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Swiss Confederation

Federal Department of Economic Affairs DEA
Agroscope Reckenholz-Tänikon Research Station ART

Biodiversity monitoring and evaluation

Felix Herzog, Agroscope ART

Tel Aviv, 5.11.2009

Why monitoring & evaluation?

1. Biodiversity is important

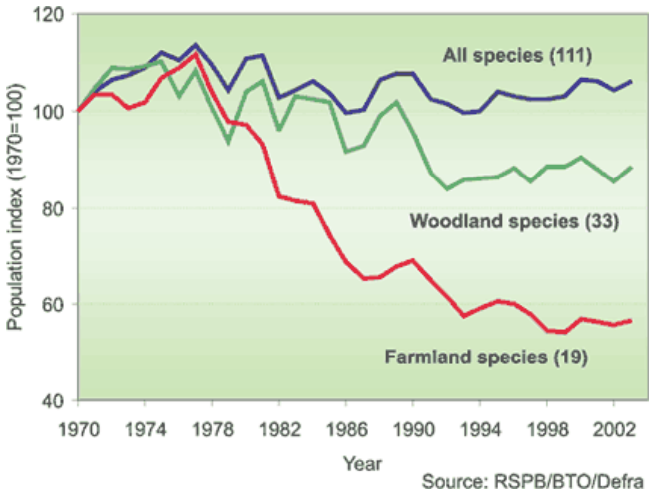
Inherent value

Ecological functions

Why monitoring & evaluation?

