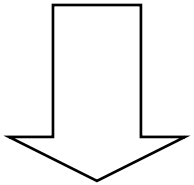
Principle of analysis : comparison of plots according to mycological data

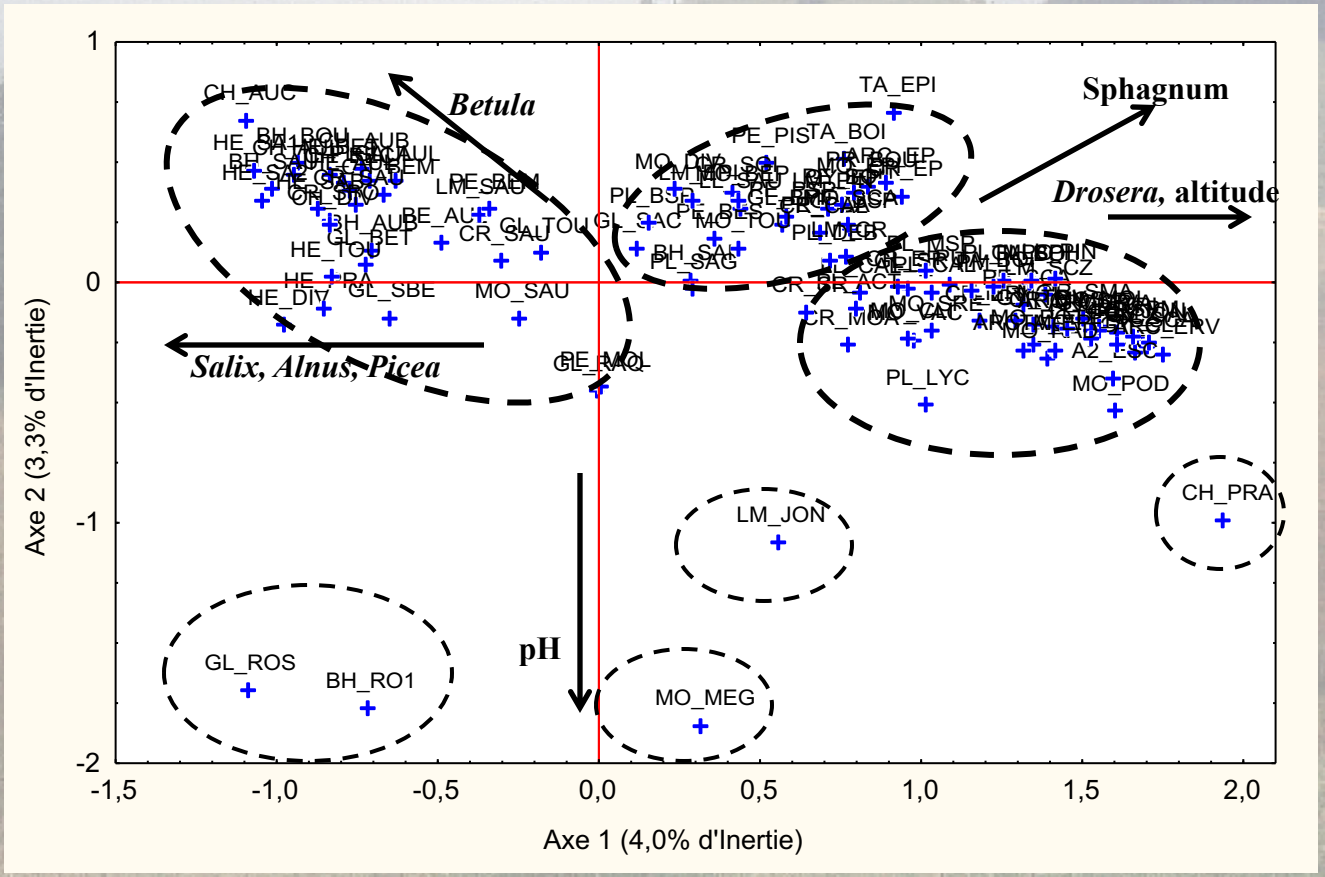
	…	CR_mol	CR_msp	CR_eri	…
Fungi 1	…	…	…	…	…
Fungi 2	…	…	…	…	…
Fungi 3		…	…	…	…
…	…	…	…	…	…

Contingence table



Factorial Analysis of Correspondances (multivariate analysis)

