BioHab
A framework for the coordination of Biodiversity and Habitats

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Rob Jongman and Bob Bunce

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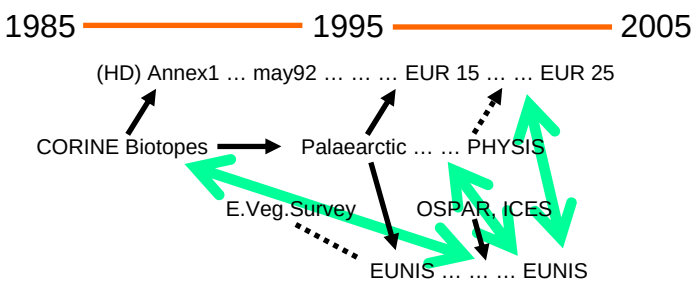
Pan-European habitat classifications

CORINE Biotopes
Palaearctic Habitat Classification
EU Habitats Directive Annex 1
EUNIS Habitat Classification



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National Habitat Classifications

The national habitat classifications that have been most important to Biohab are those that operate :

- comprehensively or for major ecosystems
- with long-term, strategic contexts
- for recording, collection and organisation of primary data e.g. field survey

for example:

Austria	*Catalogue of Biotope Types of Austria*
Belgium (Flanders)	*Biological Valuation Map*
Czech Republic	*various*
Norway	*"3Q"*
Switzerland	*Swiss typology of habitats, 1990*

In Summary

- Hierarchical class lists are the common currency of Europe's habitat classifications
- The national classifications in particular often relate to specific national contexts (histories, policies) and conditions
- Widespread use of terms based on the local value ranges
- Linear and point feature habitats are under-represented
- Many of the classifications are based on phytosociology:
  - habitat is mainly seen in terms of vegetation
  - with less detailed hierarchies for non-vegetated habitats
  - highly disturbed situations are not covered
  - application requires local phytosociological expertise
- Where cross-walks have been made between classifications these use qualitative relationships (e.g. "narrower", "same"); there have been few possibilities for making more quantitative linkage between data from different habitats registrations

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BioHab objective

Development of a **method**

- to **consistently collect** European habitat information from each country
- to contribute to an **unified dataset** across national borders recognising individual national interests

Support of European biodiversity policy

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Statistical definitions are required, because:

- Many habitat classifications are defined by species, which vary according to region and ecological amplitude
- Regional names of habitats are not consistent:
  - Mattoral (ES), Maquis (F), Macchia (I),
  - Garrigue (F), Carrascal (P), Phrygana(GR)
- Environmental terms have different meanings:
  - dry in Scotland is not the same as dry in Greece
  - Urban is not the same in the Carpathians and Belgium

BioHab principles

- General Habitat Categries (GHC) are based on the regression of life forms on the environment
- They are based on classic science as defined by Raunkiaer (1908)
- Transcends species
- No biogeographical terms used
- No local names used
- The key is based on statistical rules at all stages

The BioHab Approach

- There are strict rules for determining GHC's: one field visit or from extant data
- Explicit rules for definition of GHC's and all qualifiers
- Minimum mappable units are defined
- Strict rules for separating map elements

Chamaephytes

Pictures from BioHab website

Hemicryptophytes

Cespitose hemicryptophytes

Leafy hemicryptophytes

Pictures from BioHab website

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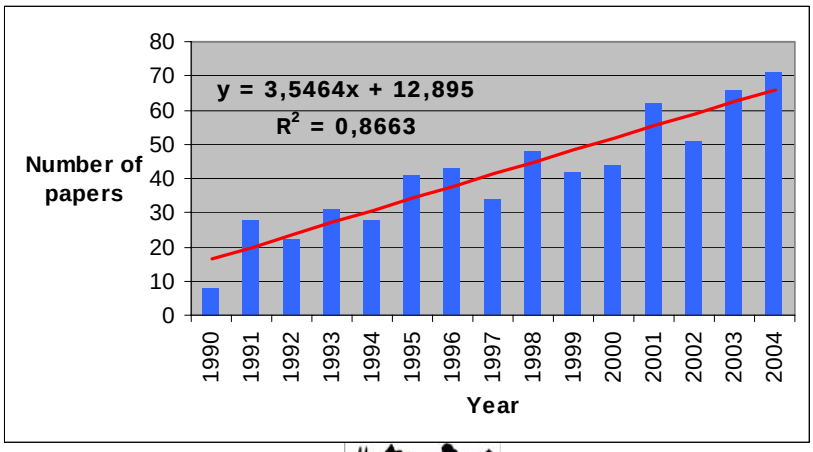
Life form in scientific literature (years 1990-2004)