2. We affect biodiversity

Decline

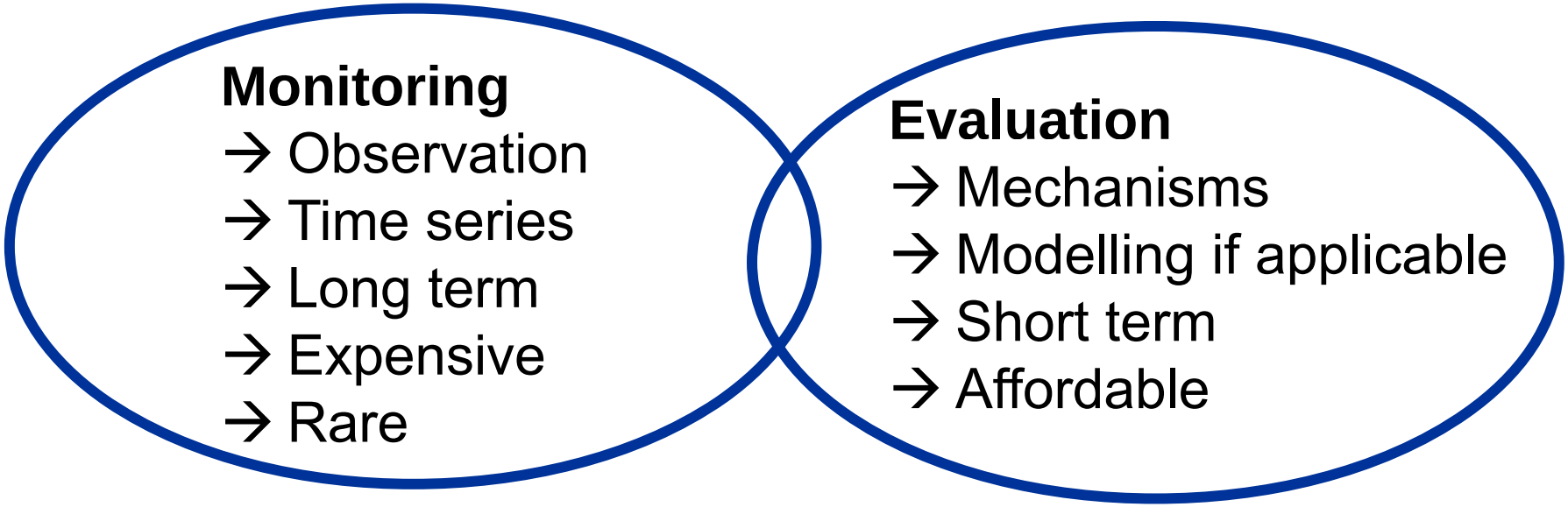


Promote

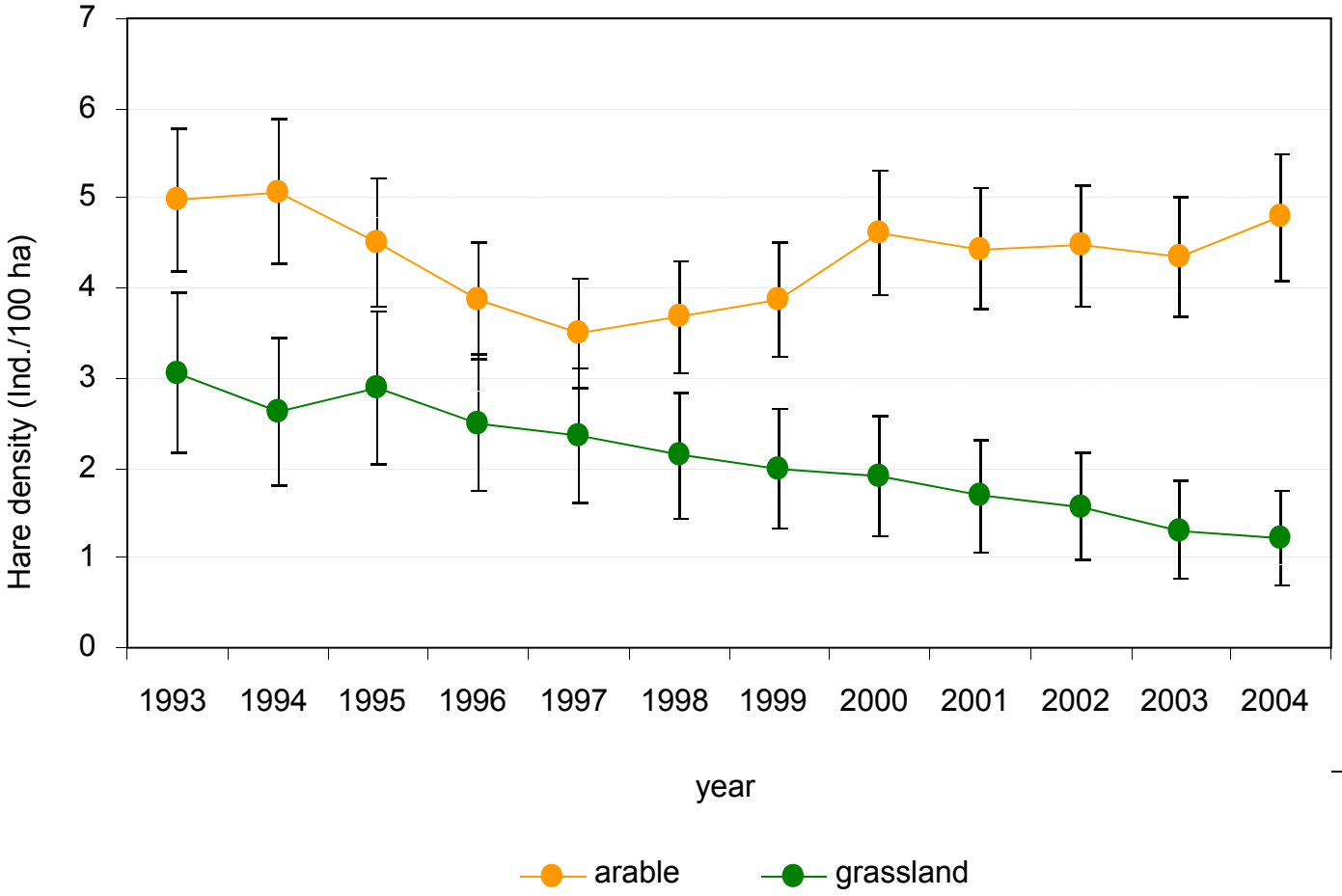
Modify

e.g. Invasive species

Monitoring: Observation of trends
Evaluation: Cause-effect relations

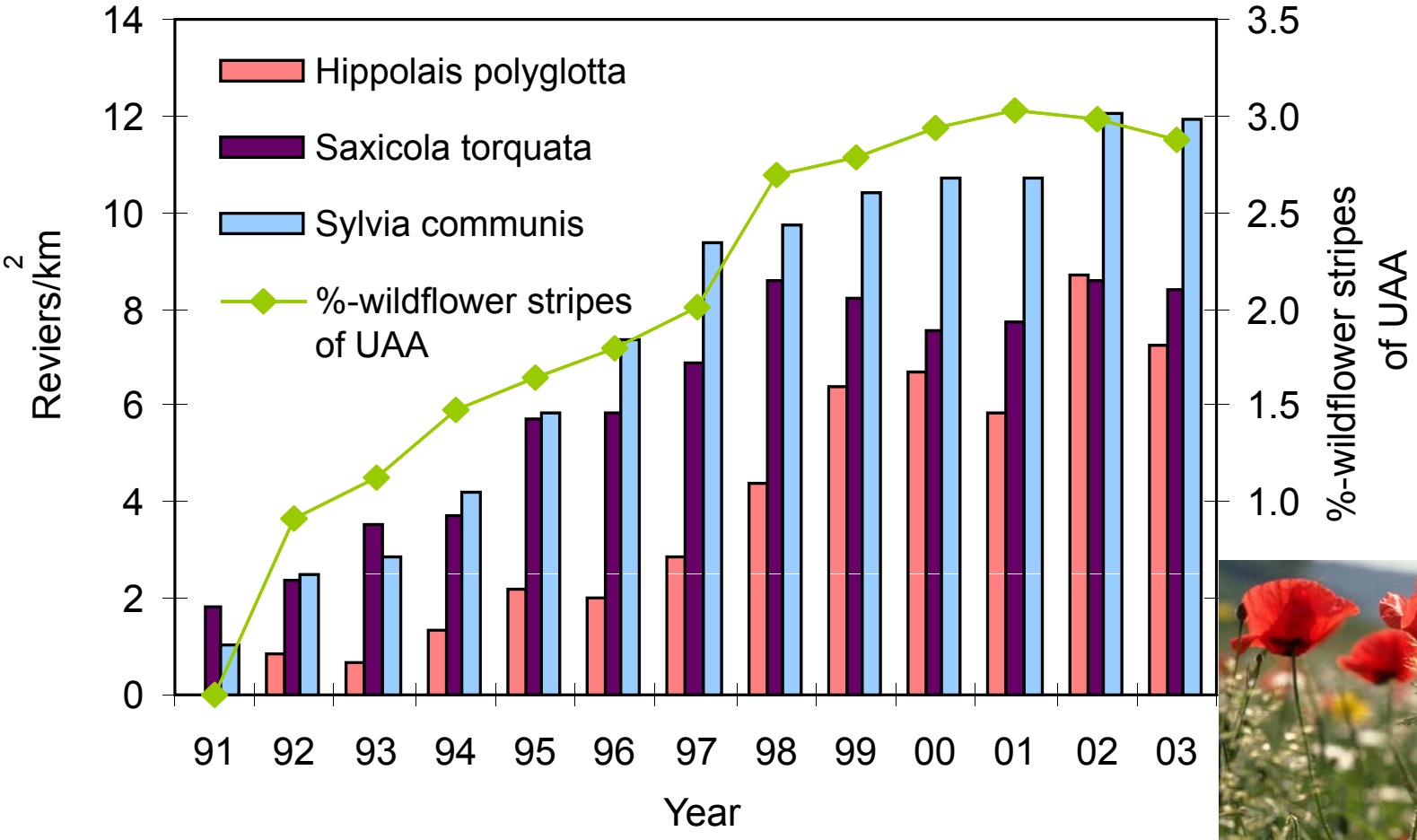


e-.g. Monitoring hare



Holzgang et al. in Herzog & Walter , 2005

e.g. Monitoring birds‘ populations reacting to increased ecological infrastructure



Birrer et al. in Herzog & Walter , 2005

Biodiversitaets-Monitoring Schweiz

Datei Bearbeiten Ansicht Favoriten Extras ?