Factorial Analysis of Correspondances

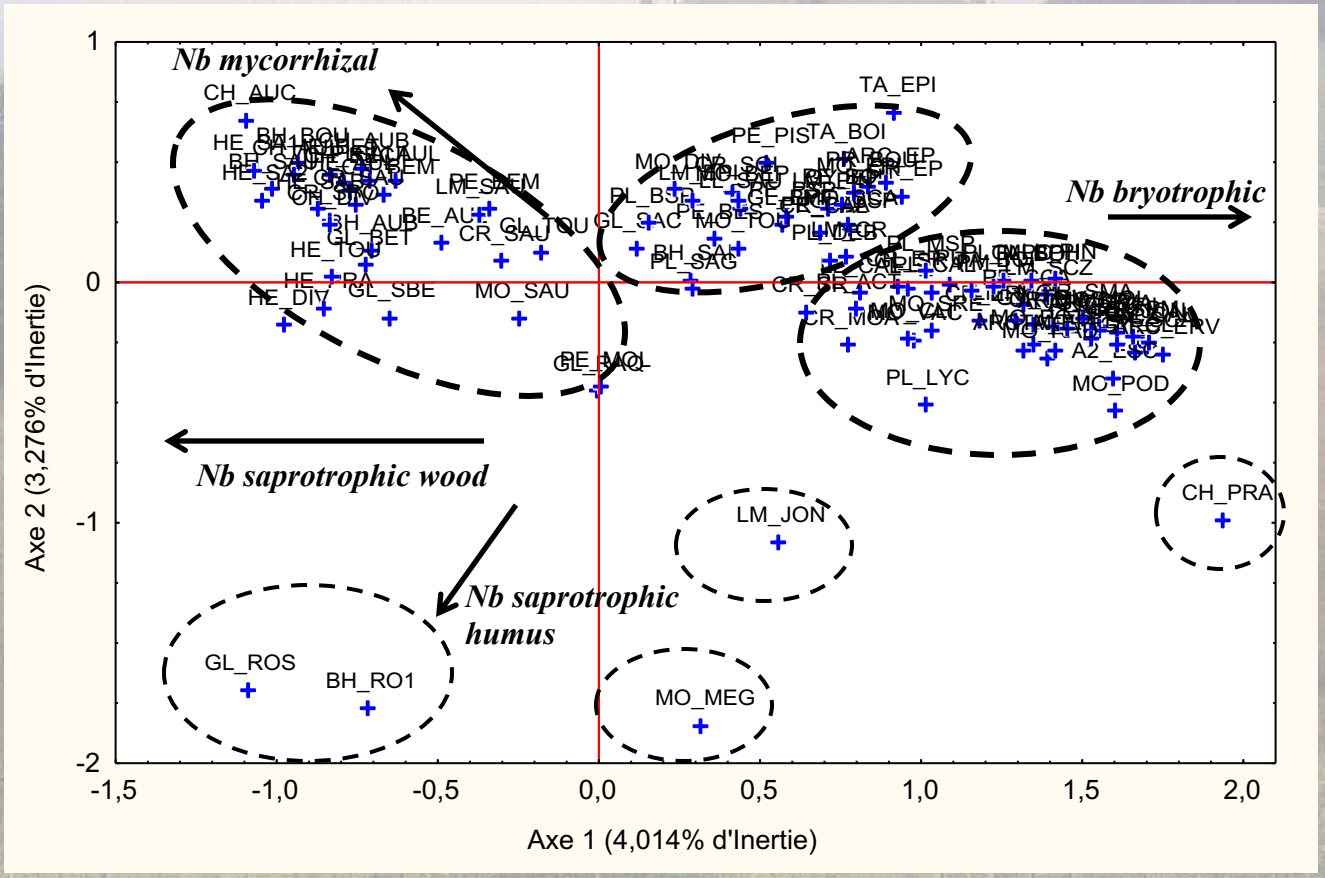


-> définition of mycocoenosis :

-specific composition (constant, characteristic and differential species);

-environmental conditions (ecologique determinism);

Factorial Analysis of Correspondances



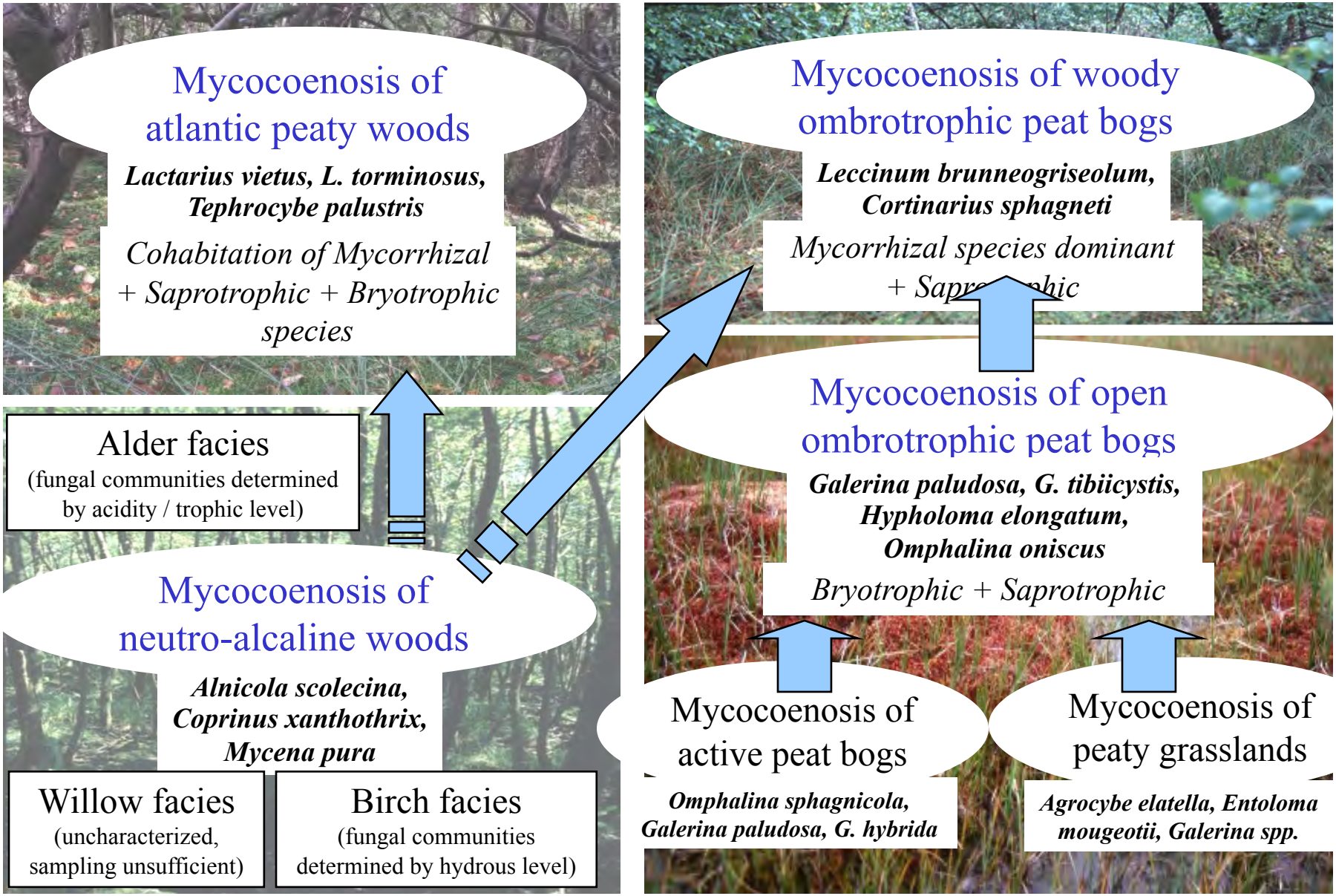
-> définition of mycocoenosis :

