

Pierre-Arthur Moreau  
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# Fungi in wetlands

from myco-ecology to taxonomy,  
a global approach of fleshy fungi



An acidic peat bog : Lac Luitel, Isère, F



**A basic bog : Tourbières de l'Herretang (Isère, F)**

# Main results : determination of fungal associations

Fungal association of atlantic peaty woods

*Lactarius vietus, L. torminosus, Tephrocybe palustris*

Cohabitation of Mycorrhizal + Saprotophrophic + Bryotrophic species

Alder facies

(fungal communities determined by acidity / trophic level)

Fungal association of neutro-alcaline woods

*Alnicola scolecina, Coprinus xanthothrix, Mycena pura*

Willow facies

(uncharacterized, sampling unsufficient)

Birch facies

(fungal communities determined by hydrous level)

Fungal association of woody high moors

*Leccinum brunneogriseolum, Cortinarius sphagneti*

Mycorrhizal species dominant + Saprotophrophic

Fungal association of open high moors

*Galerina paludosa, G. tibiicystis, Hypholoma elongatum, Omphalina oniscus*

Bryotrophic + Saprotophrophic

# Why a myco-typology of alder woods ?

- 1. Alder woods have been included in the European list of « habitats of communautary interest » since 1991 ;**
- 2. Alder woods are diversified in Fungi, but not in usual biological indicators (birds and green plants) ;**
- 3. Fungi are not only physionomical but functional describers.**

→ **Conservative and patrimonial implications :  
Fungi as diagnostic tools for alder woods ?**

# Fungal diversity associated with *Alnus*



*Alnicola* sp.



*Cortinarius bibulus*

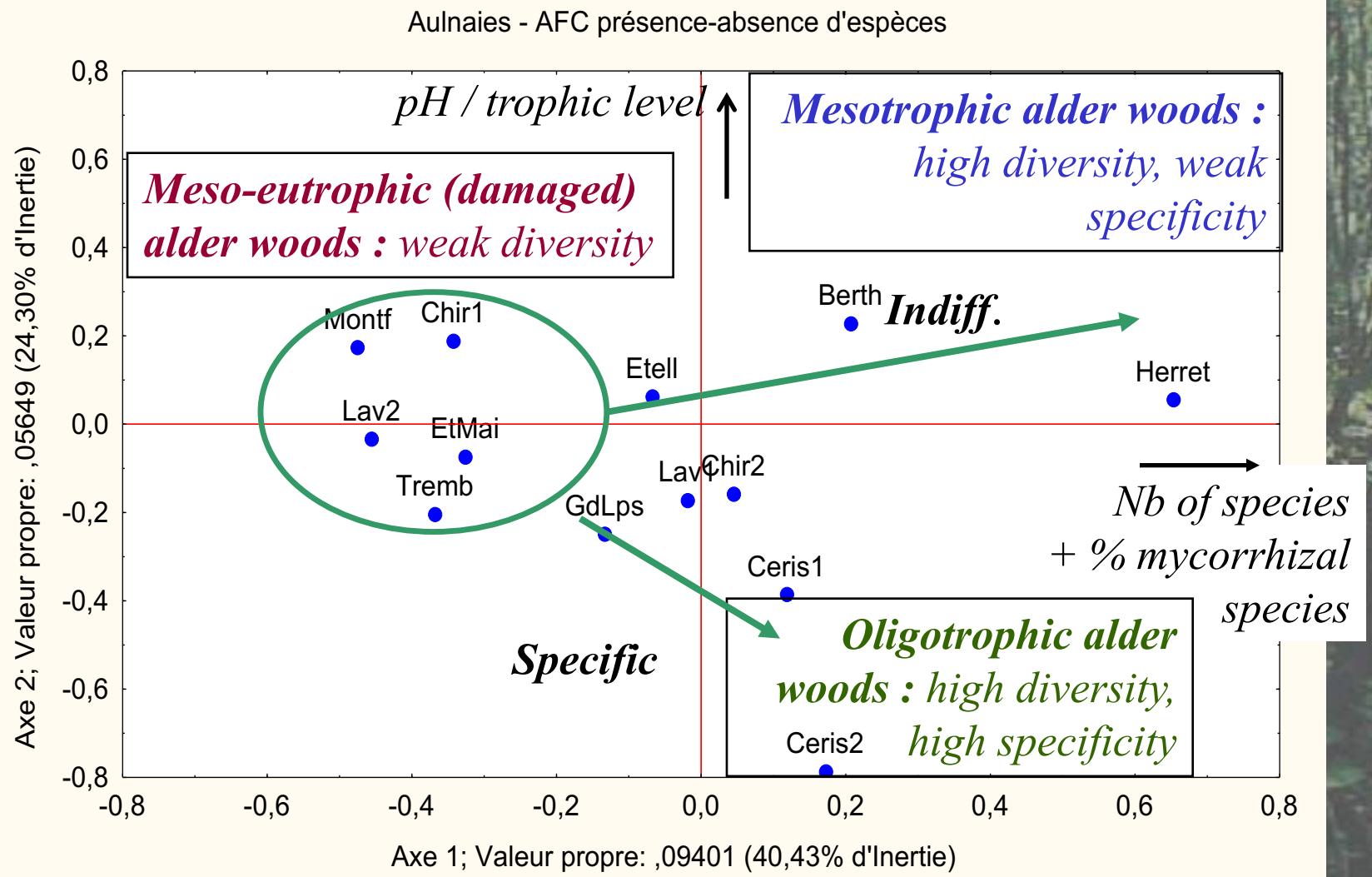


*Russula  
pumila*



*Cortinarius  
helvelloides*

# Preliminary results in alder woods



Basophilic  
Nitrophilic

→ Indicator of  
eutrophication



*Gyrodon lividus*

# «*Alnus* project» : which approach?

Choice of representative alder woods  
(type, gradients of age, humidity, trophic level)

Sampling fungi on 500-5000 m<sup>2</sup> plots  
(list of species per plot)

Identification  
of taxa !

