

BIOHAB: Habitat monitoring in Europe: a common and cost-efficient approach

Rob Jongman



Introduction

- It is scarcely necessary to emphasize the importance of establishing beforehand the exact details of sampling procedures to be adopted in any investigation involving several observers, as even slight deviations in method between observers may invalidate comparisons of their data. (P Greig-Smith, 1957)

Objective and general output:

Objective:

- produce a methodology for the co-ordination of consistent habitat information across Europe, which can then be linked to biodiversity measures.

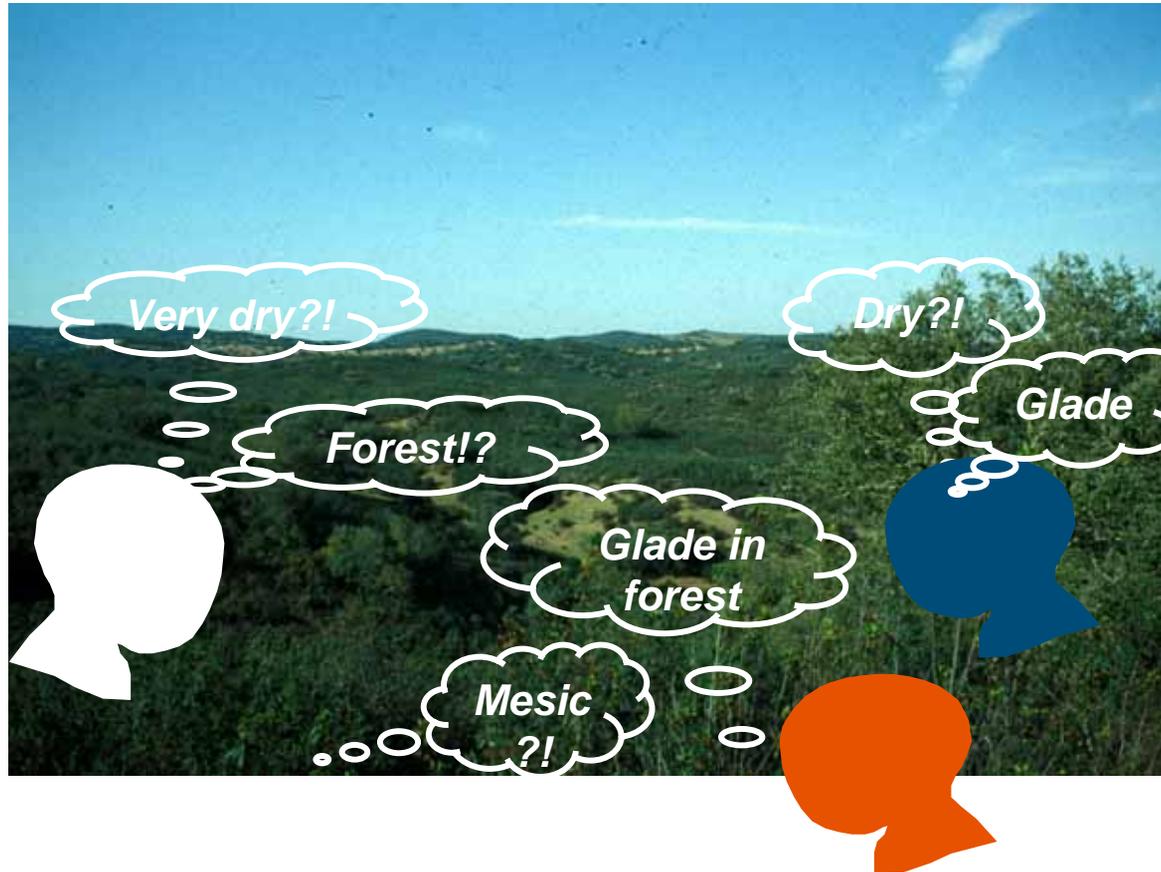
Output:

- user friendly description of habitats at an appropriate level for consistent application throughout Europe. (identification key, photograph catalogue, Field Monitoring Handbook)
- User-friendly tools in support of implementing the Habitat Directive, including NATURA 2000 (Field Monitoring Handbook)
- Links to other European projects, both scientific and policy-oriented

What do practitioners need?