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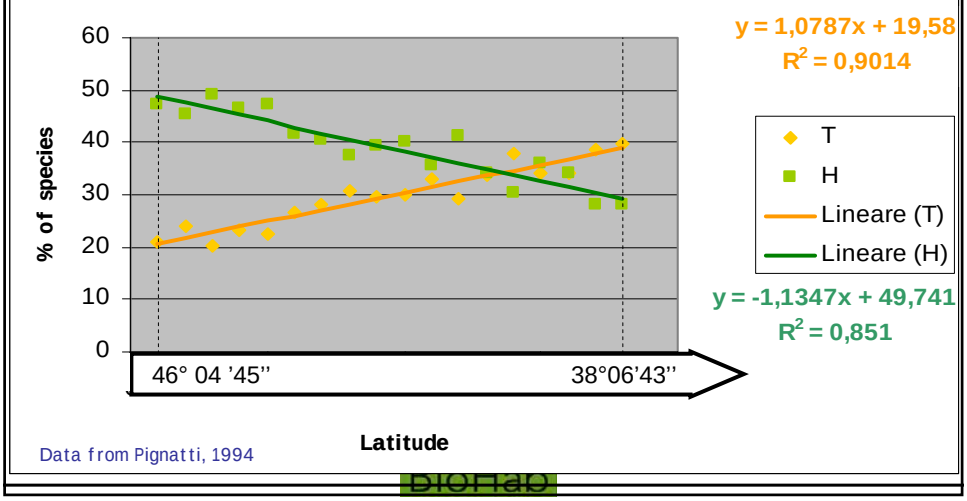
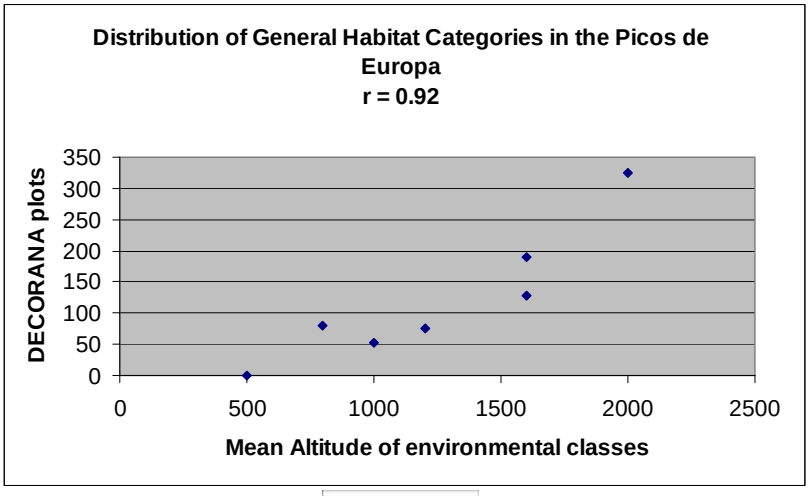
Life forms in Italian flora

- When we consider the latitude (here expressed as latitude of the main city of each region) we can observe some clear trend



