

# Linking between the scales: what do we need to know and why?

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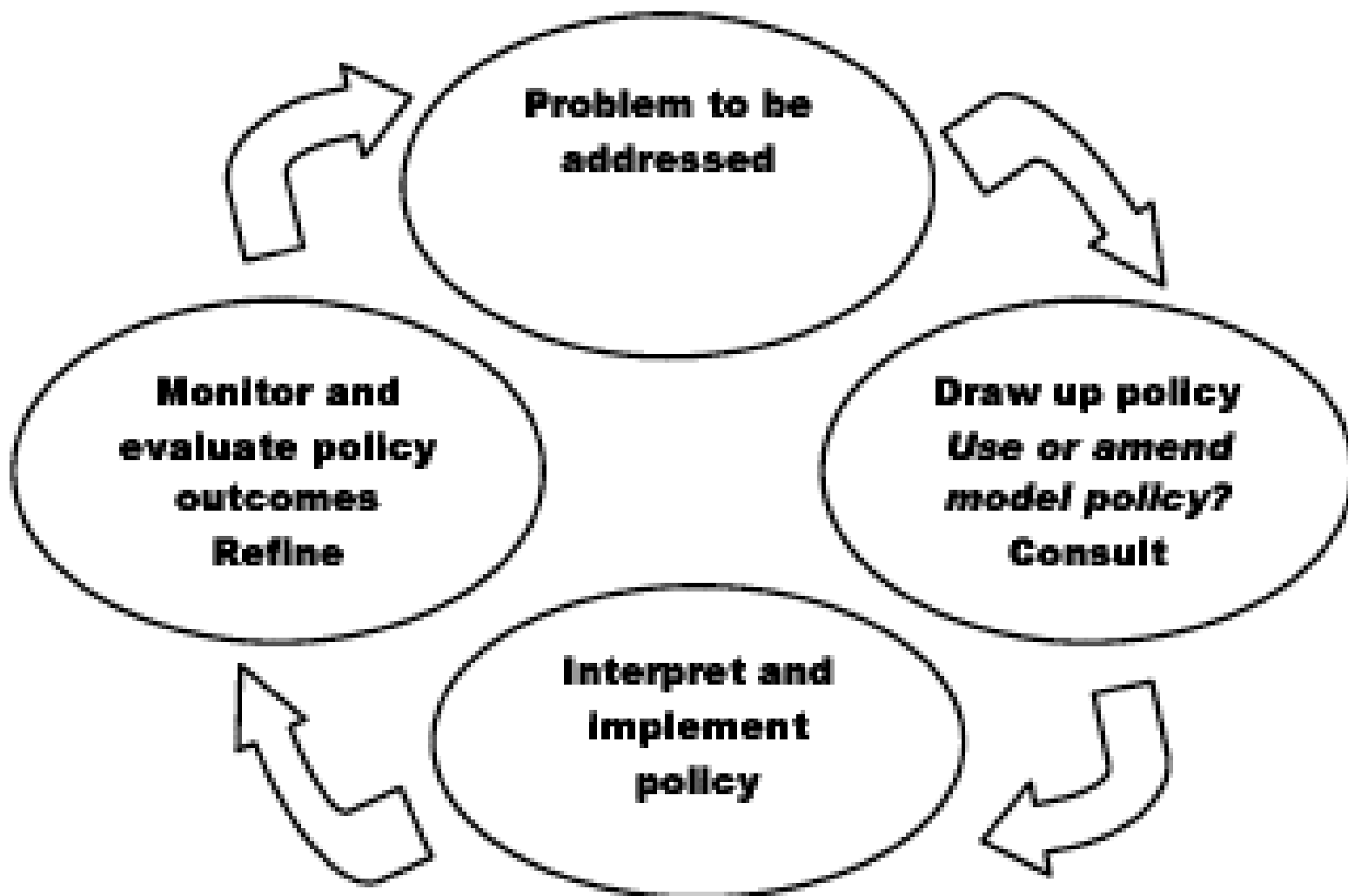


# Conserving Biodiversity - The UK Approach

- Protecting best sites for wildlife
- Targeting action on priority species and habitats
- Mainstreaming biodiversity in other sectors
- Engaging people
- Proactive role in international agreements
- **Developing the evidence base**



