis* (L.) Weber ex F. H. Wigg. – □; *Cliostomum griffithii* (Sm.) Coppins ● – VU; *Clypeococcum hypocenomycis* D. Hawksw. ♦ – □; *Coenogonium pineti* (Schrad. ex Ach.) Lücking & Lumbsch * – □; *Collema tenax* (Sw.) Ach. *; *Dibaes baeomyces* (L.f.) Rambold & Hertel – □, NT; *Diploschistes muscorum* (Scop.) R. Sant.; *Evernia prunastri* (L.) Ach. – □, NT; *Flavoparmelia caperata* (L.) Hale * – EN; *Graphis scripta* (L.) Ach. – □, NT; *Hypocenomyce caradocensis* (Nyl.) P. James & Gotth. Schneider– □; *H. scalaris* (Ach.) M. Choisy – □; *Hypogymnia physodes* (L.) Nyl. – □; *H. tubulosa* (Schaer.) Hav. * – □, NT; *Imshaugia aleurites* (Ach.) S. L. F. Meyer – □; *Lecania cyrtella* (Ach.) Th. Fr. *; *L. naegelii* (Hepp) Diederich & van den Boom * – □; *Lecanora albella* (Pers.) Ach. * – □, EN; *L. albescens* (Hoffm.) Flörke – □; *L. allophana* Nyl. ●; *L. argentata* (Ach.) Malme – □; *L. campestris* (Schaer.) Hue *; *L. carpinea* (L.) Vain. – □; *L. chlarotera* Nyl. – □; *L. conizaeoides* Cromb. – □; *L. dispersa* (Pers.) Sommerf. – □; *L. expallens* Ach. * – □; *L. hagenii* (Ach.) Ach. * – □; *L. intumescens* (Rebent.) Rabenh. – □, EN; *L. muralis* (Schreb.) Rabenh. – □; *L. polytropa* (Hoffm.) Rabenh. – □; *L. pulicaris* (Pers.) Ach. – □; *L. saligna* (Schrad.) Zahlbr. – □; *L. symmicta* (Ach.) Ach. * – □; *L. umbrina* (Ach.) A. Massal. – □; *L. varia* (Hoffm.) Ach. – □; *Lecidea fuscoatra* (L.) Ach. *; *Lecidella elaeochroma* (Ach.) M. Choisy – □; *Lepraria elobata* Tonsberg * – □; *L. incana* (L.) Ach. * – □; *L. jackii* Tonsberg; *L. neglecta* (Nyl.) Lettau *; *Lichenoconium erodens* M. S. Christ. & D. Hawksw. ♦ – □; *Lecanora lecanorae* (Jaap) D. Hawksw. ♦ – □; *Lobaria pulmonaria* (L.) Hoffm. ● – EN; *Melanelixia fuliginosa* (Duby) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch subsp. *fuliginosa*; *M. fuliginosa* (Duby) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch subsp. *glabratula* (Lamy) J. R. Laundon * – □; *M. subargentifera* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – □; *Melanohalea elegantula* (Zahlbr.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch – VU; *M. exasperatula* (Nyl.) O. Blanco, A. Crespo, Divakar, Essl., D. Hawksw. & Lumbsch; *Menegazzia terebrata* (Hofm.) A. Massal. * – CR; *Micarea denigrata* (Fr.) Hedl. * – □; *Micarea prasina* Fr. * – □; *Mycoblastus fucatus* (Stirt.) Zahlbr. * – □; *M. sanguinarius* (L.) Norman * – VU; *Ochrolechia androgyna* (Hoffm.) Arnold * – □, VU; *O. arborea* (Kreyer) Almb. * – VU; *Opegrapha niveoatra* (Borrer) J. R. Laundon * – VU; *O. rufescens* Pers. – □, VU; *O. vermicellifera* (Kunze) J. R. Laundon * – □, EN; *O. vulgata* (Ach.) Ach. * – □, VU; *Parmelia saxatilis* (L.) Ach. – □; *P. sulcata* Taylor – □; *Parmelina tiliacea* (Hoffm.) Hale – □, VU; *Parmeliopsis ambigua* (Wulfen) Nyl. – □; *P. hyperopta* (Ach.) Arnold * – VU; *Peltigera canina* (L.) Willd. – □, VU; *P. didactyla* (With.) J. R. Laundon – □; *P. horizontalis* (Huds.) Baumg. ● – EN; *P. praetextata* (Sommerf.) Zopf – □, VU; *P. rufescens* (Weiss) Humb.; *Pertusaria albescens* (Huds.) M. Choisy & Werner – □; *P. amara* (Ach.) Nyl. – □; *P. coccodes* (Ach.) Nyl. * – □, NT; *P. coronata* (Ach.) Th. Fr. * – □, VU; *P. flavida* (DC.) J. R. Laundon – EN; *P. hemisphaerica* (Flörke) Erichsen – VU;