Zurück Suchen Favoriten

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Glossary
Indicator? Diversity? If these concepts are Greek to you, you will find an explanation here.

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photo: AURA

Goal not yet achieved

> The status of the biological diversity in Switzerland

The most important BDM indicators are:
> Species diversity at national and regional level (Z3)
> Species Diversity in Landscapes (Z7)
> Species diversity in habitats (Z9)

BDM publishes detailed information on biodiversity trends

Based on eight years of intensive monitoring, BDM presents its second detailed report on biodiversity in Switzerland.
> More on this topic...
> Media release (in German)...
> Pictures from Media Event 19.5.2009 (in German)

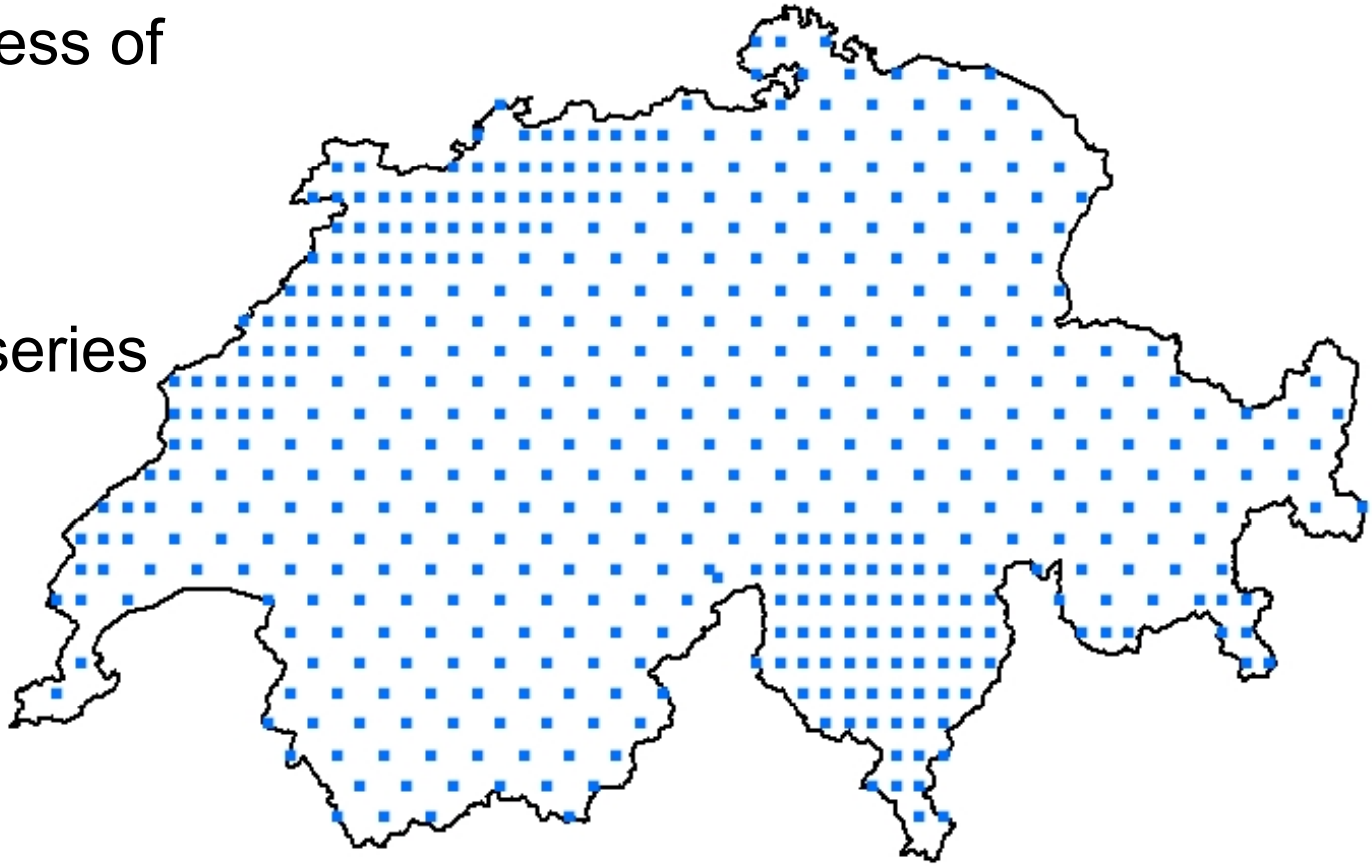
Adaptable Species Are Moving Into Settlements

