

## A transnational lichen inventory of the Alps: a long overdue task

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### Abstract

The procedure for the buildup of a transnational lichen inventory of the Alps as well as the projected final products, an annotated printable checklist (open access) and an online database with an extended scope of operation, are described. The importance of this extensive project is briefly discussed.

### Keywords

Alps, biodiversity, checklist, ecology, inventory, lichenized ascomycetes

### Introduction

The Alps are one of the largest continuous natural areas in Europe, stretching approximately 1,200 kilometres across eight countries, and including fourteen national parks. The Alpine Convention emphasizes the importance of this area and encourages transnational research and conservation projects. Lichens as unique models of fungal symbioses with macroscopically recognizable, light-exposed individuals are a predominant symbiotic life form of higher altitudes in the Alps. Printed national checklists or catalogues exist for Austria (HAFELLNER & TÜRK 2001, TÜRK & HAFELLNER 2010), France (ROUX 2012), Germany (WIRTH et al. 2011, 2013), Italy (NIMIS 1993, NIMIS & MARTELOS 2003), Liechtenstein (HAFELLNER & VAN DEN BOOM in prep.), Slovenia (SUPPAN et al. 2000, supplementary data in MAYRHOFER 2006) and Switzerland (CLERC 2004). Updates for Italy (NIMIS & MARTELOS 2008) and Switzerland (CLERC & TRUONG 2012) are available on the web. The compilation of such a catalogue has been initiated as a multi-authored project by P. L. Nimis more than ten years ago, which has unfortunately come to a standstill. We are now summarizing the abundant but scattered baseline information on lichen biodiversity in the Alps, which will lead to a transnational inventory of all lichen taxa present in the Alps, including data on their ecology.

### Material and Methods

The lichen inventory will be based on published records only. National checklists of Austria, France, Germany, Italy, Liechtenstein, Slovenia and Switzerland and the most recent floristic and taxonomic treatments have to be evaluated for the taxa occurring in the Alps. After updating the nomenclature, a database with all the available information of the checklists has been created. Additions and corrections are in progress. Finally, we will generate a printable checklist (open access) with an appendix listing frequently encountered synonyms, as well as an online database with an extended scope of operation.

### Outlook

A completed record will consist of the following information: Taxon, distribution data (countries and regions), ecology (substrata and altitudinal range) and a note (distribution, frequency, endangering, nomenclatorial, taxonomical problems, more detailed information on the ecology of the taxon etc.).

#### Example of a widespread lichen:

*Alectoria ochroleuca* (Hoffm.) A.Massal.

AT: V, T, S, K, St, O, N. IT: Frl, Ven, TAA, Lomb, Piem, VA. DE: OB. CH: BE, GR, TI, UR, VD, VS. FR: 3.1, 3.2, 4.1, 4.2, 5. (ter; mon-niv). [ter = on soil, terricolous mosses and plant remnants]

Note: an arctic-alpine, circumpolar species, found on windy ridges in moss-lichen heaths, more frequent on siliceous substrata, but sometimes also occurring in areas with dolomite.

The online database will provide further features as a query interface which generates lists of species, for instance, all taxa of the Austrian region Tyrol, which are distributed at the alpine belt. Furthermore, we are planning to insert distribution maps and photos for a large number of the presented lichen taxa.

## Discussion

A comprehensive checklist of the lichens of the Alps is long overdue and will enable us to compare, for instance, the genera or species diversity of the Alps with those of other mountain systems of the world (e.g. the Tatra Mountains – LISICKÁ 2005). URBANAVICHUS (in prep.) is conducting a similar study for the Caucasus Mountain Range. Lichen species only known from high-altitude plots of the Alps are potential organisms for protection and monitoring. Species restricted to the highest altitudes will become more and more threatened in the future due to global warming. This information will be of use for experts, decision-makers, and citizen scientists.

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