Data from Pignatti, 1994

Relationship Habitats and Environment



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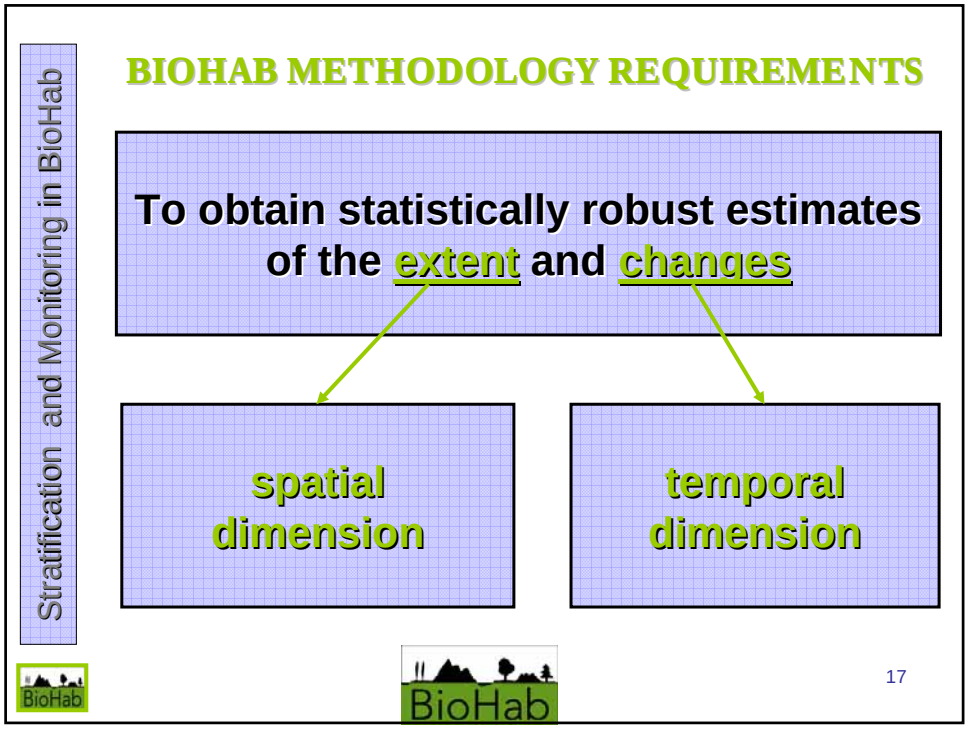
Stratification and Monitoring in BioHab
BIOHAB METHODOLOGY REQUIREMENTS
To obtain statistically robust estimates of the extent and changes
spatial dimension
temporal dimension
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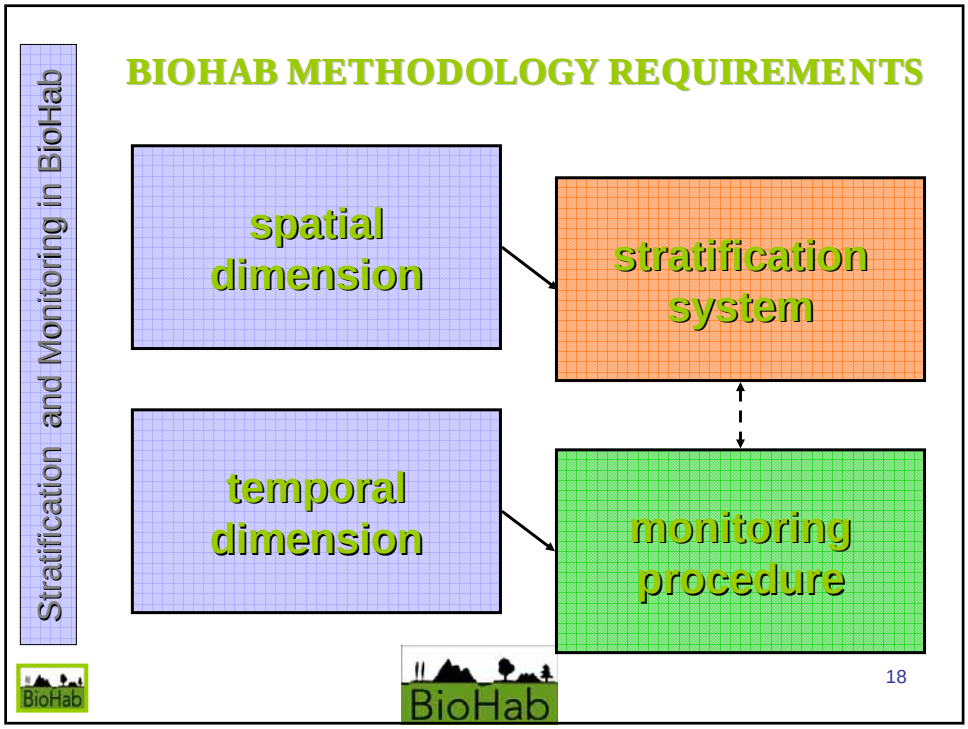