BDM data indicate that while overall plant species diversity

> E1
> E2
> E3
> E4
> E5
> E6
> E7
> E8
> E9
> E10
> E11
> E12
> E13
> E14
> E15
> Z1
> Z2
> Z3
> Z4
> Z5
> Z6
> Z7
> Z8
> Z9
> Z10

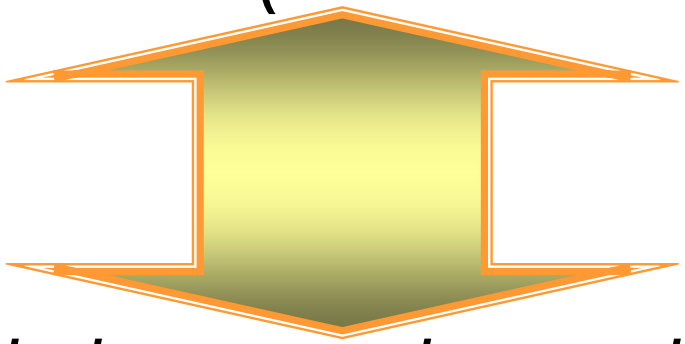
Biodiversity monitoring Switzerland

1 sqkm
Species richness of
•Plants
•Birds
•Butterflies
5-years time series



What to measure?
→ Indicators

- *Indicator is a measurement that reflects the status of a system, for example an oil pressure gauge on an engine or the number of owls in a forest (Alexandra et al. 1996)*



- *Indicators help you understand where you are, which way you are going, and how far you are from where you want to be (Hart 1995, in Somé and McSweeny 1995)*