# Policy Cycle

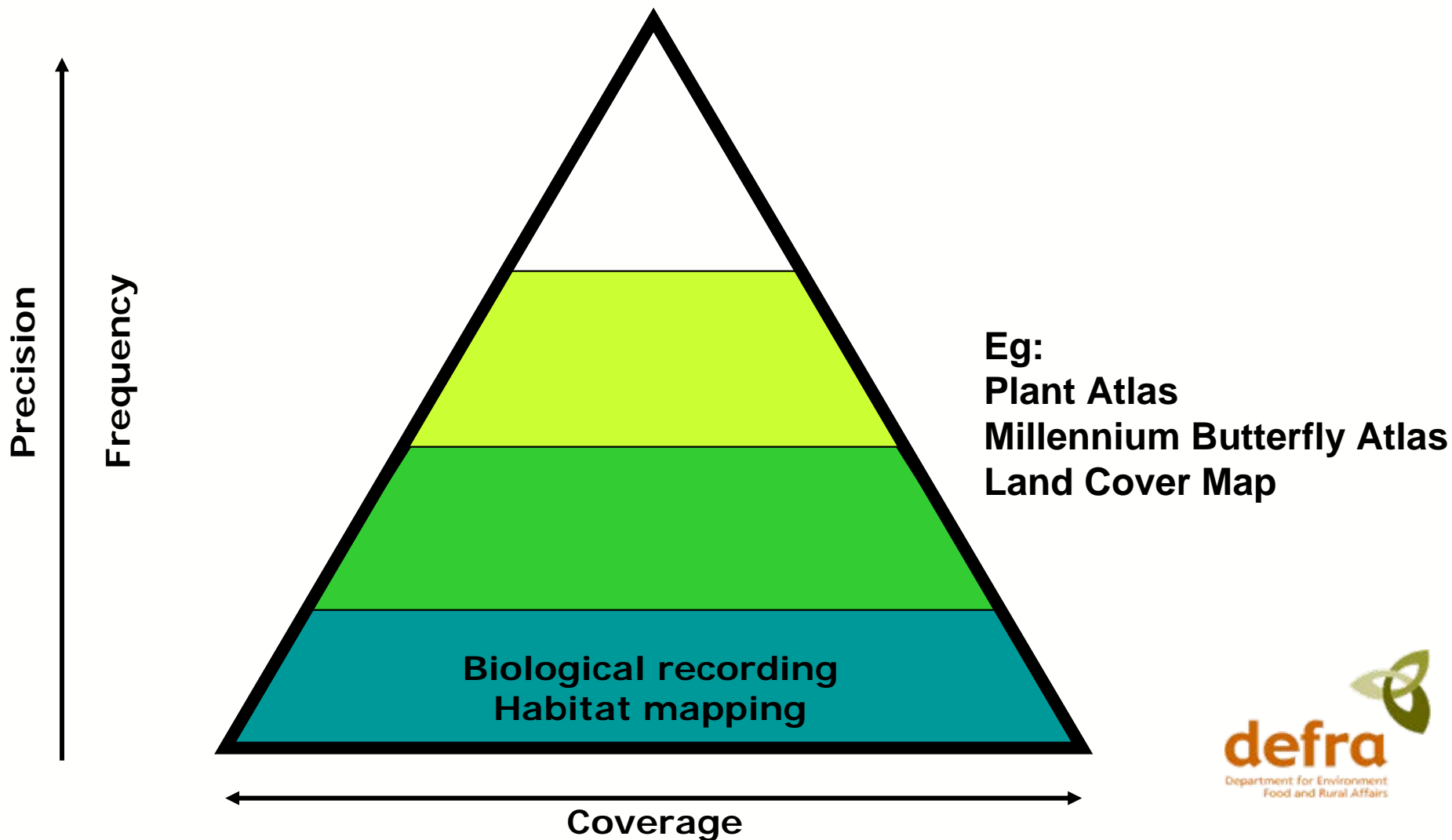


# Evidence needs during the policy cycle

(from Defra's Science and Innovation Strategy)

- Assess progress to 2010 targets, evaluate indicators, evaluate policies – national, regional and global levels
  - Progress with System (BAR)
  - Assess costs and agri-envir
  - Effectiveness
  - Decision meth analysis, dealing with risk, trade-offs
  - Integration of biodiversity into sectoral decision-making
  - Options for climate change adaptation
- Cost effective surveillance methods – using volunteers, earth observation etc
  - Sharing information about biodiversity for managers, policy makers, public (and scientists)
  - Learning from participatory approaches
  - Improved scientific inputs to decision-making
  - Adaptive management
- between functions, human well- techniques ant e for target
- diversity – e.g. impacts of
- change
- around:

# Linking between the scales - recording



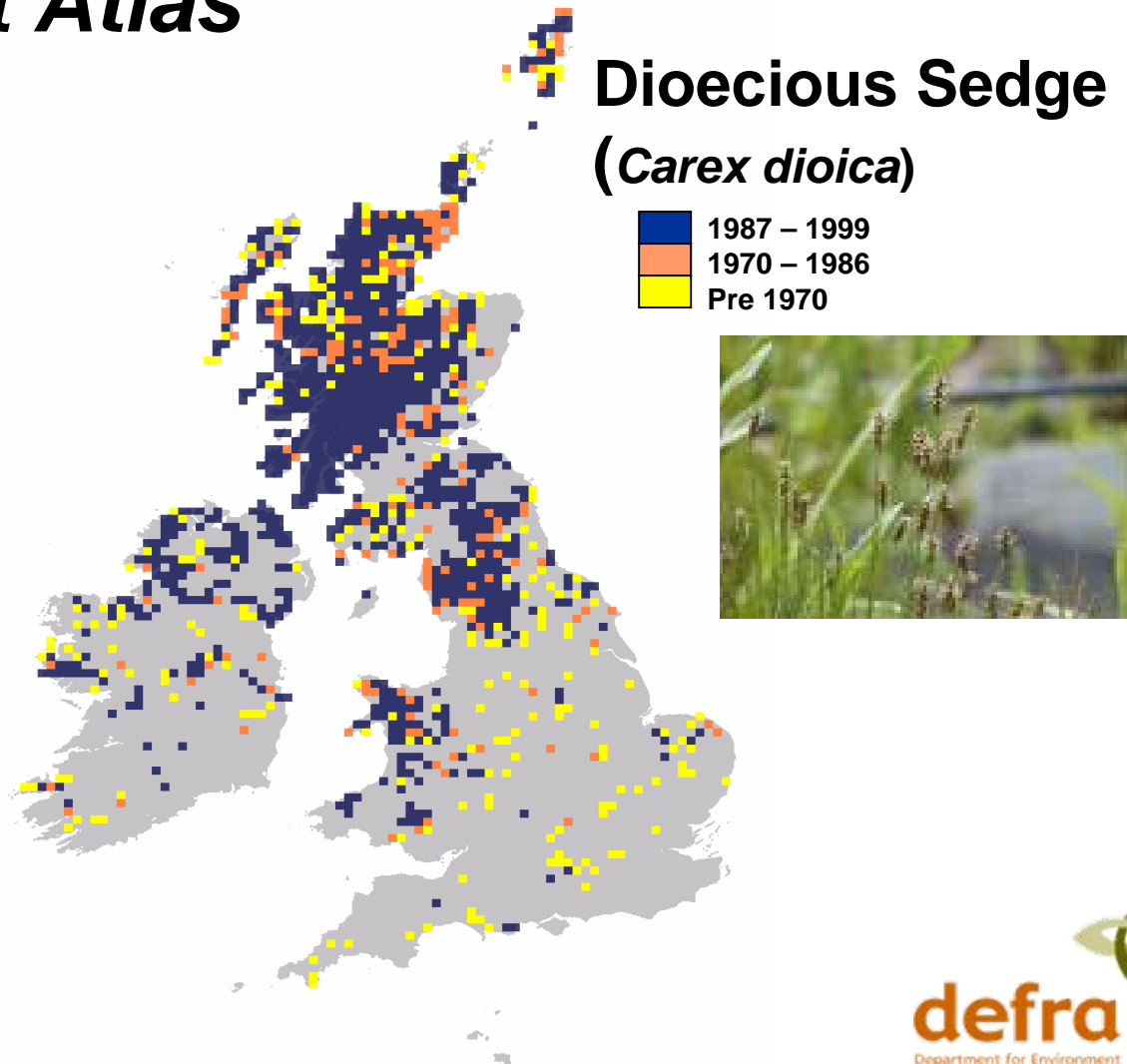
# WHY?

