

Vondrák J., Svoboda S., Malíček J., Palice Z., Kocourková J., Knudsen K., Mayrhofer H., Thüs H., Schultz M., Košnar J. & Hofmeister J. (2022) From Cinderella to Princess: an exceptional hotspot of lichen diversity in a long-inhabited central-European landscape. – *Preslia* 94: 143–181.

**Supplementary Data S2.** – Catalogue of habitats (sorted from the most frequent to the least)

*For epilithic lichens*

The classification is based on the availability of carbonates and other minerals (acidic siliceous, base-rich siliceous, calcareous), availability of light (sun-lit, shaded), availability of water (e.g. seepage rocks, stones in streams, river side rocks, vs. overhanged or air-drying rocks), extrinsic nutrient enrichment (bird perching rocks) and on size (rocks, stones, pebbles).

(1) **Pebbles and stones in forest.** Present in all sampling sites. Examples of species: *Arthopyrenia inconspicua*, *Bacidina arnoldiana*, *B. pycnidiata*, *Micarea erratica*, *M. lithinella*, *Verrucaria* cf. *dolosa* a *V. aff. hunsrueckensis*.

(2) **Acidic rock outcrops in shade.** A common habitat present in most sampling sites. Examples of species: *Circinaria caesiocinerea*, *Chrysothrix chlorina*, *Fuscidea recensa*, *Ionaspis obtecta*, *Lecanora intricata*, *Lecidea tessellata*, *Lichenothelia scopularia*, *Miriquidica pycnocarpa*, *Rhizocarpon rubescens* and *R. reductum*. Below overhangs: *Enterographa zonata*, *Gyrographa gyrocarpa* and *Opegrapha lithyrgea*.

(3) **Sun-exposed acidic rocks.** A common habitat present in most sampling sites. Examples of dominant species: *Acarospora* spp., *Buellia aethalea*, *Lasallia pustulata*, *Lecanora rupicola*, *Lecidea fuscoatra*, *L. grisella*, *Rhizocarpon distinctum*, *R. geographicum*, *R. lecanorinum*, *Tephromela grumosa* and *Umbilicaria hirsuta*. Rare species: e.g. *Buellia ocellata*, *Immersaria cupreoatra*, *Miriquidica deusta*, *Pleopsidium flavum*, *Rhizocarpon disporum* and *R. grande*. Lichenicolous lichens: *Carbonea assimilis*, *Miriquidica intrudens*, *Rhizocarpon viridiatrum* (locally common) and *R. insularis*. Inconspicuous lichens, such as *Catillaria atomarioides* and *C. chalybeia*, are locally dominant. Montane species: *Melanelia stygia*. On iron-rich rocks: *Lecanora subaurea*.

(4) **Base-rich outcrops in shade.** Examples of species in dryer sites: *Bilimbia fuscoviridis*, *Caloplaca flavocitrina*, *C. subpallida* and *C. vitellinula*. In damper sites: *Clauzadea monticola*, *Gyalecta jenensis* and *Verrucaria elaeina*. Below overhangs and on vertical faces: *Caloplaca obliterans*, *C. viridirufa*, *Diplotomma canescens* (rare). On slightly base enriched overhangs: *Sparria endlicheri*, *Dendrographa latebrarum*, *Dirina fallax* and *Reichlingia leopoldii*.

(5) **Sun-lit base-rich rocks.** Specific xerothermic lichen communities are developed on surfaces exposed to rain with e.g. *Caloplaca rubelliana*, *Lobothallia radiosa*, *Placopyrenium fuscillum*, *Rhizocarpon geminatum* var. *citrinum*, *Rinodina obnascens*, *Verrucaria sphaerospora* and *Xanthoria calcicola*. Other species prefer vertical faces: e.g. *Caloplaca demissa*, *C. irrubescens*, *Physcia dimidiata* and *Xanthomendoza fallax*.

(6) **Pebbles and stones in rocky steppes and dry screes.** Examples of species: *Acarospora veronensis*, *Buellia microcarpa* (described here), *Caloplaca atroflava*, *Lecidella scabra*, *Rhizocarpon oederi* (on iron rich stones), *Rinodina aspersa*, *Thelocarpon laureri*, *Trapelia* spp., *Verrucaria nigrescens* and *V. tectorum*.