Indicators for biodiversity
Gene / Species / Habitat

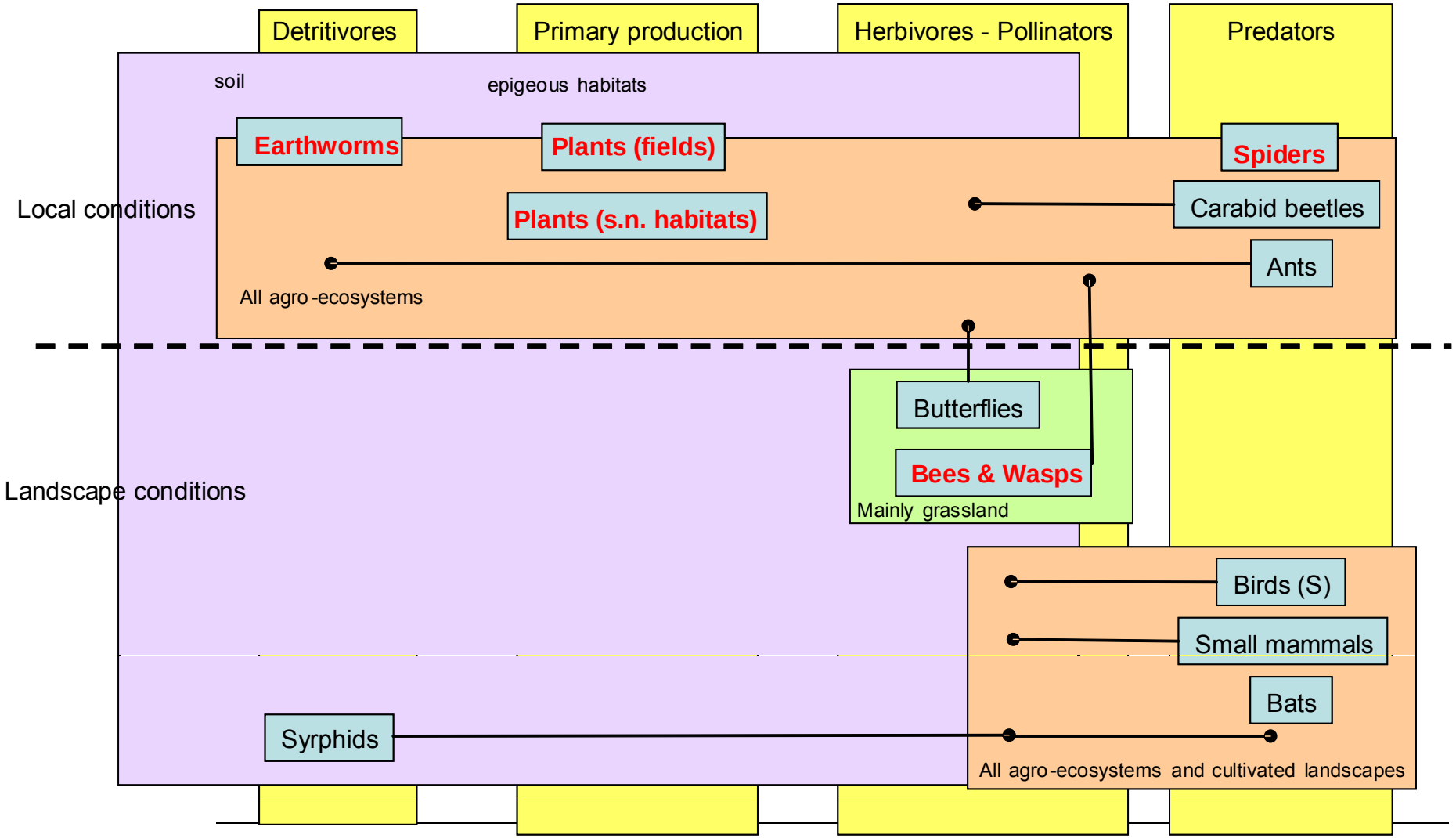
Genetic diversity of crops and husbandary animals

- n° of varieties / races
- Share of varieties / races which
  - are rare
  - have cultural value
- Pedigree analysis where information is available

Species diversity of selected groups

- n° of species
- Diversity indices
- Threatened species
- Specialist species
- Umbrella species
- Emblematic species

Which species to choose?



Habitat diversity

- Difficult methodology
- Risk of variability due to expert judgements

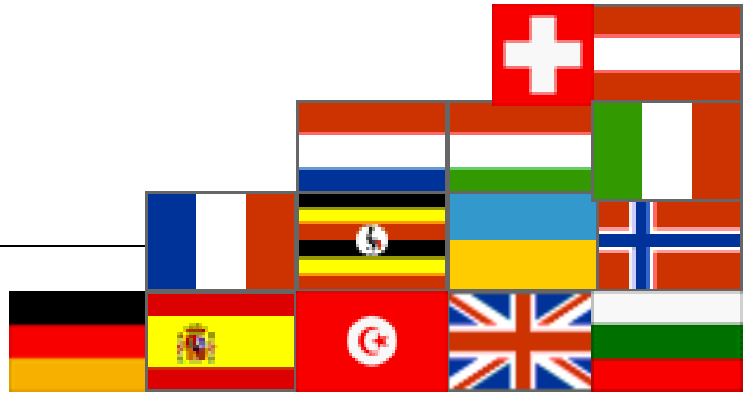
→Standardised method (BioHab, Bunce et al.)