- **So that we can target policies more effectively**
- **So that we can understand how different components of the landscape work together**
- **So that we can provide baseline information to assess future impacts and support modelling**

# Biological Recording – *New Plant Atlas*

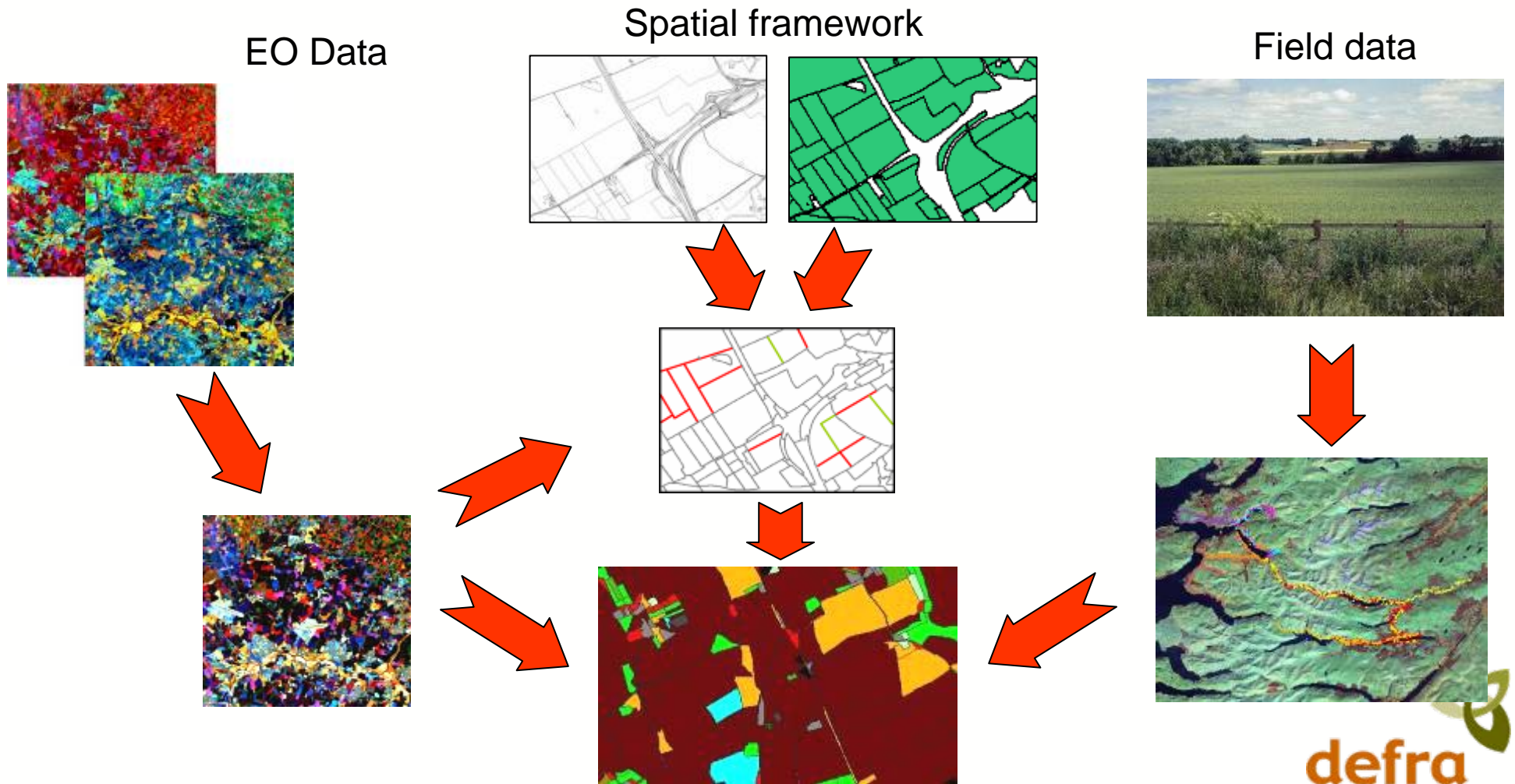
## *New Plant Atlas of Britain and Ireland (2002)*

- survey 1995–99
- 1600 volunteers
- 3880 10 km squares
- 2,951 species
- Vascular Plant Database