(7) **Calcareous inclusions in andesite outcrops.** A spatially restricted and rare habitat with two groups of microsites: (a) **exposed to rain** usually with common calciferous lichens: *Rinodina bischoffii*, *Sarcogyne regularis* and *Verrucaria macrostoma*, and (b) **below overhangs** with e.g. *Caloplaca cirrochroa* and cyanolichens: *Anema decipiens*, *A. tumidulum* and *Metamelanea caesiella*.

(8) **Lime enriched seepage rocks with cyanolichens.** Rare habitat, well developed in only two sampling sites, but rich in unique species: e.g. Collemataceae spp., *Lichinella myriospora*, *L. nigritella*, *Porocyphus rehmicus*, *Psorotichia schaeferi*, *Pterygiopsis neglecta*, *P. umbilicata*, *Synalissa ramulosa* and *Thyrea confusa*.

(9) **Boulders in damp screes.** Open screes with large boulders are restricted to rhyolite bedrock in the southern part of the area: northern slope of the hill Tok (sampling site 9) and valley of Prostřední potok stream (sites 4 and 5) where montane species are present: e.g. *Aspicilia laevata*, *A. verrucigera*, *Arctoparmelia incurva*, *Lecidea lactea*, *Micarea leprosula* and *Protothelenella corrosa*.

(10) **Extremely exposed hard rocks.** Well developed only in the locality Týřovické skály on sites where harder bedrock forms bare outcrops protruding from softer rocks. Linked habitats are **wind-drying vertical faces** with luxuriant growths of *Dimelaena oreina* and **bird perching rocks** supporting occurrences of nitrophilous species, e.g. *Ramalina capitata*, *Candelariella* spp., the rare *Pertusaria stalactiza*, and the lichenicolous *Caloplaca grimmiae*.

(11) **Nutrient-rich outcrops at river bank.** A specific habitat developed in two sampling sites. Species: *Caloplaca atroflava*, *Caloplaca chlorina*, *Dermatocarpon meiophyllizum*, *Diplotomma porphyricum*, *Placopyrenium cinereoatratum*, *Porocyphus coccodes*, *Rinodina moziana*, *Staurothele fissus* and *Verrucaria* spp.

(12) **Stones and concrete in wall of ruin.** Some synanthropic lichens, absent from other sites, are present: e.g. *Lecania erysibe*, *L. leprosa*, *Rinodina oleae*. *Caloplaca ulcerosa*, elsewhere in Europe usually epiphytic, is frequent on the walls.

(13) **Stones in streams.** Examples of species: *Bacidina inundata*, *Stigmidium rivulorum*, *Verrucaria elaeomelaena*, *V. hydrophila* and *V. praetermissa*.

#### *For terricolous lichens*

Classified according to the predominant lichen growth form (*Cladonia* carpets vs. other types) and according to availability of minerals (lime) and light.

(1) **Bryophytes and plant debris in lime enriched microsites:** Typically developed in rock crevices influenced by Ca-rich seepage water. Species: *Agonimia globulifera*, *A. opuntiella*, *A. tristicula*, *Bilimbia sabuletorum*, *Endocarpon pusillum*, *Lempholemma chalazanum*, *L. polyanthes*, *Placidium rufescens*, *P. squamulosum*, *Romjularia lurida*, *Scytinium intermedium* and *Toninia sedifolia*.

(2) **Soil and bryophytes on rocky steppes.** On soil: *Agonimia gelatinosa*, *Dibaeis baeomyces*, *Pycnothelia papillaria*, *Placynthiella oligotropa*, *P. uliginosa* and *Vezdaea acicularis*. On bryophytes (*Abietinella abietina* and *Rhytidium rugosum*): *Agonimia vouauxii*.

(3) ***Cladonia* carpets on acid soils.** Locally well developed in sparse pine forests, on screes and on mossy rocks. Species: *Cladonia* spp., *Cetraria aculeata*, *C. islandica*.

(4) **Soil patches in damp sites.** A habitat with few rather common species: e.g. *Lichenomphalia umbellifera*, *Micarea viridileprosa*, *Trapeliopsis gelatinosa* and *T. pseudogranulosa*.