→Careful training

→Strict rules

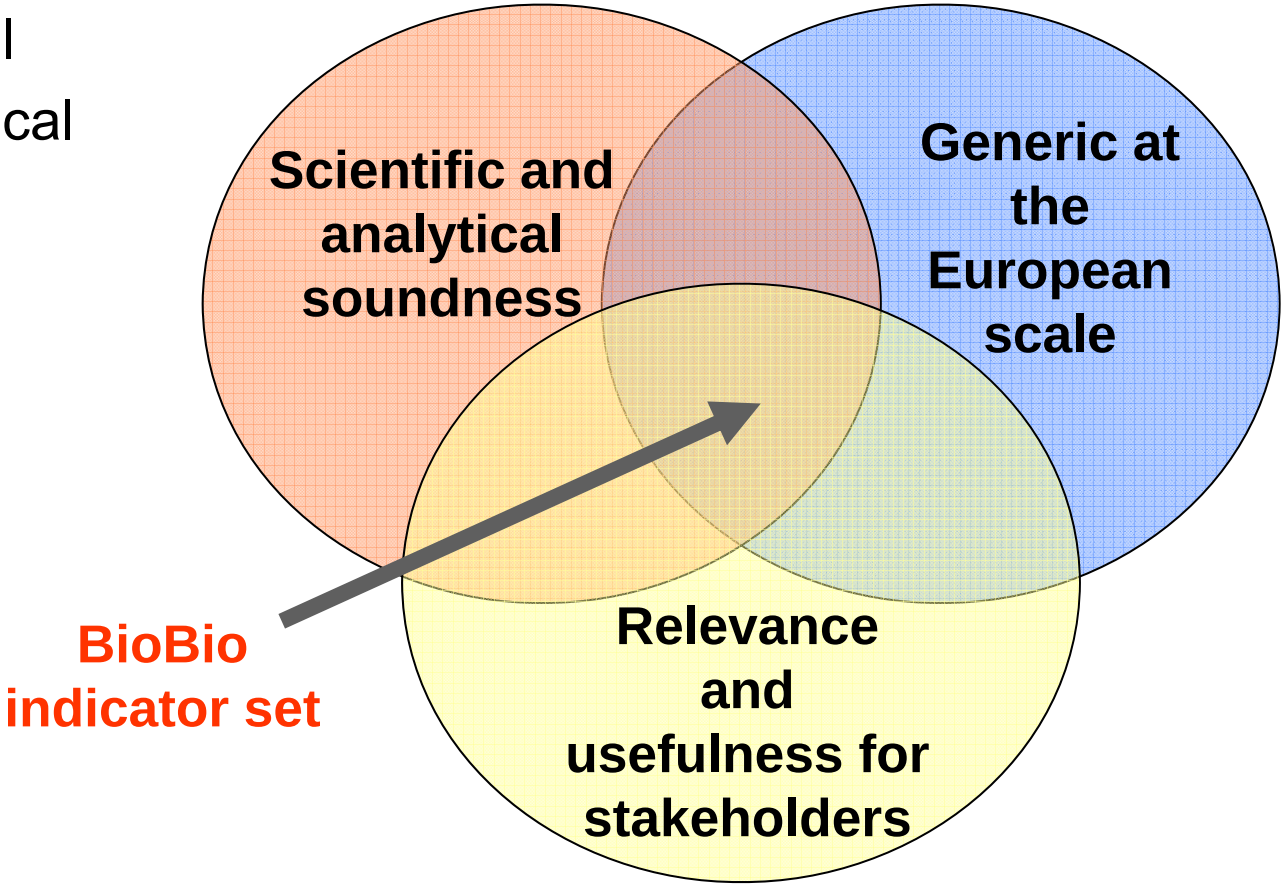
e.g. BioBio – Indicators for biodiversity in organic and low-input farming systems

- 16 partners
- 14 countries
  - 11 European FP7
  - 3 ICPC associated



Objective of BioBio

- Develop biodiversity indicators for low-input and organic farming systems
  - scientifically sound
  - useful
  - practical