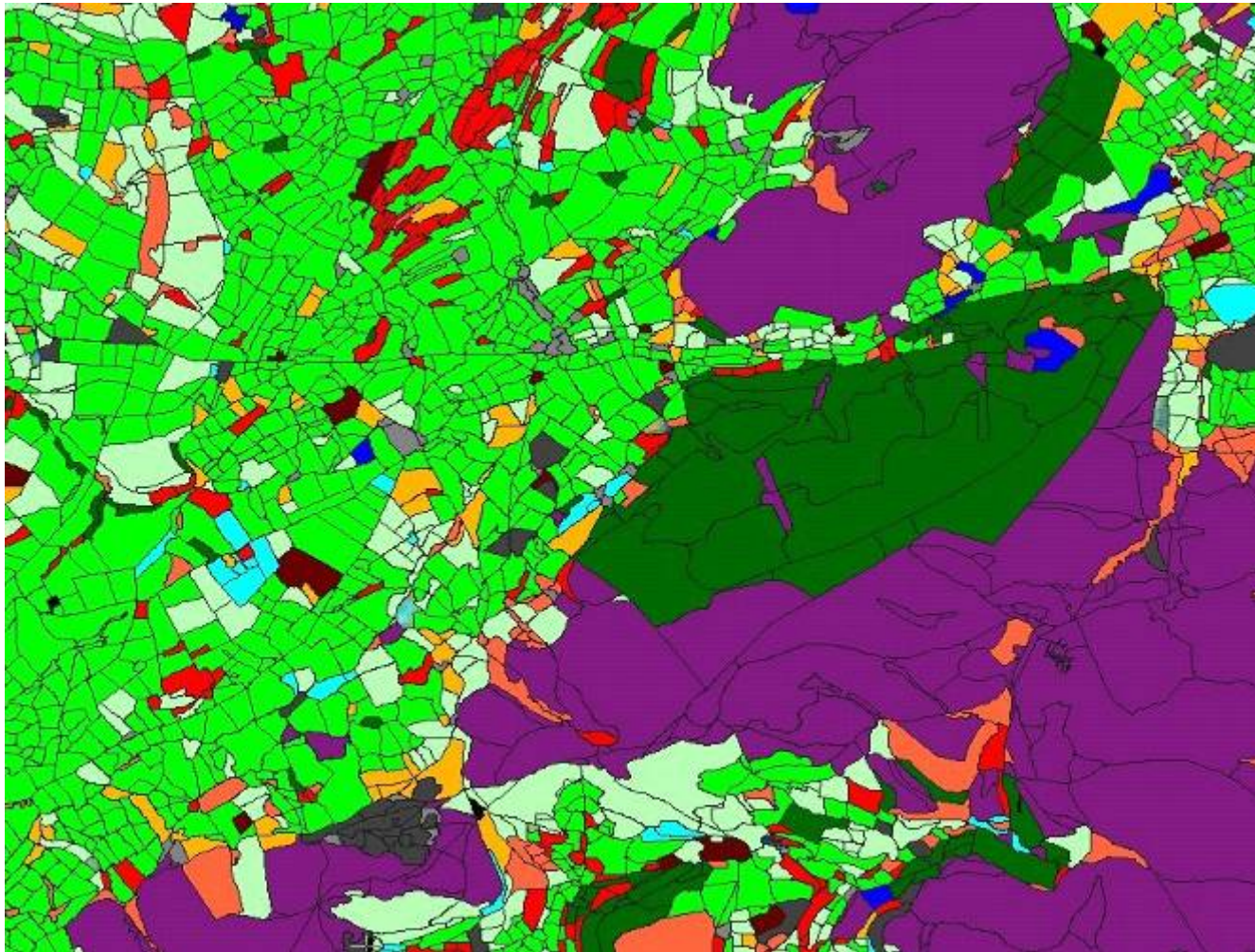


Source: BSBI, CEH, DEFRA

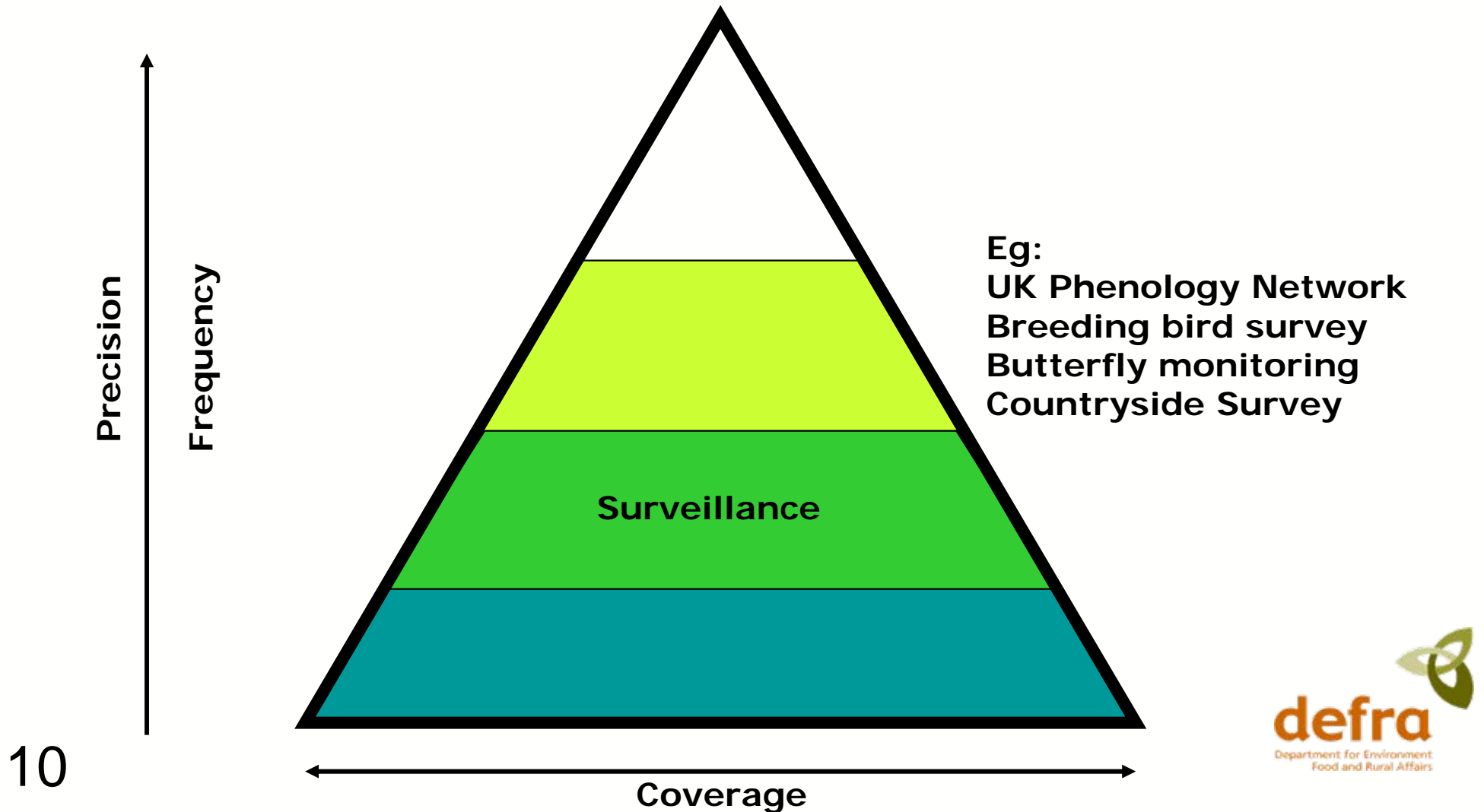
# Land cover mapping – LCM2007



# LCM2007: North Wales



# Linking between the scales - surveillance

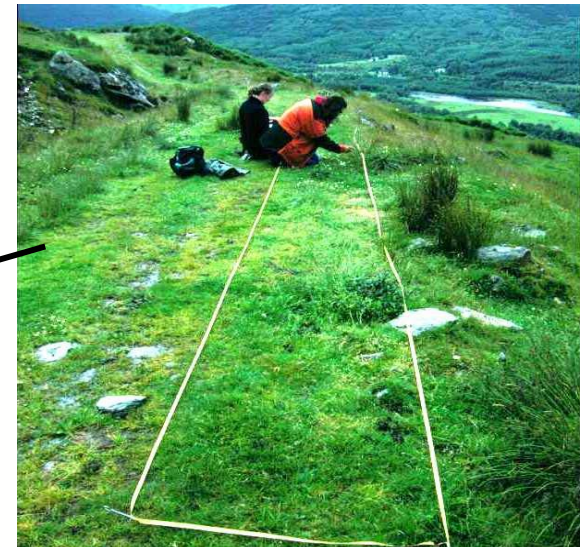
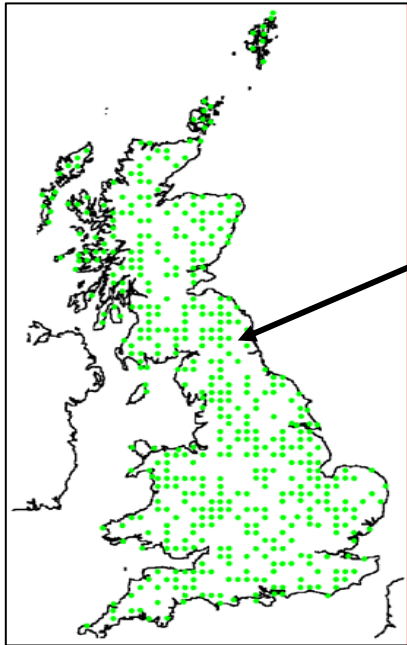


# WHY?

- **Assess long term trends and changes in status - indicators**
- **Cumulative impacts – eutrophication, climate change, habitat loss**
- **Detect emerging threats**
- **Understand processes of change**



# Countryside Survey 2007



591 x 1km sample squares in GB.  
Surveys in 1978, 1984, 1990, 1998.

270 x 25 ha sqs in Northern Ireland

Mapping of:

- land cover, broad habitats and soils
- landscape features, eg hedges, trees, walls, ponds, rivers
- recording attributes eg height, width, condition

Sampling of:

- vegetation (15,000 plots)
- freshwater biota (350 sites)
- soils (1,200 plots)