-specific composition (constant, characteristic and differential species);

-environmental conditions (ecological determinism);

-ecological spectrum (ecological status of species : trophic characterization).

Main results : determination of mycocoenosis



Is it possible to recognize groups (communities) of species characteristics of local conditions in peat bogs ?

8 well-characterized mycocoenosis,

- describing forestation level, altitude, acidity, nature of hydrous alimentation ;

- described by the balance between mycorrhizal, saprotrophic and bryotrophic communities.

Limits

- Very few species appeared to be exclusive of a mycocoenosis ;

- Some species perturbed statistical treatments and should be to analyze specifically (« individual mycosynusias »).

- Some species perturbed statistical treatments and should be to analyze specifically (« individual mycosynusias »).

Luitel lake (Isère, massif de Belledonne)

Back to methodology

Problem : limits in sampling Fungi

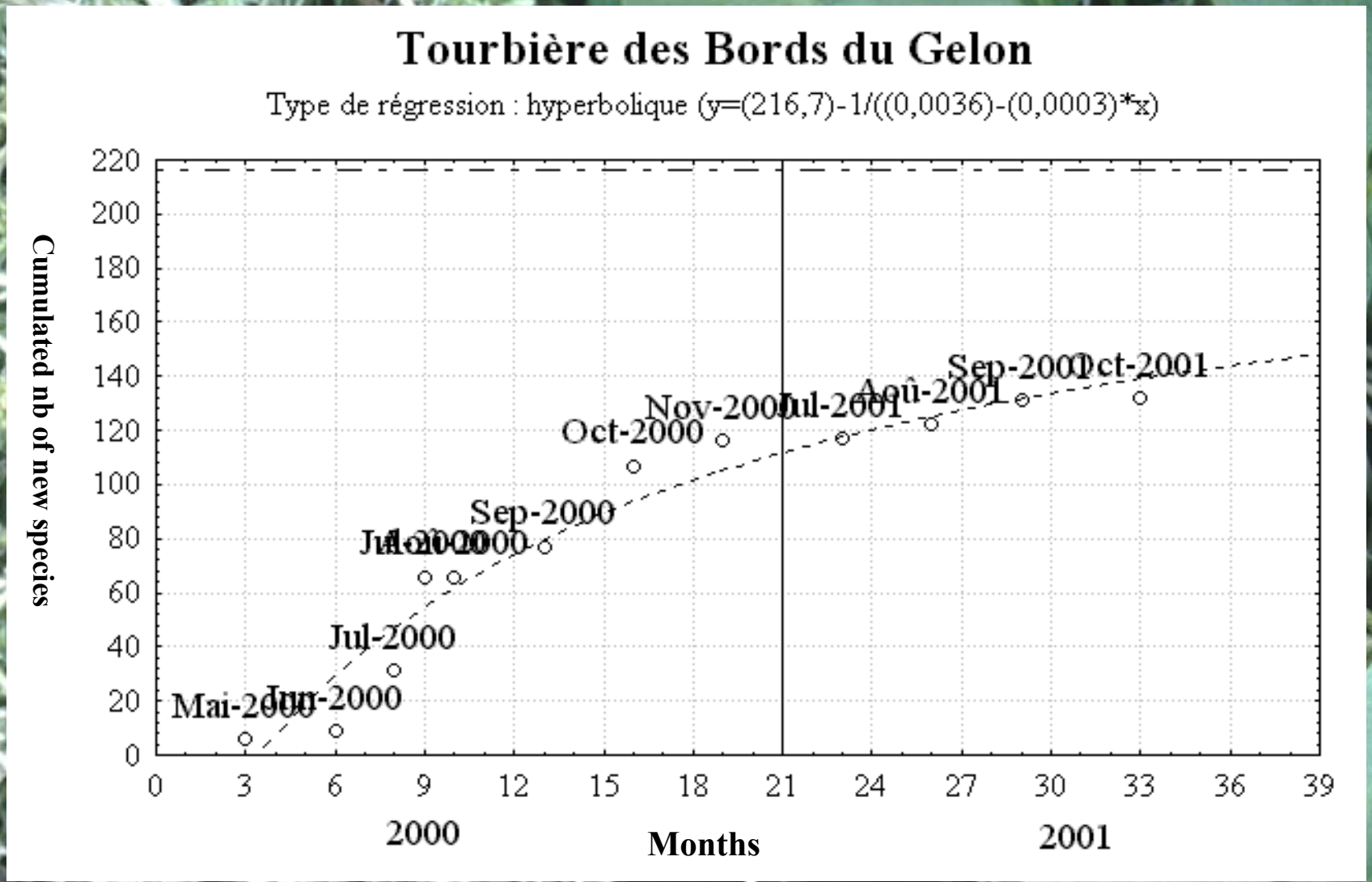
How efficient are / must be sampling methods ?

