

Data issues in habitat monitoring

Andrej Seliškar
Scientific Research Centre,
Slovenian Academy of
Sciences and Arts, Ljubljana



Aims of this presentation

- History of habitat approaches
- Habitat properties, attributes
- Types of data used in monitoring
- Integration of monitoring schemes
- Analysis of data – where are the main gaps
- Links Natura 2000
- 2010 target– how to judge whether ambitious goals are met?

History of habitat approaches

- **Habitat:** physical, chemical and biological component of a defined geographical area
- **Background review**
- First comprehensive approaches:
 - CORINE habitat classification (1985-1991)
 - Habitat directive (1992)
 - Palearctic habitat classification (1993)
 - Local, regional classifications
- **Recent situation**
- EUNIS (2004) – CORINE + Land Cover, PHYSIS, Annex 1 of HD, Nordic habitat classification, BioMar
- Natura 2000

Habitat properties, attributes

Typology

- physiognomy,
- abiotic conditions
- plant community composition
- plant dominance
- succession stages
- animal community composition

Texture

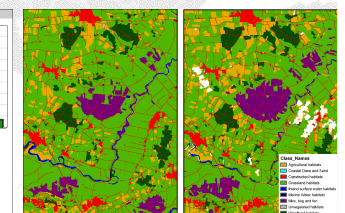
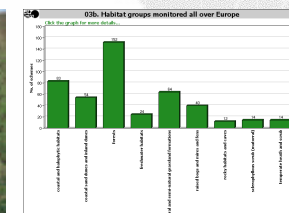
- number of habitat patches
- relative or absolute area

Structure

- spatial distribution of patches
- geographical relationships-fragmentation, connectivity
- (fragmentation indices, landscape metrics)

Field-based monitoring

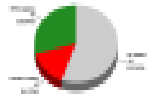
Remote sensing



Types of data and of monitoring schemes

Field-based monitoring

H1	composition, distribution
H2	species presence-absence/species abundance
H3	environmental parameters
H4	field mapping
H28	structural changes, species composition, fragmentation, indicator-keystone-umbrella-typical species, physical-chemical environment



Remote sensing monitoring

H4	Spatial variations in habitat are documented by: <i>remote sensing</i>
H7	How do you choose sites to be monitored: <i>exhaustive sampling</i>
H19	Monitoring data are analyzed by: <i>advanced statistics</i>
H20	all habitats in the area monitored?
H28	The quality criteria you monitor are: <i>fragmentation</i>

- **holistic approach** - all habitats in region + spatial aspect
- **targeted approach** - local habitats + no spatial aspect

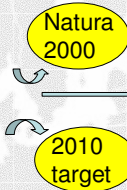


Integration of habitat monitoring schemes

Why is integration essential?

The monitoring of habitats is becoming widespread in Europe; national, regional and local schemes are established

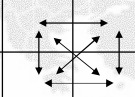
Need to address biodiversity changes on large spatial, European and long-term scale



An integrated pan-European habitat monitoring scheme

The procedure of integration

Spatial aspect	Documenting of Spatial variation	Extent of habitat coverage	Number of schemes
Spatial (n = 63)	Field mapping	Holistic	16
		Targeted	26
	Remote sensing	Holistic	16
		Targeted	5
Non-spatial (n = 83)	-	Holistic	66
	-	Targeted	17
<i>Total:</i>			146

Class	Holistic	Targeted
Remote-sensing		
Field mapping		

possible integration combinations for the four classes of schemes with spatial aspect



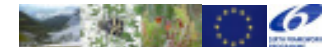
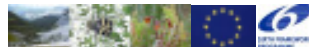
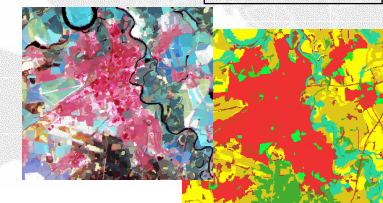
Possible outputs and benefits of integration

- Increase in the extent, resolution of the area where all habitats are monitored
- Common maps can be prepared
- Disjunct areas are combined in order to increase the monitored area of focal habitat types
- The spectrum of the habitats monitored is broadened
- Targeted scheme can complement the holistic scheme in the common area

Analysis of data – where are the main gaps

- activities fragmented
- MS scattered
- started only recently
- small in geographical scope (55.4% local)
- cover only one or a few habitat types
- data collection methods not standardised
- remote sensing is rare (14.8%)
- field mapping is not very frequent (29.5%)
- processed information is not easily accessible for decision makers and stakeholders

Cause of change	Percentage (85)
Land use	34.6
Fragmentation	18.6
Pollution	15.7
Invasive species	9.4
Habitat succession	9.4
Catastrophic event	7.7
Climate change	4.6



Natura 2000

Reporting format

Distribution map
Surface area
Date
Method used ground based, remote sensing
Quality of data
Trend
Trend-Period
Reasons for reported trend
Justification of % thresholds for trends
Main pressures
Threats

Integrated monitoring should include all Annex I habitat types, SCI and SPAs and should be completed with field-mapping of Annex I habitat types
remote sensing-basis
manageability of large spatial scales
changes in spatial properties to detect small-scale and relevant changes
Gaps in habitat types and areas should be covered with new monitoring schemes

2010 Biodiversity Target

The development of tools for the valuation of biodiversity is a priority.

Fully functional integrated EU monitoring scheme	Lack of time until 2010 but urgent asap
Integration of data from currently existing schemes	Is becoming a high priority
A set of indicators may be used to assess achievement of the 2010 target	Detected by the integration of DaEuMon data <ul style="list-style-type: none"> trends in extent of habitats fragmentation connectivity
EuMon database	Can contribute to the evaluation of 2010 biodiversity target

Conclusions, recommendations

- **Monitoring strategy: Extension of existing monitoring schemes with missing information – spatial data, analysis of data, detection of changes**
- **Monitoring of missing habitats**
- **Harmonization of typology – EUNIS?**
- **Higher involvement of volunteers**
- **Efforts for fully functional integrated EU monitoring scheme?**

Thank to all EuMon contributors
and for your attention