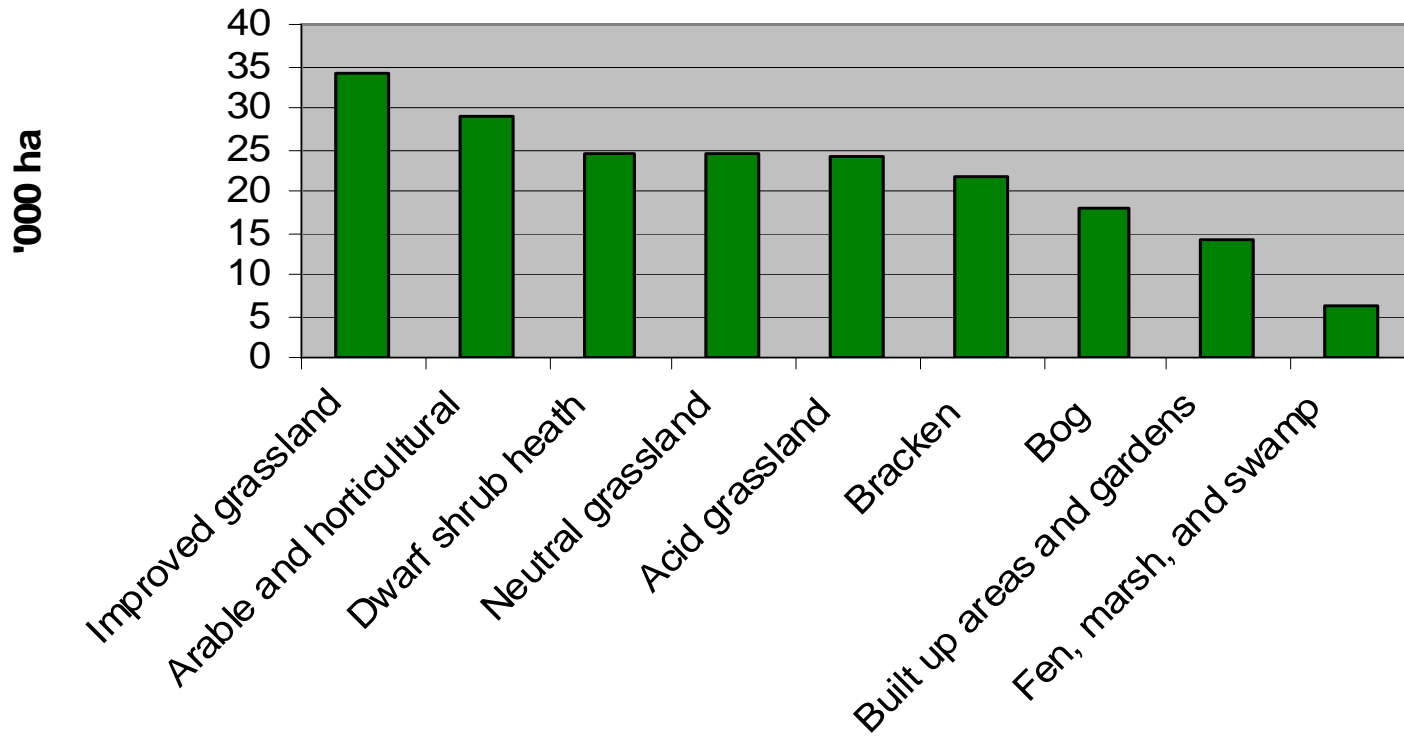


Countryside Survey



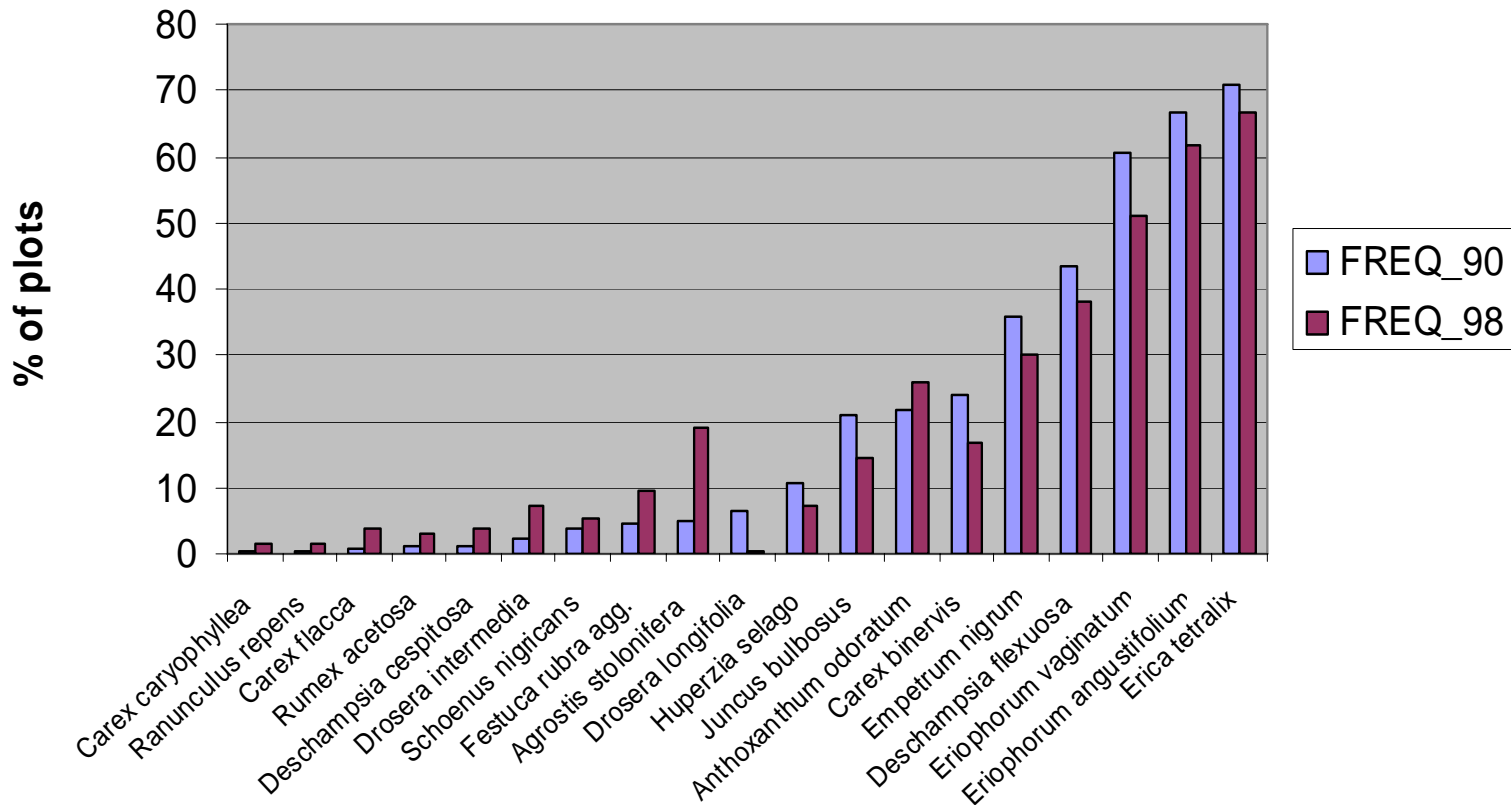
# Habitat conversion

Area of habitats ('000 ha) converted to woodland (blf & con), GB, 1990-98