-Spatial control : necessity of comparable-sized plots

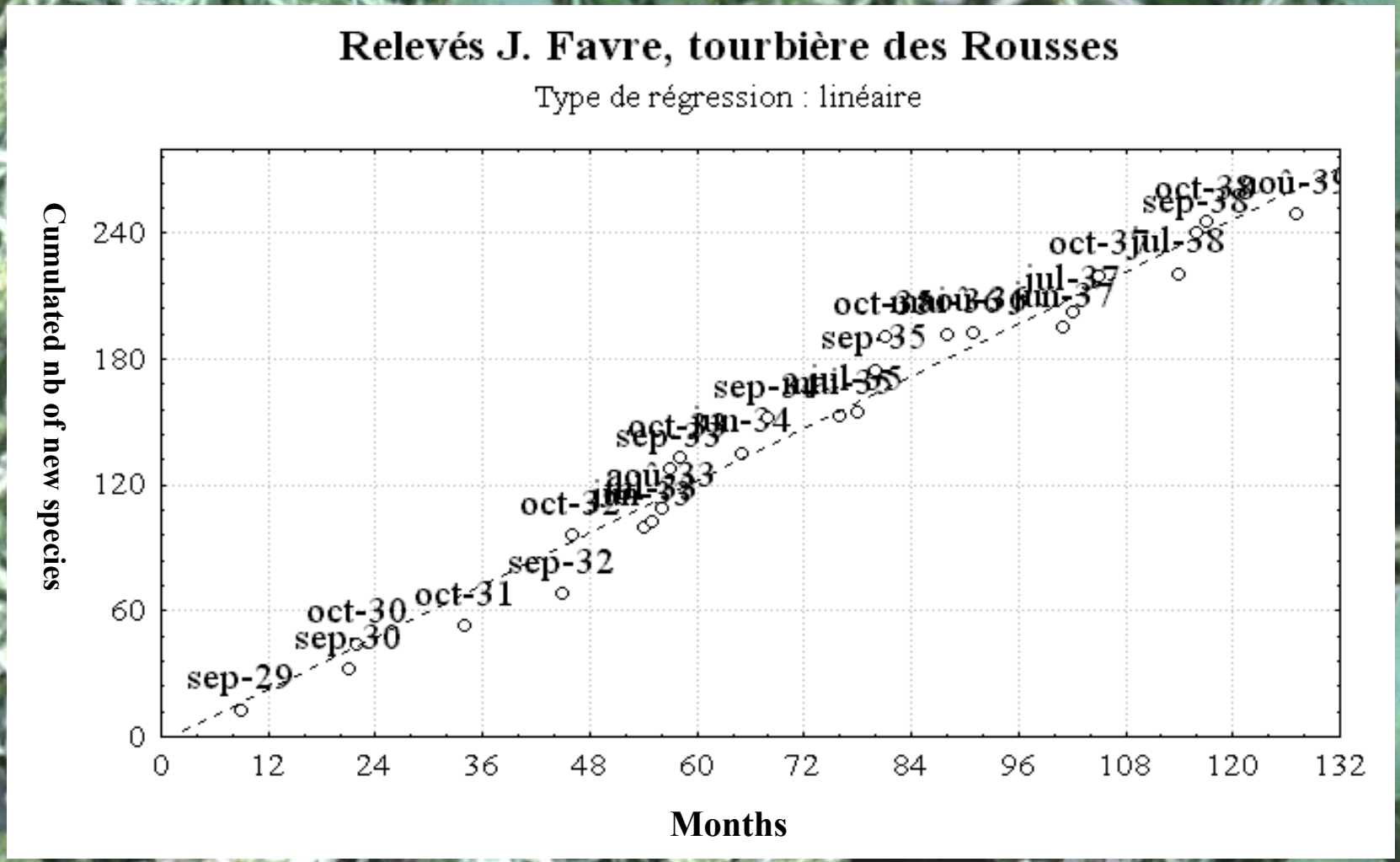
Between species representation and ecological homogeneity : 1 to 5000 m²...