P. hymenea (Ach.) Schaer. * – CR; *P. leioplaca* DC. – □, NT; *P. pertusa* (Weigel) Tuck. – □, VU; *P. pseudocorallina* (Lilj.) Arnold * – CR; *Phaeophyscia nigricans* (Flörke) Moberg – □; *Ph. orbicularis* (Neck.) Moberg – □; *Phlyctis argena* (Spreng.) Flot. – □; *Physcia adscendens* H. Olivier – □; *Ph. aipolia* (Humb.) Fürnr. – NT; *Ph. caesia* (Hoffm.) Fürnr. – □; *Ph. dubia* (Hoffm.) Lettau var. *dubia* *; *Ph. stellaris* (L.) Nyl. – □; *Ph. tenella* (Scop.) DC. – □; *Physconia distorta* (With.) J. R. Laundon – □, EN; *Ph. enteroxantha* (Nyl.) Poelt * – □; *Ph. grisea* (Lam.) Poelt; *Ph. perisidiosa* (Erichsen) Moberg * – □, EN; *Placidium squamulosum* (Ach.) Breuss * – □, NT; *Placynthiella icmalea* (Ach.) Coppins & P. James * – □; *P. oligotropha* (J. R. Laundon) Coppins & P. James * – □; *P. uliginosa* (Schrad.) Coppins & P. James – □; *Platismatia glauca* (L.) W. L. Culb. & C. F. Culb. – □; *Pleurostica acetabulum* (Neck.) Elix & Lumbsch – □, EN; *Porina aenea* (Wallr.) Zahlbr. * – □; *Porpidia crustulata* (Ach.) Hertel & Knoph – □; *P. macrocarpa* (DC.) Hertel & A. J. Schwab ● – LC; *P. tuberculosa* (Sm.) Hertel & Knoph *; *Pseudevernia furfuracea* (L.) Zopf – □; *Punctelia subrudeca* (Nyl.) Krog * – VU; *Pyrenula nitida* (Weigel) Ach. – □, VU; *P. nitidella* (Schaer.) Müll. Arg. * – □, EN; *Ramalina farinacea* (L.) Ach. – □, VU; *R. fastigiata* (Pers.) Ach. * – □, EN; *R. fraxinea* (L.) Ach. – □, EN; *R. pollinaria* (Westr.) Ach. – □, VU; *Rhizocarpon polycarpum* (Hepp) Th. Fr.; *Rinodina oleae* Bagl. ●; *R. pyrina* (Ach.) Arnold – □; *Sarcogyne regularis* Körb. *; *Scoliciosporum chlorococcum* (Stenh.) Vězda * – □; *Stereocaulon condensatum* Hoffm. ● – VU; *Trapelia coarctata* (Sm.) M. Choisy – □; *T. obtegens* (Th. Fr.) Hertel *; *T. placodioides* Coppins & P. James *; *Trapeliopsis flexuosa* (Fr.) Coppins & P. James – □; *T. granulosa* (Hoffm.) Lumbsch – □; *T. pseudogranulosa* Coppins & P. James * – □; *Tuckermannopsis chlorophylla* (Willd.) Hale – □, VU; *Usnea filipendula* Stirt. – □, VU; *U. hirta* (L.) F. H. Wigg. – □, VU; *U. subfloridiana* Stirt. – □, EN; *Verrucaria nigrescens* Pers. – □; *Vulpicida pinastri* (Scop.) J. E. Mattson & M. J. Lai – NT; *Zwackhia viridis* (Ach.) Poetsch & Schied * – □, VU; *Xanthoparmelia conspersa* (Ach.) Hale – □; *Xanthoria candelaria* (L.) Th. Fr. – □; *X. elegans* (Link) Th. Fr. – □; *X. parietina* (L.) Th. Fr. – □; *X. polycarpa* (Hoffm.) Rieber – □; *Xanthoriicola physciae* (Kalchbr.) D. Hawksw. ♦ – □.