Stratification and Monitoring in BioHab
BIOHAB METHODOLOGY REQUIREMENTS
spatial dimension
stratification system
temporal dimension
monitoring procedure
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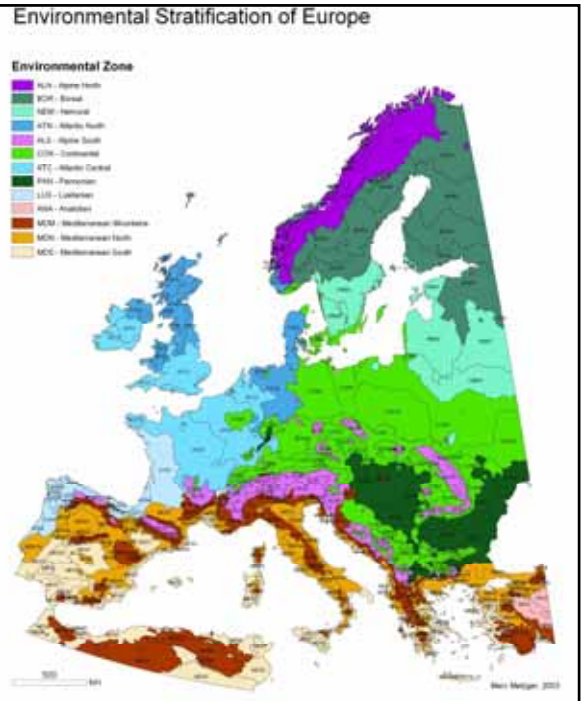
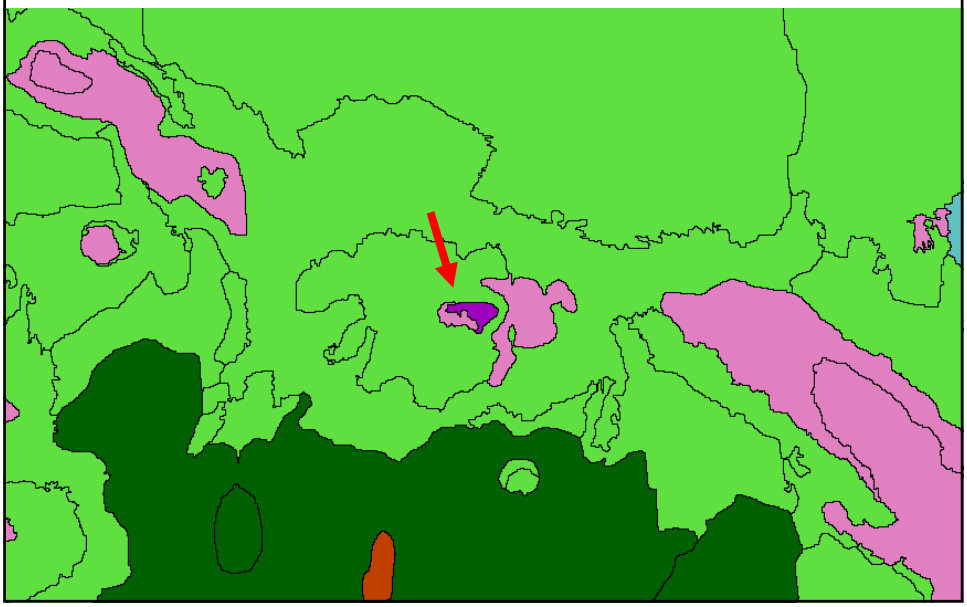
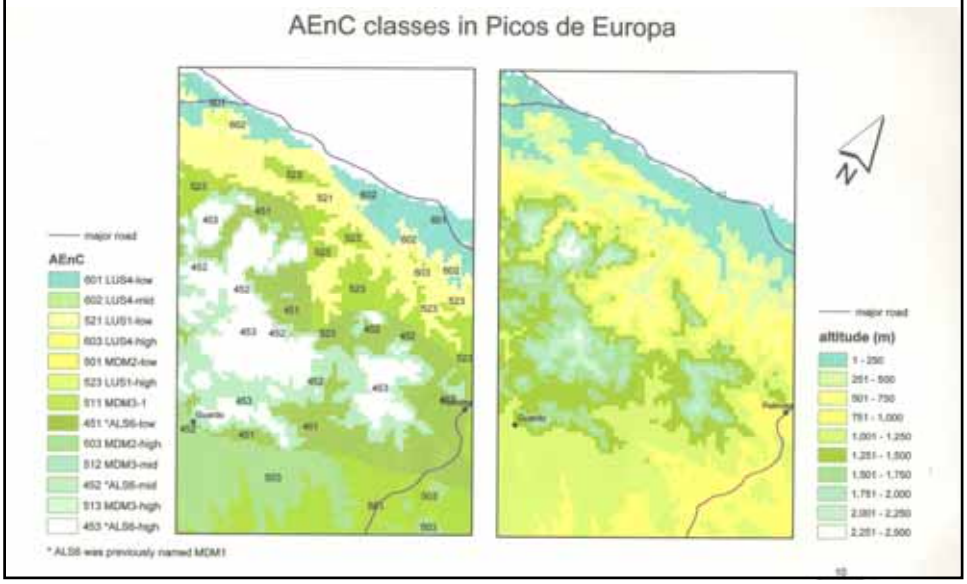
Stratification system for BioHab:
13 zones,
84 strata
140 strata including altitudinal bands