- A common language for expressing the same occurrences in the same form;
- Common definitions and rules;
- Integrated in a common tool;
- Linked to other existing tools;
- Covers all areas;
- User-friendly.

What do practitioners need? Field recording...



- Disciplines
- Approaches
- Methods
- Classification system
- Viewpoint
- Perception
- Geographical origin
- Training

Decision maker's questions

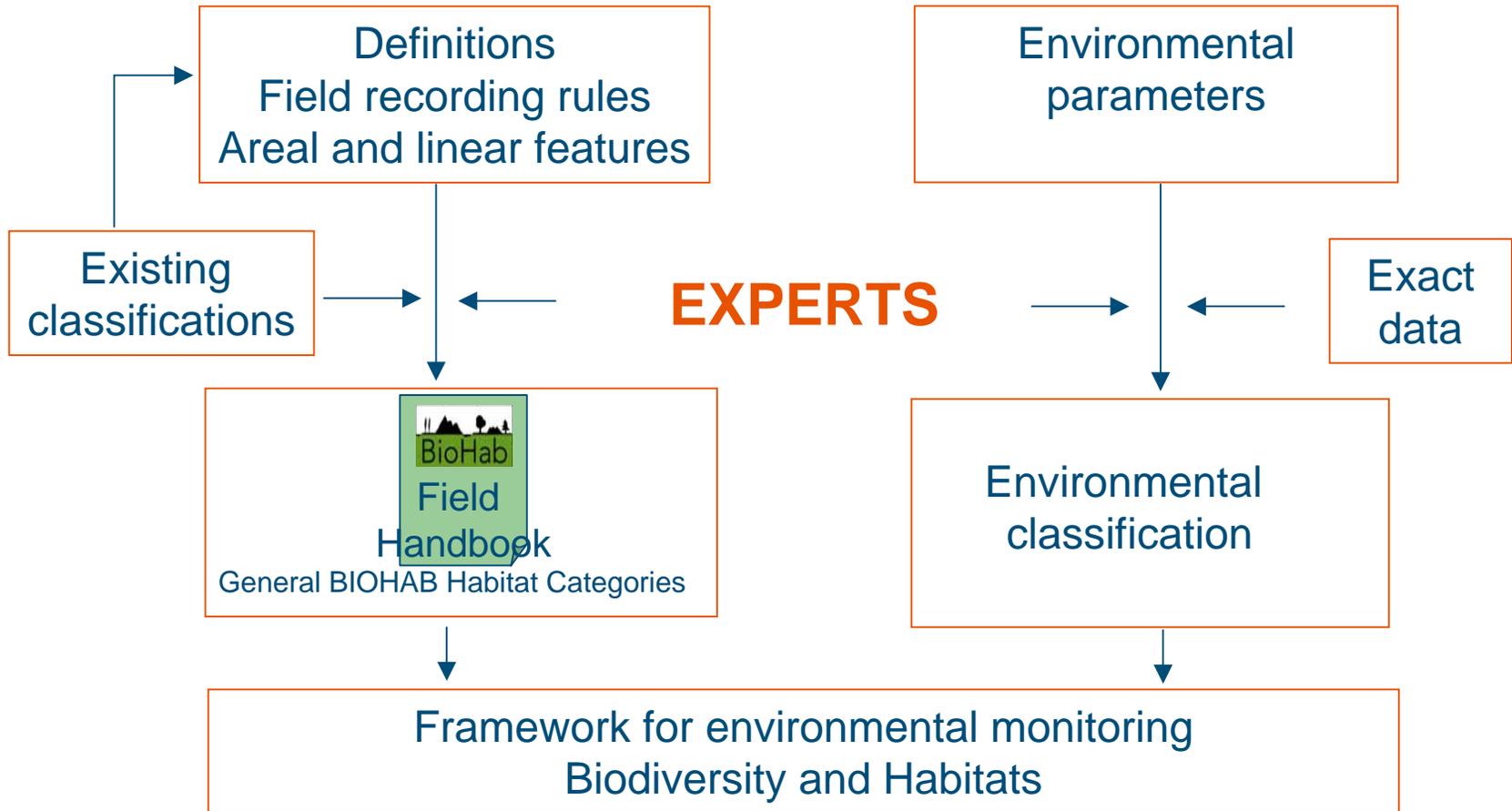
- How to define **priorities** for conservation?
- On which **parameters** and **criteria**?
- Where is the **potential** for conservation?
- Are policy measures having **effect**?
- What is **changing**? Where and why?
- What to **support**?
- What will it **cost**?

