

## Attempts to Introduce Fungi into Nature Conservation Activities

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### Summary

A process towards proposing Important Plant Areas from the fungal point of view in Estonia, Finland and Italy has differences and similarities. Common in our attempts is the aim to be part of the network by co-operating with environmental authorities and botanists to strengthen mycological knowledge in the decision making at different levels. Our activities in fungal protection are a process, not a single, short-time project.

### Introduction

Important Plant Areas for Fungi is one way to protect threatened and rare species and local richness of fungal biota. In our countries Estonia, Finland and Italy, different ways have been used for this purpose. A Europe-wide Red List of fungi does not exist (except the unofficial, preliminary one published by Bruce Ing in 1993, in which 278 macrofungal species are considered to be endangered throughout Europe). European Council for Conservation of Fungi (ECCF) prepared a proposal for the Appendix I of the Bern Convention (DAHLBERG & CRONEBORG 2003). This proposal, including good data sheets for 33 threatened fungal species, was unfortunately postponed in 2003. Nevertheless, we have used this list as one basis in our activities. Our additional sources have been:

in Finland – a Red List including 275 fungal species, of which 141 are under strict protection (Rassi *et al.* 2001). According to the national legislation, actions leading to the deterioration or destruction of important habitats of the populations of these latter species are prohibited (KOTIRANTA *et al.* 1998). The Red List species include Agarics, Bolets, Gasteromycetes, aphyllorphoraceous fungi, Ascomycetes, microfungi and Myxomycetes. Altogether 4410 of the 5454 fungal species has been evaluated in the latest, new IUCN criteria based Red Data Book (Rassi *et al.* 2001).

in Estonia – a list of 46 species protected by law and a Red List including 91 species (Anonymous 1999);

in Italy – preliminary national redlist of 93 species proposed (VENTURELLA *et al.* 2004). National and regional laws consider only the excessive harvesting of edible macromycetes.

In addition, a database with information on very rare and/or threatened species has been used in every country.

### Finland

There are 54 national parks and strict nature reserves, hundreds of other state-owned Nature Reserve areas and thousands of private-owned Nature Reserves in Finland. Most of the Nature Reserves belong also to NATURA 2000 programme. The Finnish national proposal for NATURA 2000 consists of 1806 areas and in addition there are 44 new sites pending for the national decision. In Finland, approximately 9% of the land area is protected by different conservation programmes, but NATURA 2000 will increase the proportion to over 14%.

The Finnish halfly official IPA for Fungi project has been initiated in March 2004. Up to now altogether 190 protected and unprotected, potential sites have been proposed, but the proposal process is still in progress. So far the main emphasis has been on unprotected sites and on the enlargements of the protected sites, but all of the protected sites need to be systematically evaluated in the course of this work.

The size of proposed IPA for Fungi sites varies from half a hectare to tens of square kilometres. Many sites consist of various, unconnected hot spot "islands". Any final outlining of the IPA sites haven't been done so far.

The aim of the IPA-project in Finland is to promote nationally important plant areas to be better taken into consideration in land use, in the management of the protected areas, in dividing the tasks among authorities and in addition, by more effective informing about protection cases of the species.

## Estonia

In Estonia, there are 5 National Parks, 150 Nature and Landscape Reserves, 217 areas waiting for new protection status and zonation to be settled, 509 NATURA 2000 areas and 5455 state- and private-owned Woodland Key Habitats (WKH), comprising altogether 15% of Estonian land area.

Since 1993, mycologists have taken part to the studies to establish new protected areas. WKH inventors were taught to use fungal indicator species to evaluate the value of old-growth forests proposed to be protected. In 2001, two small areas of 18 and 22 ha with high fungal value, became officially protected as Woodland Key Habitats.

Of the 108 pre-selected Important Plant Areas in Estonia, 26 may also be considered as potentially Important Fungus Areas, of which two sites are specially selected to protect fungi. We have compiled preliminary lists of fungal species of seven IPA sites, and this work continues. For the officially protected species about 20 new, small-sized Protected Sites (microreserves) will be settled outside Nature Reserve areas during this year.

Our aim is to characterize and evaluate the richness of fungal biota in the most important protected areas independent of their protection or IPA status.

## Italy

In Italy, there are 22 National and 99 Regional Parks, 477 National and Regional Nature Reserves, numerous other protected areas and over 2500 NATURA 2000 sites comprising about 19% of the land area.

Different methods have been tested to evaluate the IPA-value for fungi in the Tuscan region: the one proposed by *Planta Europa* (ANDERSON 2002) and the criteria published by the British Mycological Society (EVANS *et al.* 2002). Mycocoenological observations in addition to single excursions have been undergone in numerous areas in the province of Siena. Thanks to this knowledge of 18 NATURA 2000 areas in Siena Province, six could be proposed as Important Fungus Areas on the basis of the following Evans's criteria: the proposed preliminary European red list (ING 1992), the proposal of Bern Convention, the preliminary Italian Red List and the species richness limit of 500 species.

## What is common in our approaches?

First: attempts to co-operate with environmental authorities to ensure protection of fungi in the existing nature reserves and national parks; participating in the inventory of threatened species in these areas. This is our aim, not fully realized yet.

Secondly: attempts to co-operate with botanists to analyse the protection needs of the pre-selected IPA sites and to participate in compilation of the protection management plans.

Thirdly: our activities in fungal protection are a process, not a single, short-time project.

What is urgently needed for further success is a European Red list of fungi.

We know that fungi are important part of the ecosystem; respectively, we mycologists try to become an important part of conservation action plans, accepting that we need a strong network with governmental and third sector institutions.

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