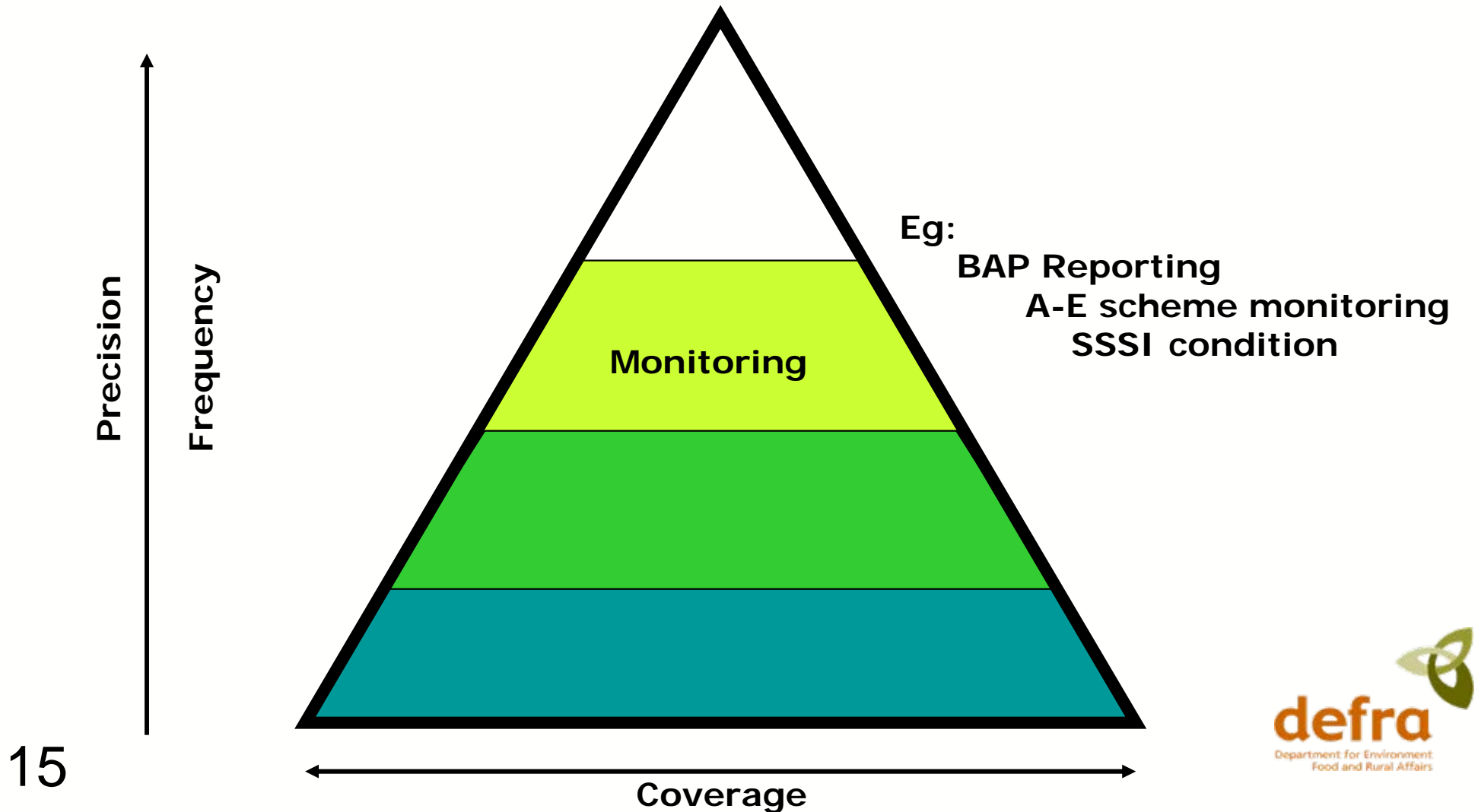


# Impacts of eutrophication ?

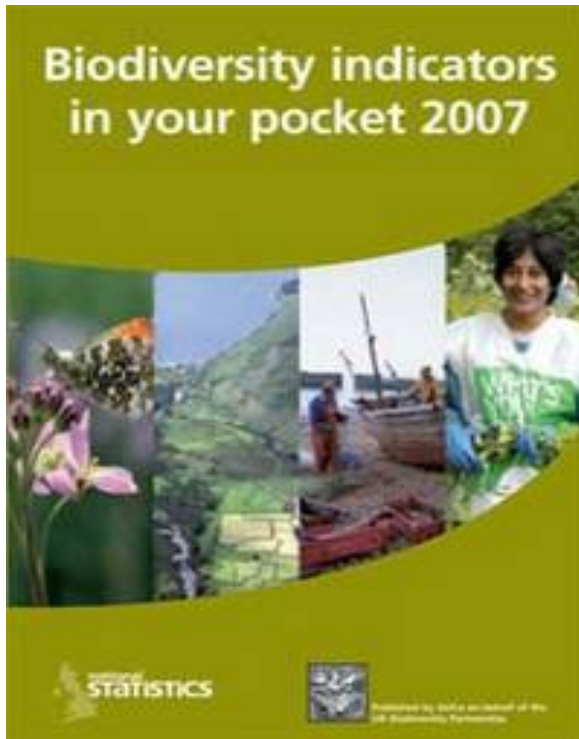
Change in frequency of species in heath/bog, 1990-98