-Time control : phenology of Fungi is THE limit in myco-ecology !

Back to methodology



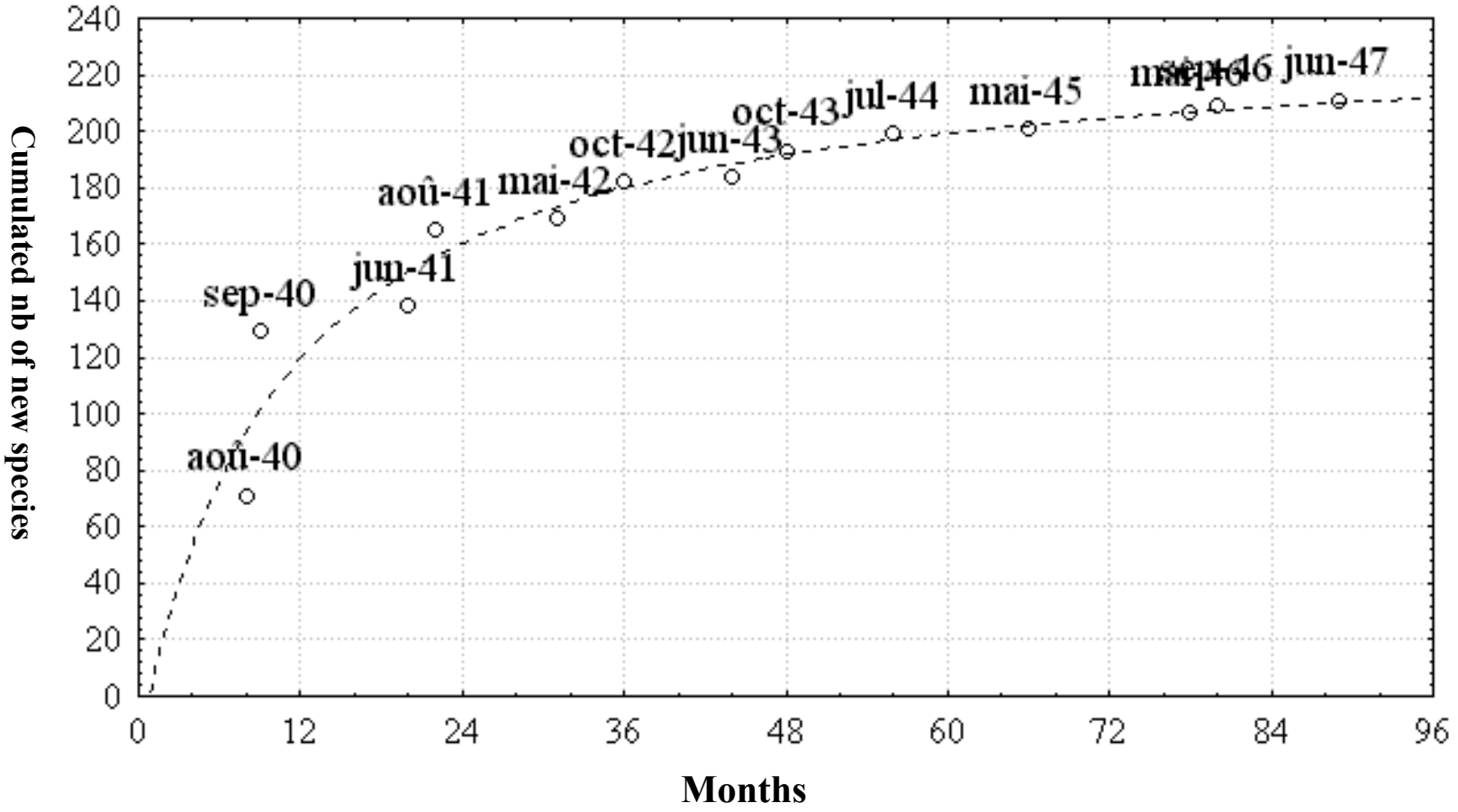
Back to methodology



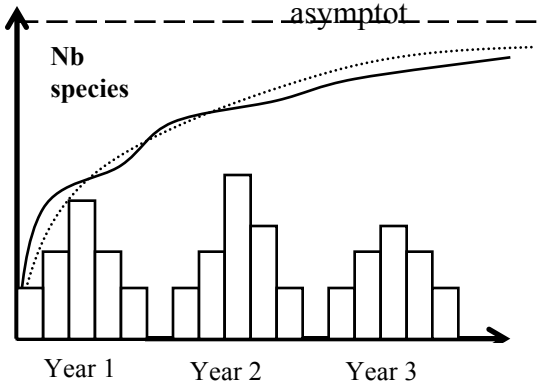
Back to methodology

Relevés J. Favre, marais des Tenasses

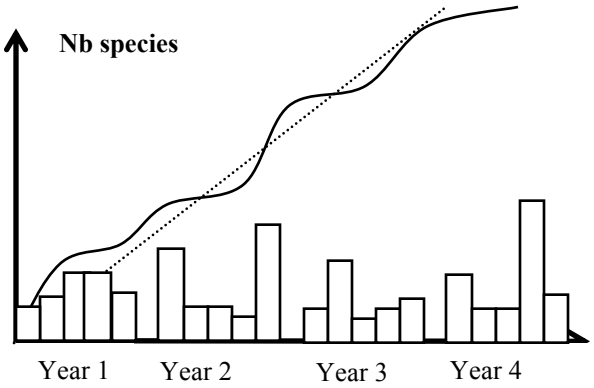
Type de régression : hyperbolique (y=(236,2)-1/(0,0004*x+0,0039))