Detailed zoning: High Tatra



Detailed structure of EnS in mountains



Mountain regions require special attention

- Altitudinal zoning is needed
- Altitudinal zones are different between Scandinavia, Alps and Mediterranean mountains
- Monitoring according to different zones and altitudinal bands is essential to obtain reliable results

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Field testing of the BioHab approach

Data characteristics:

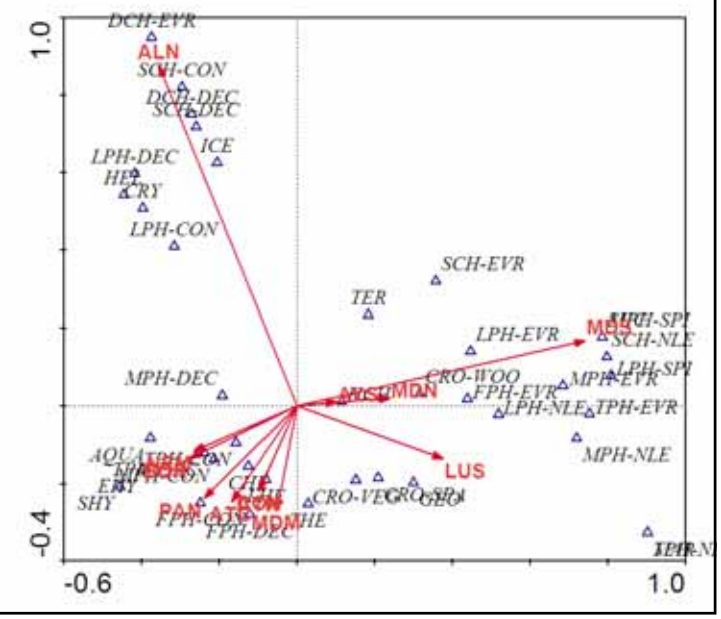
- Number of sample units 504 in 12 Environmental zones
- Average 42 (13 – 88), sd 24
- Lowest sample: Mediterranean North (13)

Result: Biplot of EnZ and GHC's

Eigenvalue

Axis 1: 0.43

Axis 2: 0.33



Explanation

- Alpine North and Mediterranean South have a rather large number of characteristic habitats (statistically significant, p>95%):
- ALN: DCH-DEC, DCH-EVR, ICE, SCH-DEC, SCH-CON, LPH-DEC, LPH-CON
- MDS: SCH-EVR,SCH-NLE, LPH-EVR, LPH-SPI, MPH-EVR, MPH-SPI, FPH-EVR

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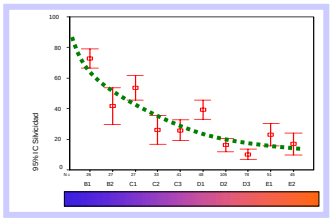
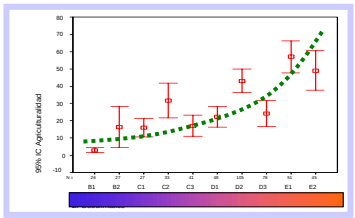
Stratification and Monitoring in BioHab

SPAIN: SISPARES RESULTS

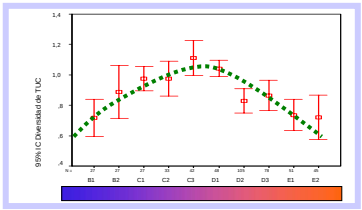
Habitat distribution along the main geoclimatic gradient



Forest Habitats



Agricultural Habitats



Habitat Diversity

This validated the Spanish CLATERES as stratification system

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SISPARES RESULTS

Natura 2000 landscapes are significantly different

Natura 2000 landscapes are much more forested than other landscapes

Natura 2000 landscapes are much less agricultural than other landscapes

Natura 2000 landscapes are much more connected than other landscapes

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Conclusions

- Integrating European and national Habitat classification systems is possible using BioHab
- Monitoring habitats at the European level or integrating national systems is possible using BioHab
- European reporting is possible combining national results into a European database

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