OECD Working Group on Environmental Information and Outlooks (WGEIO) “*OECD Core Biodiversity Indicators – Further work*” (Oct.14.2002; Background note)

“*Lack of data and insufficient quality of the data available are generally seen as major constraints to the development of better indicators on biological diversity*”.

- *Aggregating up to regional and OECD level is often not possible, and*
- *The level of comparability among countries remains low*

BioHab methodology



What is new about the BioHab methodology?

- Introduces **definitions** based on standard ecological criteria;
- Removes local and **biographical terms**;
- Considers **pressures** e.g. management information;
- Has detailed information on **sucession**;
- Provides information on **composition** of mixture of the patch;
- Introduces extraordinary elements (e.g. **linear habitats**).

Characteristics of data in BioHab

- BioHab focuses field data of habitats
- BioHab field mapping method has been applied
- Data collected by the same method
- Data collected in all Europe
- Not yet a real random selected or random stratified sample, but a representative sample

Sites for Data collection

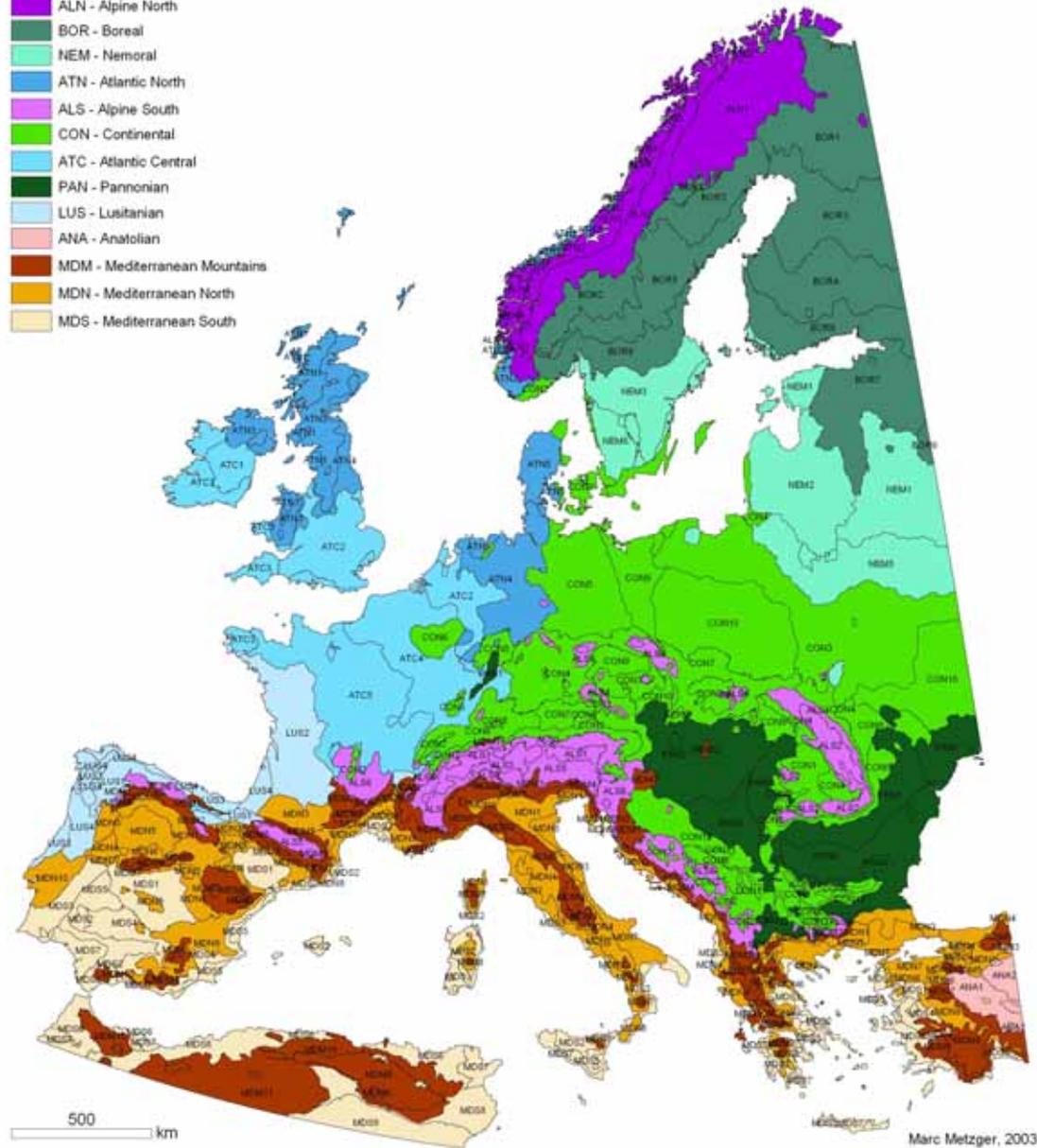


Environmental Stratification of Europe

BioHab has been applied in European EnZ's

Environmental Zone

- ALN - Alpine North
- BOR - Boreal
- NEM - Nemoral
- ATN - Atlantic North
- ALS - Alpine South
- CON - Continental
- ATC - Atlantic Central
- PAN - Pannonian
- LUS - Lusitanian
- ANA - Anatolian
- MDM - Mediterranean Mountains
- MDN - Mediterranean North
- MDS - Mediterranean South



Marc Metzger, 2003

Analysis method: Canonical Correspondence

Analysis

- We suppose:
 - Habitats have a normal distribution over (parts of) Europe
 - Habitats characterise different regions in Europe
 - Data have been collected at random or selected random
 - Data have been collected in a consistent way

Data characteristics

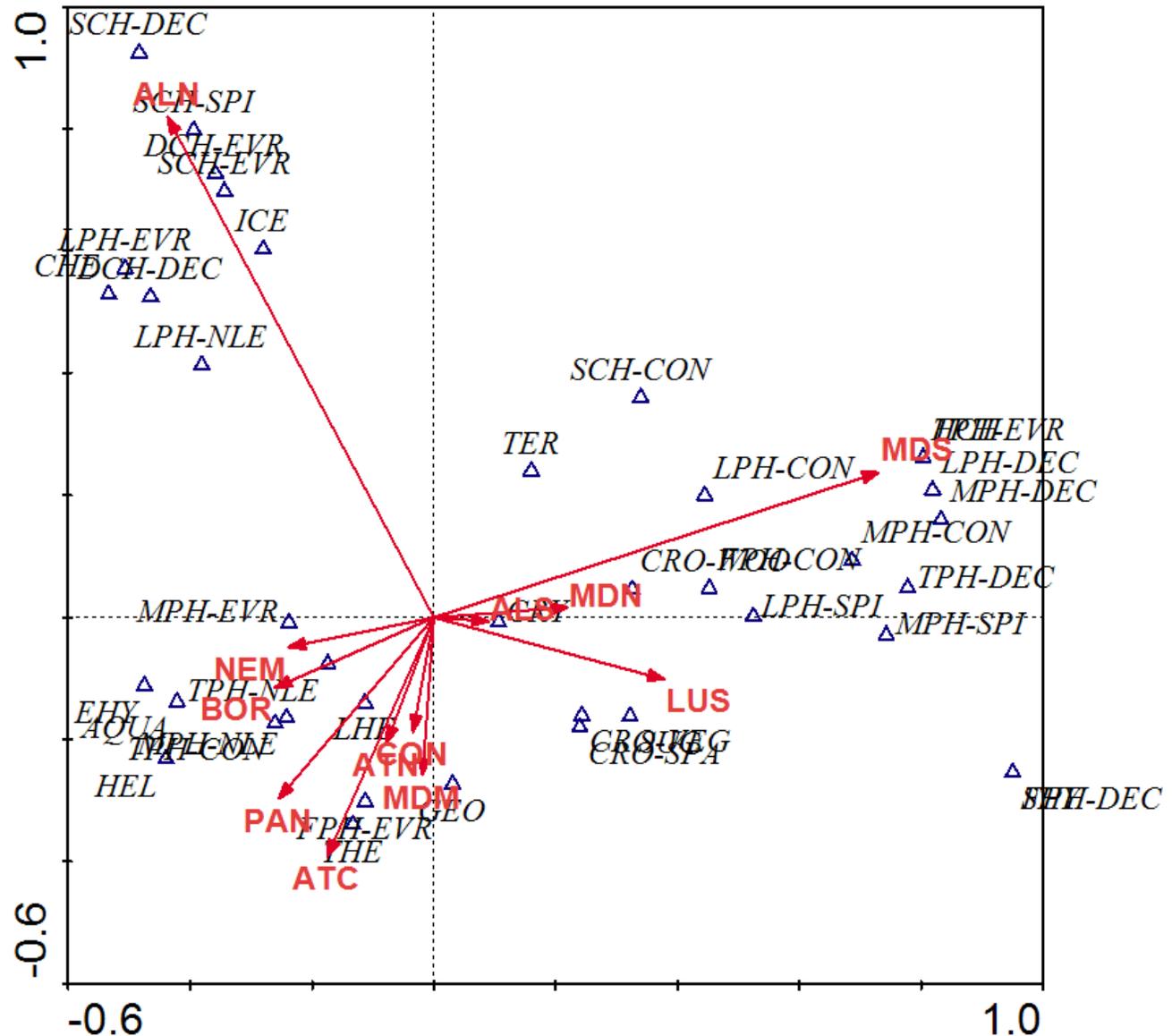
- Number of sample units
- Total: 504 in 12 Environmental zones
- Average 42 (13 – 88), sd 24
- Lowest sample: Mediterranean North (13)