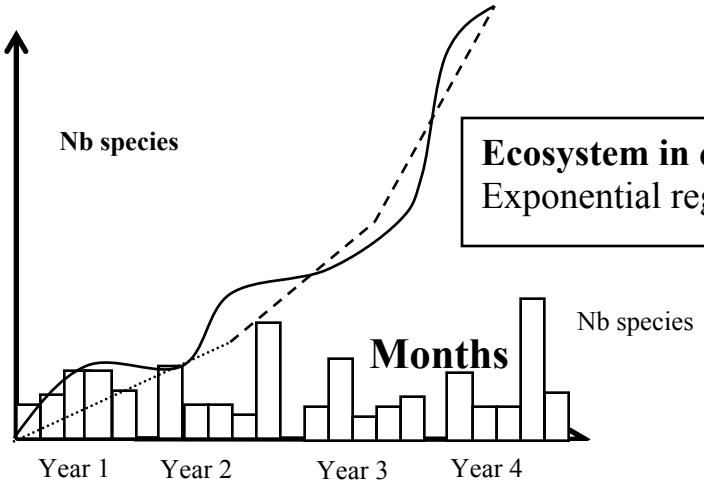
Stable ecosystem, regular fruiting
Hyperbolic regression



Stable ecosystem, ecliptic fruiting
Linear regression



Ecosystem in quick evolution
Exponential regression (or no regression)



Problem : limits in sampling Fungi

How efficient are / must be sampling methods ?

-Spatial control : necessity of comparable-sized plots

Between species representation and ecological homogeneity : 1 to 5000 m²...

-Time control : phenology of Fungi is THE limit in myco-ecology !

Need of several years of sampling (at least 2, pref. 3 years), with at least 4 (5) visits a year during « efficient periods ».

Conclusion

Myco-ecology, what for ?...

-Significative part of the **diversity** of sites ;

-**Predictive interest** for the fungal composition of a site ;

-**Description** and **diagnostic** of evolution stages of environments.

