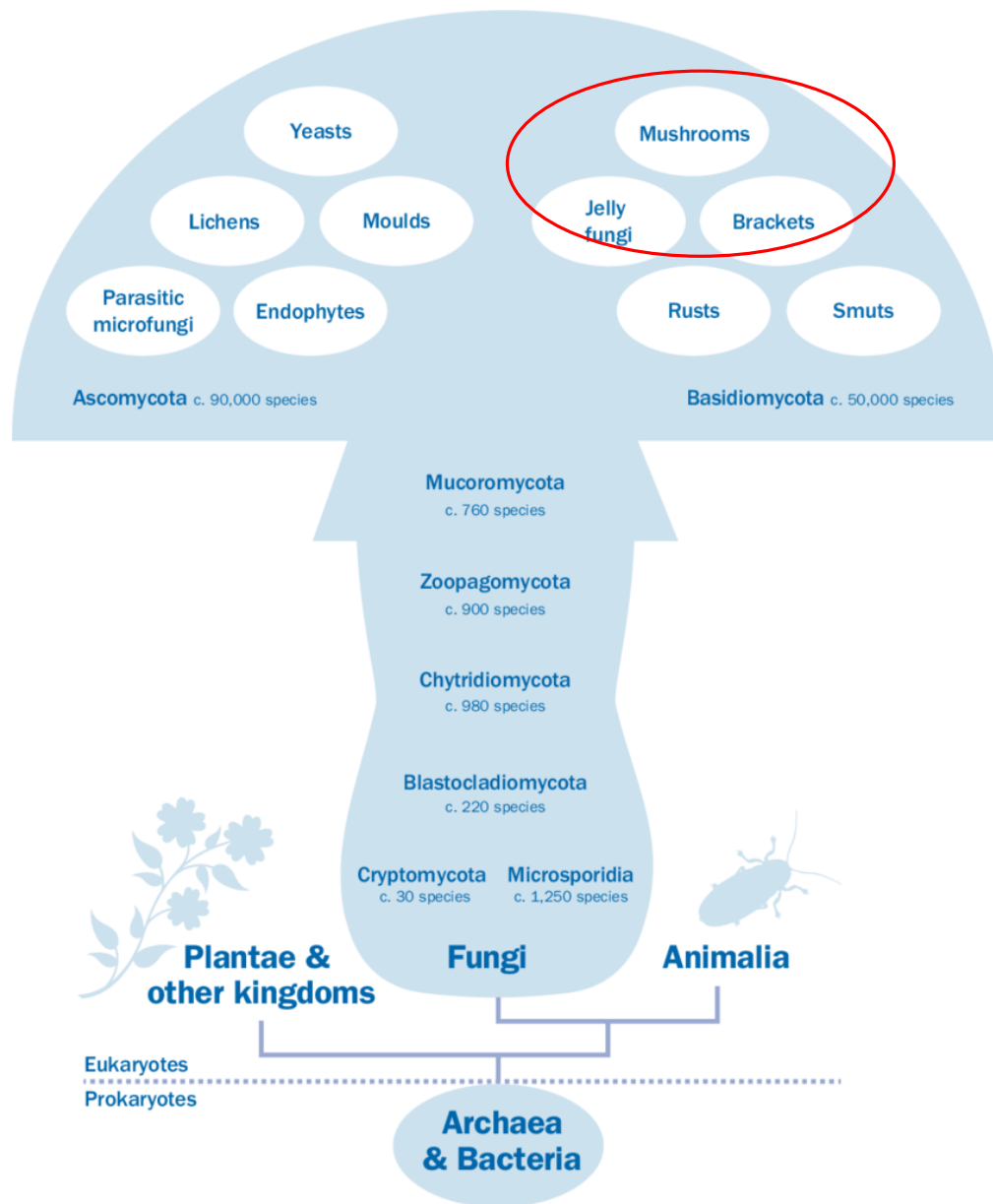


Mushrooms and conservation issues

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State of the World's Fungi 2018, Publisher: Royal Botanic Gardens, Kew

How many species of fungi?

	Described	Estimated
Fungi	144 000	2M – 4M
All taxa	2M	5M – 20M

Hawksworth, David L. "The magnitude of fungal diversity: the 1·5 million species estimate revisited." *Mycological research* 105.12 (2001): 1422-1432.

State of the conservation of fungi

Only 56 species of fungi have their conservation status globally evaluated for the IUCN Red List, compared with 25,452 plants and 68,054 animals

Of papers published in the top conservation Journals only 3% discussed fungi. And this was mostly concerned with the threats that these organisms pose to other wildlife.