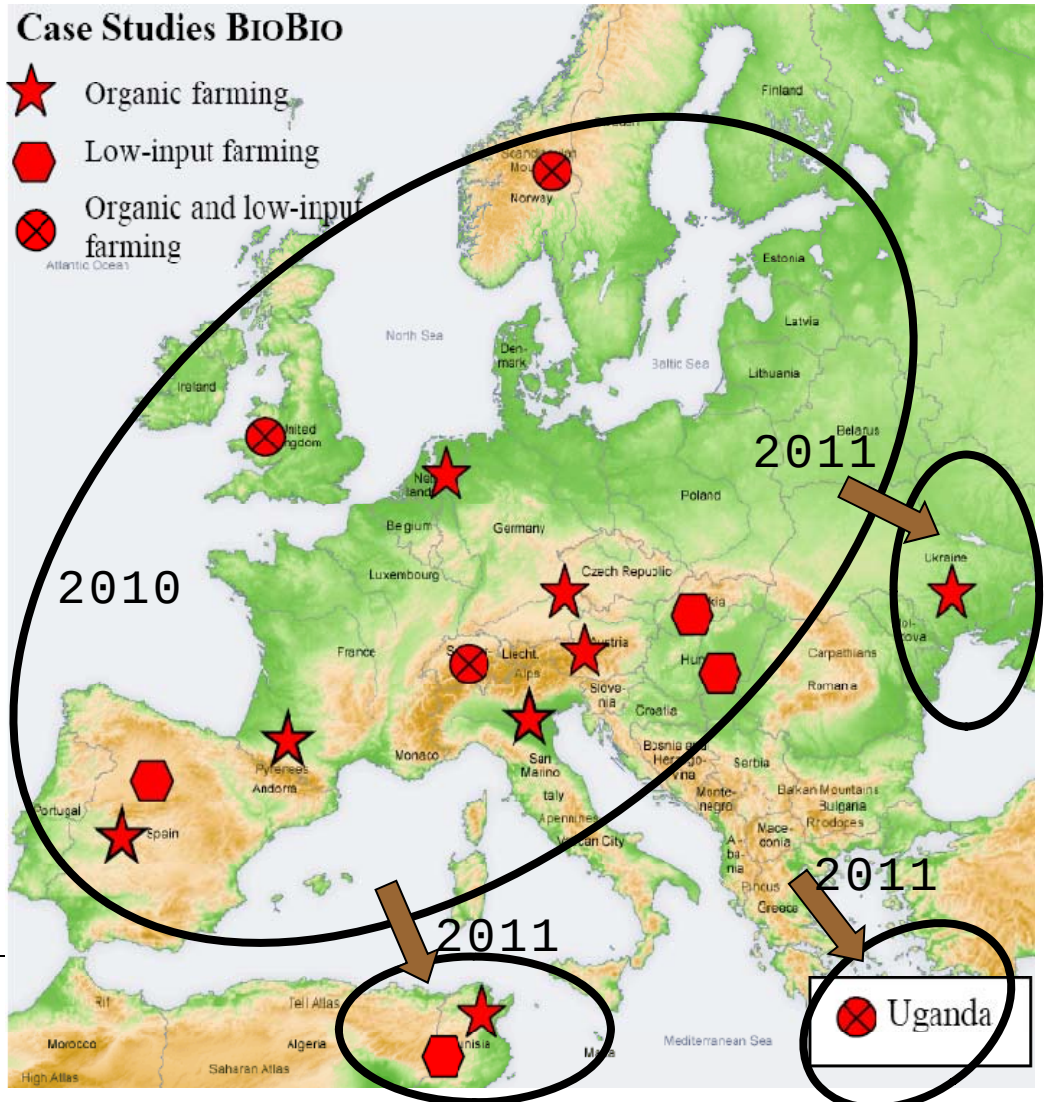
Approach

2009 Concept

2010 European case studies

2011 extra-European case studies

2012 Fact sheets, conference



Candidate indicators

- Genetic diversity
- Species (plants, earthworms, spiders, bees)
- Habitat diversity indicators
- Farm management parameters

Conclusions

- Monitoring ≠ evaluation
- Challenge: Financial restrictions
  - Choice of indicators
  - Sampling design (spatial, temporal)
- Involve stakeholders
  - Communication
  - Targets, objectives?
- A noble task, worth of attention by scientists

Thank you for listening!