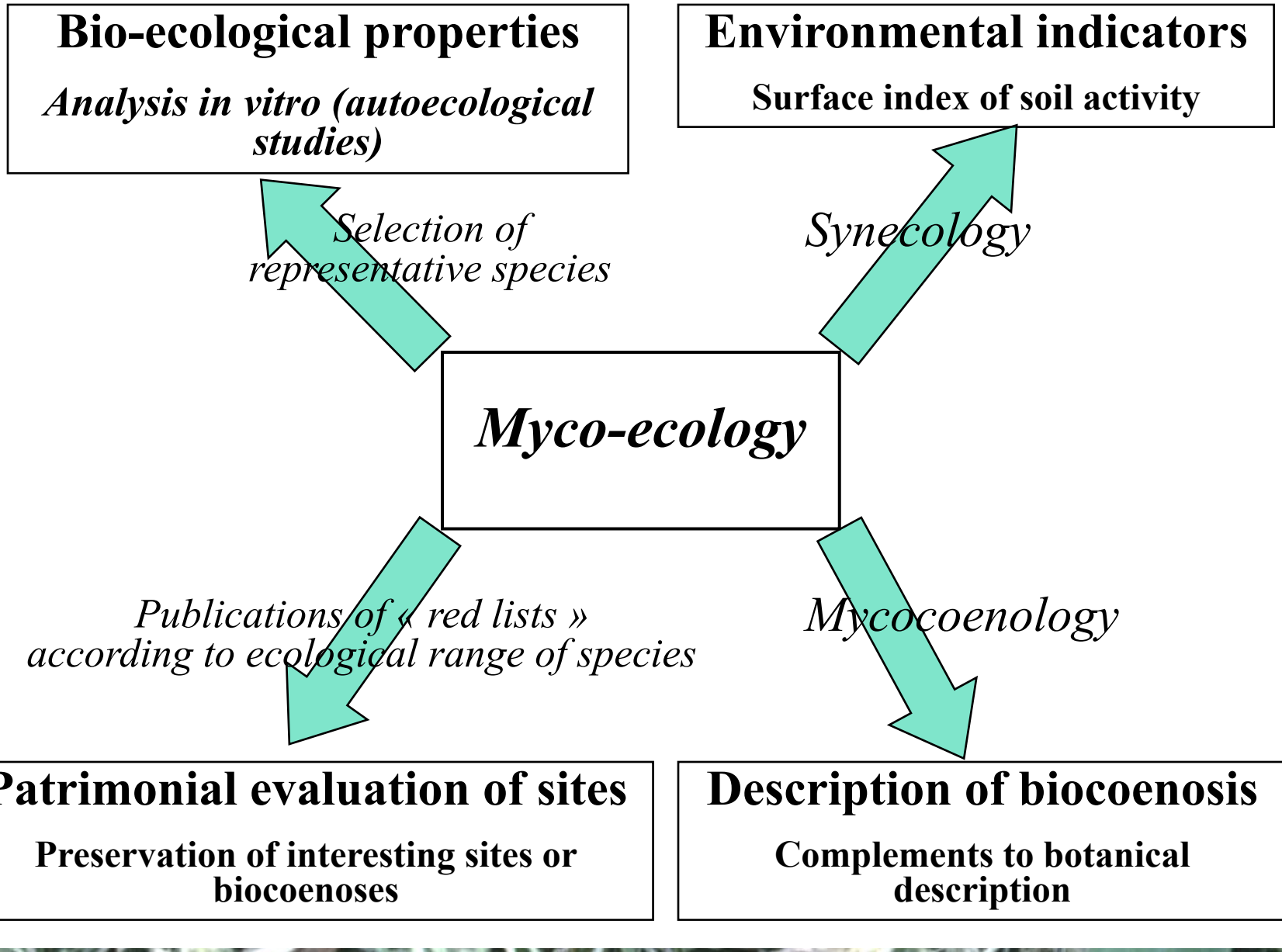
Restraints and consequences

- **Necessity of precise determinations**

  → increasement of taxonomic knowledges

- **Results dependant on sampling representativity**

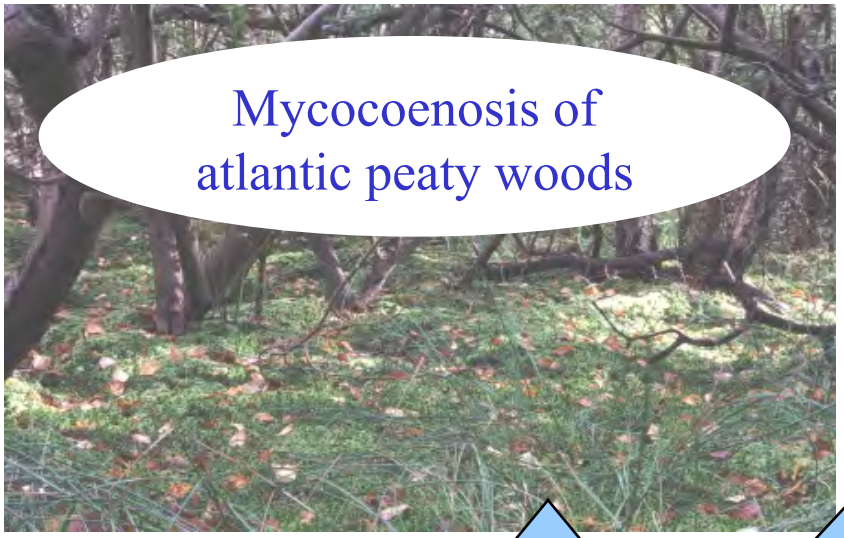
  → need of a first methodologic guide for number of sites, mode of sampling, frequence of visits etc.


Bio-ecological properties
Analysis in vitro (autoecological studies)
Environmental indicators
Surface index of soil activity
Selection of representative species
Synecology
Myco-ecology
Publications of « red lists » according to ecological range of species
Mycocoenology
Patrimonial evaluation of sites
Preservation of interesting sites or biocoenoses
Description of biocoenosis
Complements to botanical description

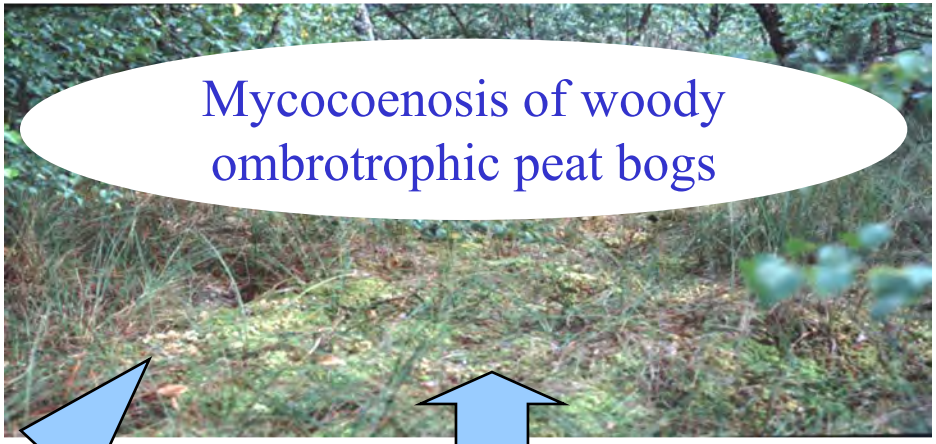
Perspectives in further studies

-**Prolongation of wetland study :** application to a French national project on alder stands ;

