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Epiphytic lichen communities in the National Park Kalkalpen, Austria, Upper-Austria

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Abstract

The epiphytic lichens and lichen communities were investigated in the National Park Kalkalpen (Austria, Upper-Austria) between2006 to 2010. Two hundred twenty two lichen species and 47 moss taxa were detected. To the red list of threatened lichens and mosses belong 74 lichen species and 6 moss species.

Bacidia rosella, Candelariella efflorescens, Chromatochlamys muscorum var. *muscorum, Lecanora phaeostigma, Lecanora thysanophora, Lepraria jackii*, *Lepraria lobificans, Lepraria rigidula, Leproloma vouauxii, Leptogium cyanescens, Mycoblastu saffinis, Pertusaria leucostoma, Pertusaria sommerfeltii, Psoroglaena stigonemoides* were found for the first time in the investigation area. The latest report of *Pertusaria sommerfeltii* in Upper Austria was published by POETSCH & SCHIEDERMAYR 1872 from the Schwarzenberg in the Böhmerwald.

A particular hot spot of a high lichen diversity is the region of Jaidhaustal – Feichtau – Haltersitz – Zwielauf. There is also a forest area in the south of the Zwielauf which has not been commercially used for a long time. In these areas great populations of *Lobaria amplissima* are present. This lichens species is very rare in Upper Austria and heavily threatened.

The following epiphytic lichen communities occur in the National Park Kalkalpen:

Chaenothecetum ferrugineae subass. chaenotecetosum chrysocephalae HOFMANN 1993

Chaenoteca chrysocephala is the differential species. This community inhabits coniferous trees with deeply fissured bark, where the microclimate is very humid.

Graphidetum scriptae HITZINGER 1925

Graphis scripta is the common species and dominates the community. It prefers deciduous trees with smooth or fine fissured bark. *Fagus sylvatica* is a frequently settled substrate. The Graphidetum scriptae occurs from the colline to the montane zone because of the preferred substrates.

Phlyctidetum argenae HILITZER 1925

The only common diagnostic species is *Phlyctis argena*, which dominates this toxitolerant community. It grows in the areas of the middle stem of different species of deciduous trees with smooth bark and prefers the eastern exposition.

Lecanoretum subfuscae HILITZER 1925

This community is rich in species. Several species of the genus *Lecanora* are the common species for this community, which is also rich in several species of other genera. It is an important pioneer community on trees with a smooth bark in the areas of the middle stem area, on *Fagus sylvatica* it is a terminal community.

Thelotremetum lepadinii HILITZER 1925

Thelotrema lepadinum is the common species together with several moss species. It is distributed in humid areas with high rainfall in the colline to montane zone.

It prefers *Fagus sylvatica* and other deciduous trees with smooth or rimulous bark.

Leprarietum incanae JAMES, HAWKSWORTH& ROSE 1977

It is composed of leprose crusts of different species and dominated by mosses. The Leprarietum incanae grows in the lower areas of the stems of deciduous and coniferous trees with deeply fissured bark. It is tolerant of air pollutants.

Pseudevernietum furfuraceae typicum HILITZER 1925

The Pseudevernietum furfuraceae is rich in species and is a hygrophilous and light demanding community on deciduous and coniferous trees in the montane to high montane zone. It is sensitive to air pollution.

Pseudevernietum furfuraceae var. Hypogymniosum physodis OCHSNER 1928

The differential species of the variety of the community Pseudevernietum furfuraceae is *Hypogymnia physodes*. It occures on sites with a higher level of air pollution. It occures on the stems of coniferous trees in the montane to high montane zone.

Pseudevernietum furfuraceae var. platismatiosum glaucae HILITZER 1925

Platismatia glauca is the differential species. This species-poor variety prefers the upper areas of the stems and branches of *Fagus sylvatica* and *Picea abies*.

Parmelietum saxatilis (HULT) SERNANDER

Parmelia saxatilis dominates the species-rich community with many changing accompanying lichen species. It grows on the upper areas of deciduous trees in the submontane to high-monate zone.

Parmeliopsidetum ambiguae HILITZER 1925 typicum

It prefers *Picea abies* with thick stems and deep fissures in the montane to high-montane zone. It is protected against extreme cold by the snow cover.

Parmeliopsidetum ambiguae subass. imshaugietosum aleuritis BARKMAN 1958

The differential species is *Imshaugia aleurites*. The subassotiation of the Parmeliopsidetum ambiguae prefers warmer sites and settels on wind exposed stems of conifers with fissures from 0,5 to 3 cm in the montane to high-montane zone.

Lobarietum pulmonariae HILITZER 1925 typicum

The Lobarietum pulmonariae is a community rich in species and dominated by mosses. According to the humidity and the degree of immission of air pollutants the species composition varies. In sheltered sites *Lobaria pulmonaria* is accompanied by the very sensitive *Lobaria amplissima*. *Fagus sylvatica* and *Acer pseudoplatanus* are settled on the whole stem. The height of distribution ranges from the montane to the high-montane zone.

Lobarietum pulmonariae leptogiosum saturnine subass. nov.

It differs from the Lobarietum pulmonariae typicum in the high amount of cyanobacterial lichens, particularly of *Leptogium saturninum*. This subassociation grows on the base of old, very thick beech trees with fissures from 1 to 7 cm in the high-montane zone with high-rainfall and low influence of air pollutants.

Melanelixia-Hypnum-Sozietät

This association is a transitional stage of the succession which starts from the Lecanoretum subfuscae. It shows a broad ecological amplitude and grows preferably on *Picea abies* und *Fagus sylvatica* in the middle regions of the stem.

Physcietum adscendentis FREY & OCHSNER 1926

The Physcietum adscendentis is a stage which follows the Lecanoretum subfuscae under high influence of nitrogen compounds. It grows on *Fagus sylvatica*, *Sambucus nigra* and on fruit-trees in the higher stem regions. The association is photophilic.

Cladonietum cenoteae FREY 1927

The acidophytic Cladonietum cenoteae grows on the base of trunks and stumps of various trees with a high degree of coverage with often dominating *Cladonia digitata*. It prefers the *Picea abies* and *Larix decidua* in submontane to high-montane zone.

Cladonietum coniocraeae DUVIGNEAUD 1942

It is similar to the Cladonietum cenoteae but it grows up to the higher areas of the stems and has a lower demand of moisture. It grows also on less acid substrata like on the bark of *Malus domestica* and *Fagus sylvatica*.

References

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