Analysis of ecological patterns for each species (synecology)

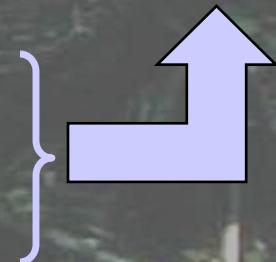
Indicator species :  
with restricted  
ecological range

Indifferent species :  
with wide ecological  
range

Management  
decisions

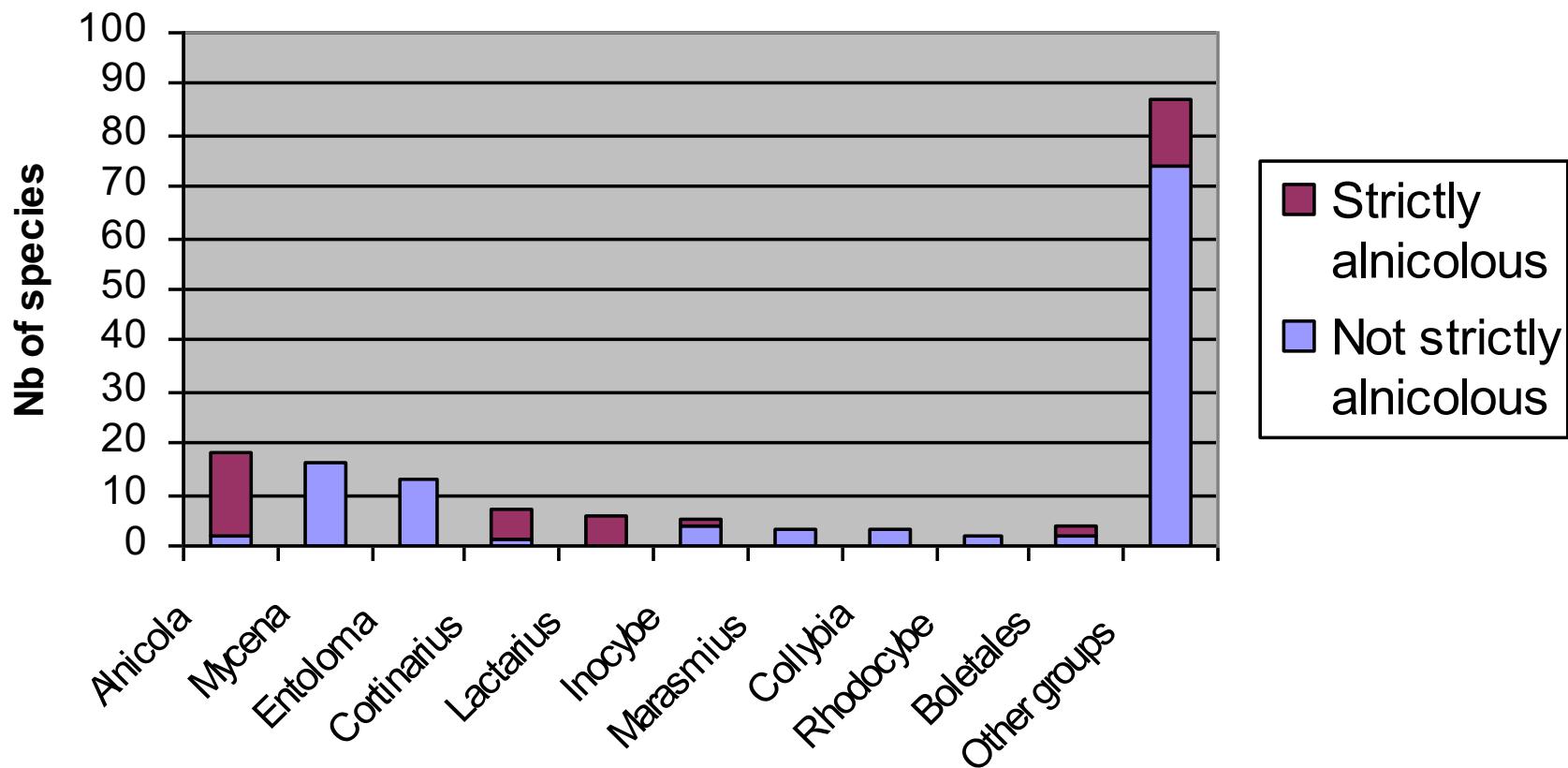
Descriptive &  
functional evaluation

Comparative rarity of species :  
patrimonial evaluation



# What's the matter ?

## Species found with *Alnus glutinosa*



« Alder project »

*Société Mycologique de France*

Taxonomy of *Alnicola*

*Post-doc P.-A. Moreau*



## Development of « fungal functional ecology »

**Proposal for protocols, methods and interpretations  
(for *Alnus*-wooded wetlands)**

Possible applications to **natural meadows** (« Waxy-cap meadows »),  
**dune ecosystems**, and other man-managed environments



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## Genus *Alnicola* Kühner (Basidiomycetes, Cortinariales)

- Monographed once (Reid, 1984 : only British species)
  - Main mycorrhizal group in alder woods (Griesser, 1994)
- in need of taxonomic revision !

Anatomical study

DNA studies

Synecological study

Field recognition

Confirmation of  
species concept

Ecological range  
of species

Phylogeny