Milestones (conservation of fungi)

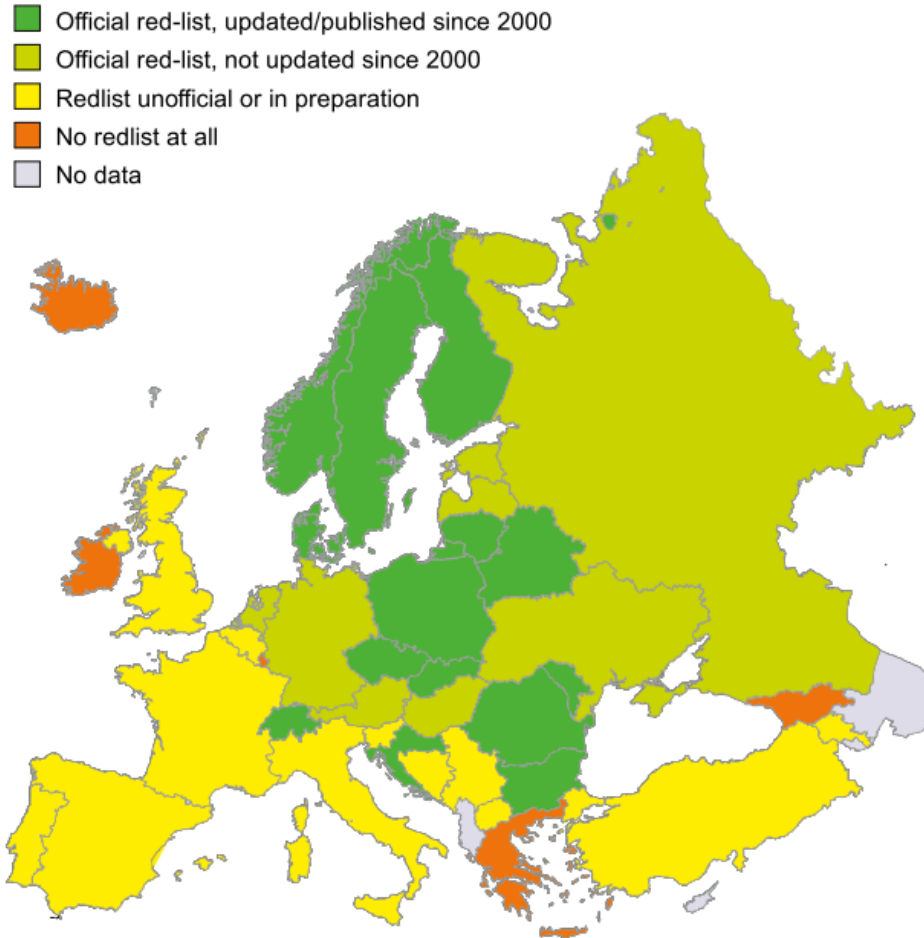
Although conservation scientists were slow to recognize the importance of fungi, progress has since been rapid

- 1970s : Significant declines in mushroom yields begin to be reported across Europe (will continue into 1980s)
- 1982: first red-listing of fungi
- 1988: Establishment of the *European Council for the Conservation of Fungi* (ECCF)
- 1990 Sweden becomes the first country to establish permanent Red-Listing teams for fungi



Conservation of fungi in Greece - I

There are no IUCN red-listed species of fungus in Greece in 2007



Senn-Irlet *et al.* **Guidance for conservation of macrofungi in Europe.** ECCF, Strasbourg (2007).

Main threats to fungi in Europe

- shortage of old-growth forests
- unavailability of coarse dead wood
- decline in veteran trees
- impoverishment of grasslands due to
 - fertilization, reforestation and lack of grazing
 - high nitrogen deposition
 - increasing habitat fragmentation
- Climatic change

Actions (for managers)

- Increase amount of coarse dead wood left for decay and retain older trees in managed forests
- Continued grazing and absence of fertilization in old grasslands
- Reduce nitrogen emissions especially in areas with predominantly nutrient-poor soils
- Protection of fungal key habitats

Why is conservation of fungi difficult

1. Many fungi are not visible and not so “charismatic” as other groups
2. Shortage of mycologists
3. We don't understand well the science
 - What is an individual
 - What is a population
 - Extreme fecundity

available at www.sciencedirect.comjournal homepage: www.elsevier.com/locate/biocon

Mushroom picking does not impair future harvests – results of a long-term study in Switzerland

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ARTICLE INFO

Article history:

Received 10 August 2005

Received in revised form

27 October 2005

Accepted 31 October 2005

Available online 5 December 2005

Keywords:

Mushroom picking

Trampling

Fungi

Species richness

ABSTRACT

Forest fungi not only have important functions within the forest ecosystem, but picking their fruit bodies is also a popular past time, as well as a source of income in many developing and developed countries. The expansion of commercial harvesting in many parts of the world has led to widespread concern about overharvesting and possible damage to fungal resources. In 1975, we started a field research project to investigate the effects of mushroom picking on fruit body occurrence. The three treatments applied were the harvesting techniques picking and cutting, and the concomitant trampling of the forest floor. The results reveal that, contrary to expectations, long-term and systematic harvesting reduces neither the future yields of fruit bodies nor the species richness of wild forest fungi. The results also show that the harvesting technique was picking or cutting. Forest fungi does, however, reduce fruit body numbers, but our data show no evidence that trampling damaged the soil mycelia in the studied time period.