#### *For epiphytic lichens*

Classified according to the light and humidity conditions, and the predominant tree species. (Habitats with a negligible contribution to lichen biodiversity of the study area are not included in the catalogue. Examples of such habitats include conifer plantations or various types of deciduous forests in unfavourable climate and without over-mature trees.)

(1) **Hornbeam stands.** Hornbeams, when growing in suitably humid mesoclimate and in lit sites, have some rare species: *Biatora pontica*, *Lecidea albohyalina*, *Naetrocymbe fraxini*, *Reichlingia zwackhii*, etc.

(2) **Damp scree forests.** Old trees (*Acer campestre*, *A. platanoides*, *A. pseudoplatanus*, *Fraxinus*, *Tilia*, *Ulmus*) host numerous old-growth forest species: e.g. *Bacidia auerswaldii*, *Gyalecta flotowii*, *Hazslinszkyia gibberulosa*, *Lithothelium* spp. and *Schismatomma pericleum*.

(3) **Sparse oak forests and forest-steppes.** Old oaks, although without lichens on sun-exposed parts of trunks, are inhabited by numerous epiphytic species on sun-sheltered sites: e.g. *Caloplaca lucifuga*, *Chaenotheca phaeocephala* and *Rinodina poeltiana*. Specific microsites, at decorticated tree bases, have *Calicium abietinum*, *Protoparmelia oleagina* and *Rinodina archaea*.

(4) **Hawthorn and blackthorn shrubs.** Shrub communities typically occur on rocky slopes in ecotones between steppe and forest. Shrub twigs host macrolichen communities dominated by numerous Parmeliaceae and a group of common, largely nitrophilous microlichens. These species are in large part shared with tree twigs throughout the study area.

(5) **Hazel stands.** Hazel rods, when growing in suitably humid mesoclimate and in lit sites, host specific lichens: e.g. *Arthopyrenia salicis*, *Bacidia arceutina*, *Cyrtidula quercus*, *Leptorhaphis maggiana* and *Pyrenula nitidella*.

(6) **Pine stands.** Although pines are present in most sampling sites, their stands are usually in overly dry mesoclimate where few common lichen species can occur. Pine stands on rhyolite screes in the valley of Prostřední potok stream have, however, a humid mesoclimate which can support rare lichens: *Calicium montanum*, *C. parvum*, *C. pinastri* and *Microcalicium minutum*. Exposed wood at bases of old trees is inhabited by the rare *Lecidea plebeja*.

(7) **Sparse ash stands on nutrient-rich sites on rocky slopes.** Among the local trees, ashes are richest in lichen species. Specific communities of cyanolichens, e.g. *Scytinium lichenoides* s.str., *S. subtile* and *S. teretiusculum*, or communities of *Teloschistaceae*, with predominant *Caloplaca raesaenenii*, are developed on exposed roots.

(8) **Beech tree stands in damp sites.** Beech trees with valuable lichen flora are few; usually old trees in suitable damp mesoclimate. Specific species: *Alyxoria ochrocheila*, *Bacidia circumspecta*, *Bacidina phacodes*, *Gyalecta derivata*.

*For lignicolous lichens*

(1) **Rapidly decaying dead wood.** The most widespread habitat for lignicolous lichens with occurrences of *Cladonia* spp., *Peltigera praetextata* and microlichens: e.g. *Micarea* spp., *Trapeliopsis glaucolepidea*, *T. pseudogranulosa* and *Thelocarpon intermediellum*. Dead wood in spruce plantations hosts *Gyalideopsis helvetica*, *Micarea pusilla* and *M. viridileprosa*.

(2) **Wood resisting decay in dry and lit sites.** Oak (and also pine) wood in lit forests and forest-steppes resists decay for a long time. Logs and stumps are inhabited by numerous lichens, some of them specifically lignicolous. Noteworthy lichens are e.g. *Biatora veteranorum*, *Cladonia parasitica*, *Hertelidea botryosa*, *Micarea globulosella* and *Protoparmelia oleagina*.

(3) **Dead wood in remnants of humid fir-pine stands.** Only a few old firs now remain, scattered in local forests, but many logs, snags and stumps in the valley of Prostřední potok stream indicate that forests dominated by fir used to be there. The dead wood hosts a few specific lichens: *Elixia flexella*, *Micarea* spp., *Microcalicium ahlneri* and *Multiclavula mucida*.