Result: Biplot of EnZ and GHC's

Eigenvalue

Axis 1: 0.43

Axis 2: 0.34



Explanation 1:

- 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

Explanation 2:

- The intermediate Zones MDN and LUS are characterised by 3-4 GHC's ($p > 95\%$):
- LUS: GEO, LPH-SPI, MPH-NLE, TPH-NLE
- MDN: LPH-NLE, MPH-DEC, MPH-EVR,

Explanation 3:

- Zones in the large group (NEM, BOR, PAN, ATC, MDM) have no or only a few characteristic habitat types ($p > 95\%$);
- mostly these zones are characterised by combinations; sometimes by absence of habitat types

Explanation 4: Characteristic habitat types (p>95%):

- ALS:-
- ATN: CHE
- ATC –
- CON: FPH-CON
- BOR: HEL
- NEM: CRY, SHY
- MDM: FPH-DEC

Call for integration

- Cardiff process

Calls for integration of environmental concerns into sectoral policies

- Agricultural policies

- Spatial planning

- Regional development

- Transport policy



LAND USE CHANGE
Change in management practices

Call for integration: example...

Agricultural policy

- 80% of European Territory
- 15-25% High nature value farmland
- Increasing role of farmers



LAND USE CHANGE
Change in management practices

- Agro-environmental measures
- Afforestation measures
- Early retirement
- Cross compliance
- “Decoupling”

How is BioHab of interest to stakeholders?

	Practitioners			Decision makers	
	Field recording	Reporting	Other sectors	Environment	Other sectors
Definitions, mapping rules and criteria (based on standard ecological criteria)	☉	☉			
Compatibility with existing regional and European Habitat classifications Tool for integration into European context > reporting		☉		☉	
Can be used to locate the existing habitat in succession context Where it comes from and where it can develop, depending on policy options		☉	☉	☉	☉
Availability of management information			☉	☉	☉
Relation structure with existing land use databases		☉	☉	☉	☉
Information on composition of mixture of the patch		☉	☉		
It can be the basis for environmental reporting		☉	☉	☉	☉

Thank you

© Wageningen UR