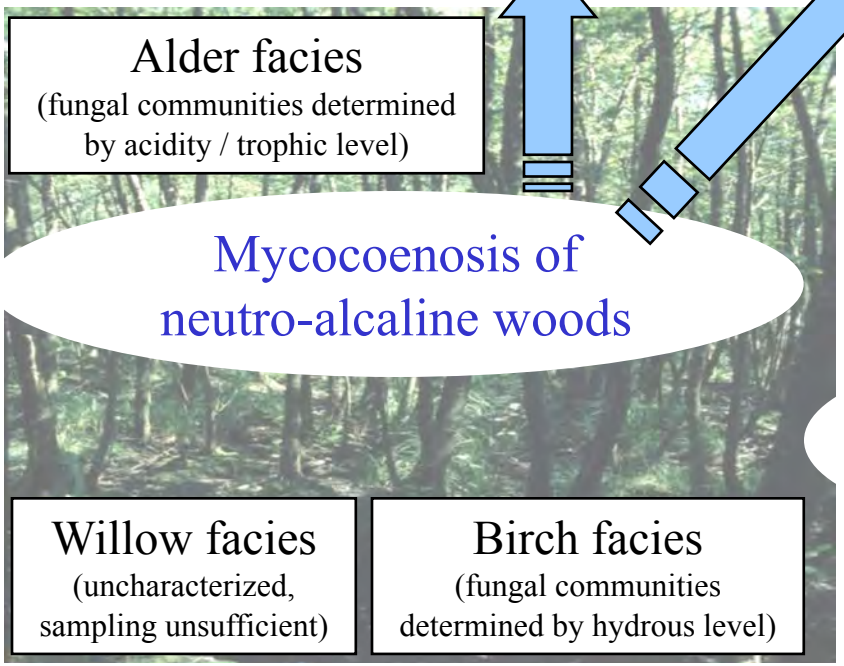
Main results : determination of mycocoenosis



Mycocoenosis of atlantic peaty woods



Mycocoenosis of woody ombrotrophic peat bogs

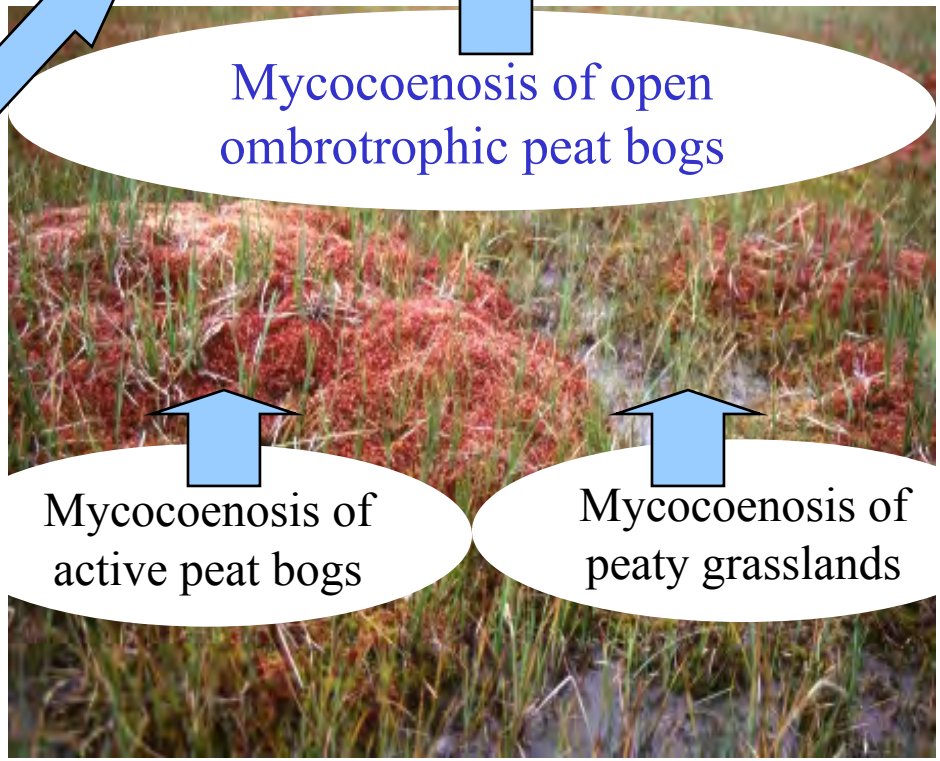


Alder facies
(fungal communities determined by acidity / trophic level)

Mycocoenosis of neutro-alcaline woods

Willow facies
(uncharacterized, sampling unsufficient)

Birch facies
(fungal communities determined by hydrous level)



Mycocoenosis of open ombrotrophic peat bogs

Mycocoenosis of active peat bogs

Mycocoenosis of peaty grasslands

Perspectives in further studies

-**Prolongation of wetland study :** application to a French national project on alder stands ;

-**Application of synecological / mycocoenological analysis :** development of a diagnostic tool for dynamics of alder stands (indicator species) → contribution to ecological management of wet forests

-**Taxonomic knowledge :** ecological studies require a high knowledge of characteristic species (in alder forests : especially *Alnicola*...)

- Post-doctorat project : taxinomic revision of the genus *Alnicola* (Basidiomycetes, *Cortinariaceae*)

See you in 2005 !


Hygrocybe coccineocrenata
Omphalina favrei
Galerina paludosa
Hygrocybe cf.cantharellus
Cortinarius sphagneti
Amanita friabilis
Tephrocybe palustris
Coprinus martinii
Entoloma mougeotii
Psathyrella sphagnicola
Rickenella fibula var. hydrina

Peat bog communities :
Chances and limits of ecological studies of Macrofungi

Pierre-Arthur Moreau, 15-I-2003

Spectre de répartition des espèces les plus fréquentes selon l'acidité