RESEARCH ARTICLE

How survival curves affect populations' vulnerability to climate change

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Abstract

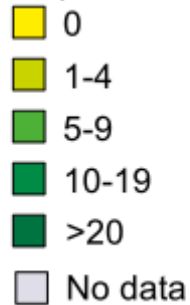
Human activities are exposing organisms not only to direct threats (e.g. habitat loss) but also to indirect environmental pressures such as climate change, which involves not just directional global warming but also increasing climatic variability. Such changes will impact whole communities of organisms and the possible effects on population dynamics have



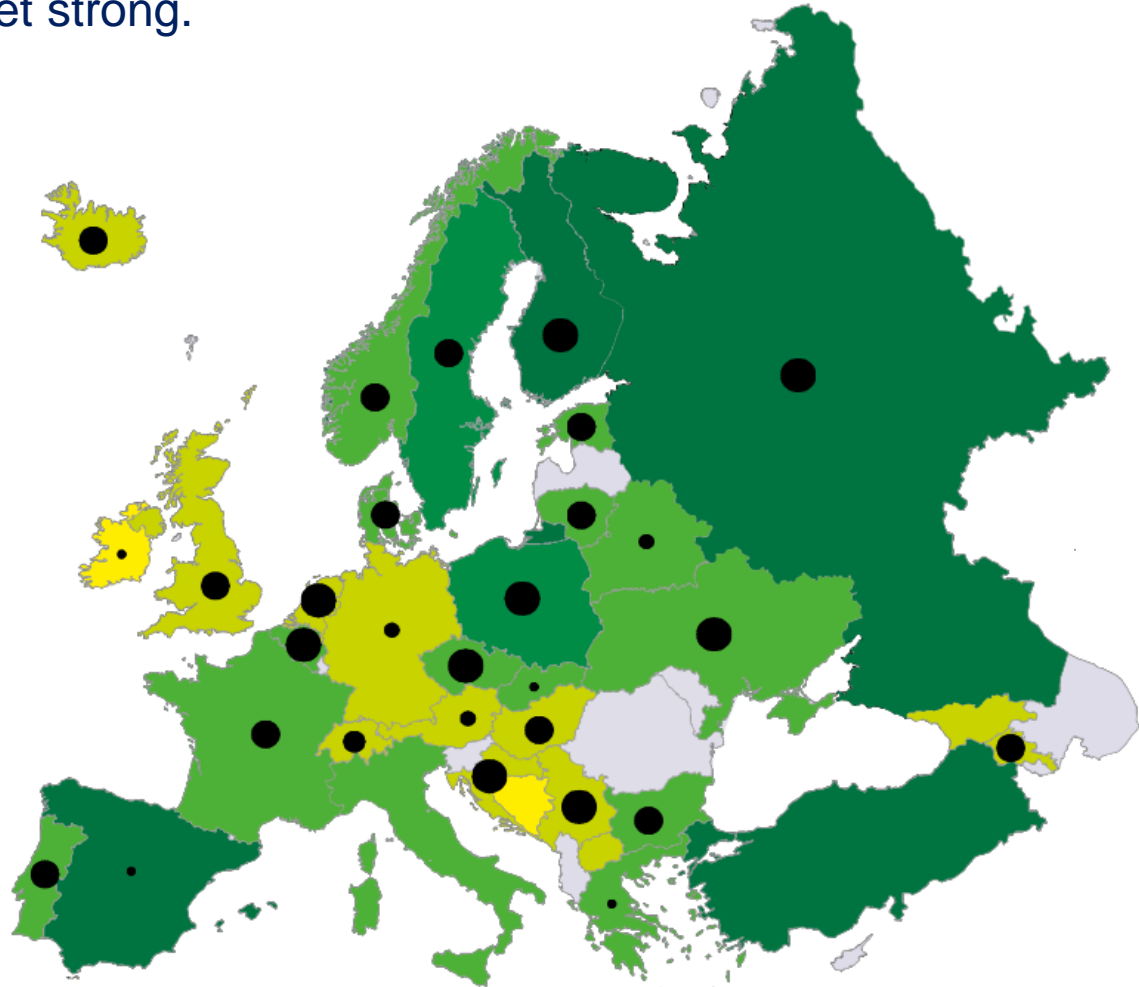
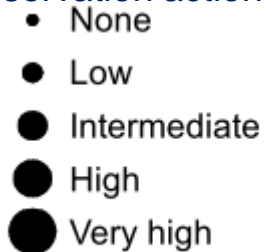
Conservation of fungi in Greece - II

Greece has a comparatively good number of mycologists but the link to conservation is not yet strong.

professional mycologists
working with macrofungi



perceived importance
for national fungal
conservation actions



Senn-Irlet *et al.* **Guidance for conservation of macrofungi in Europe.** ECCF, Strasbourg (2007).

Who knows the fungi?

- **Professionals**
- **Amateurs**

Both professional and amateur mycologists are important for fungal conservation. In many countries active amateurs are vital for maintaining knowledge of the distribution and ecology of macrofungi, through their participation in mapping projects etc. Many amateurs are also taking part in red-list assessments, typically in collaboration with professional mycologists.

Actions (for EcoLab BET)

- Increase understanding of fungal population dynamics and how this serves better conservation approaches
- Promote research of natural history of fungi of Greece (find those species)
- Promote cooperation between academic mycologists and mushroom enthusiasts