# Linking between the scales – monitoring outcomes



# WHY?

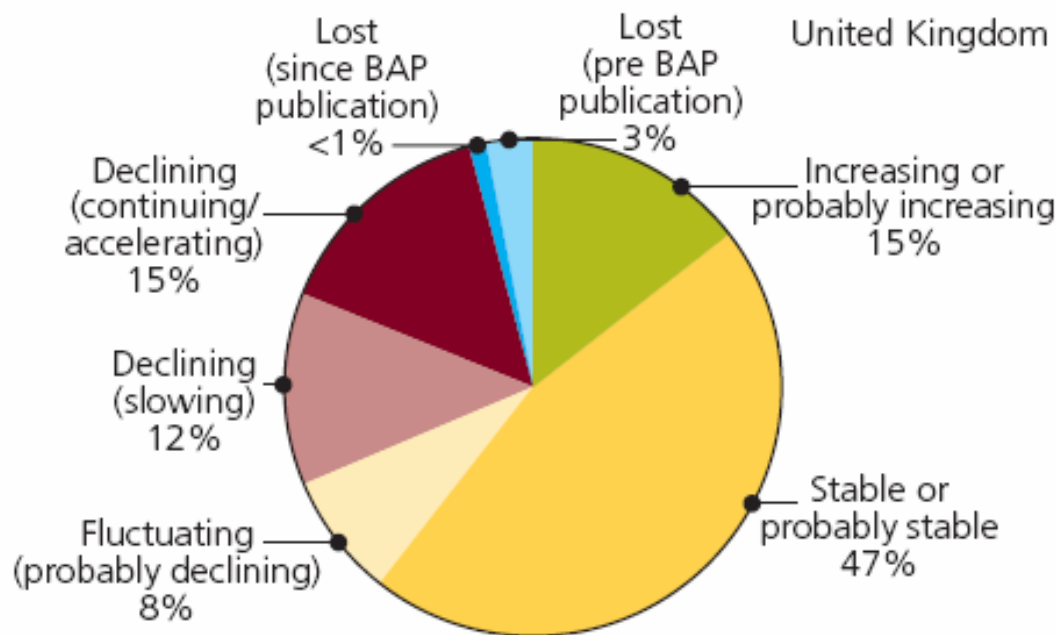


- **So we know if policies are being effective**
- **So we know if targets have been met**
- **So we can refine and adjust**

# BAP priority species and habitats



## UK Biodiversity Action Plan Priority Species trends, 2005

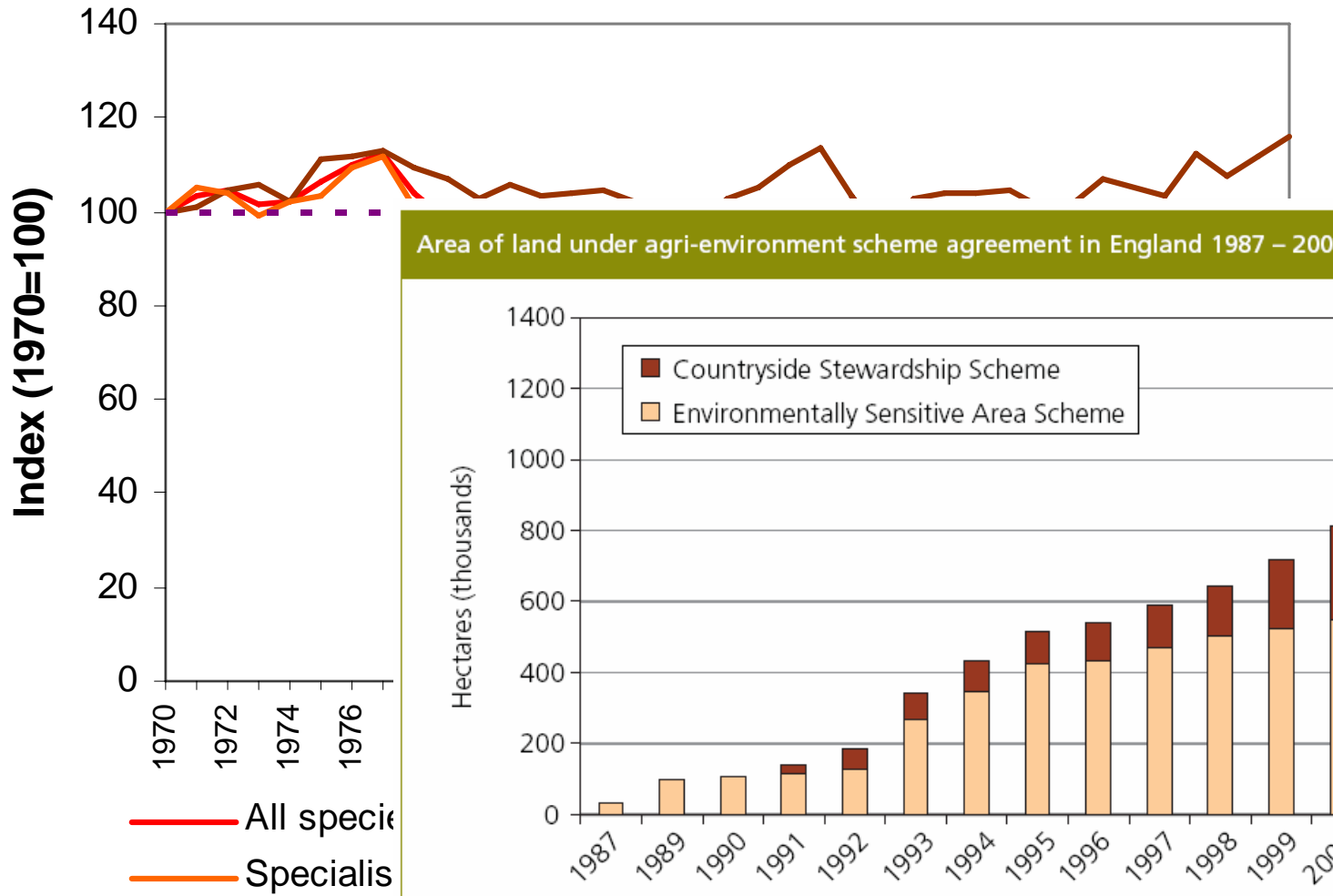


Based on 288 species and 1 species-group for which the status was known in 2005.

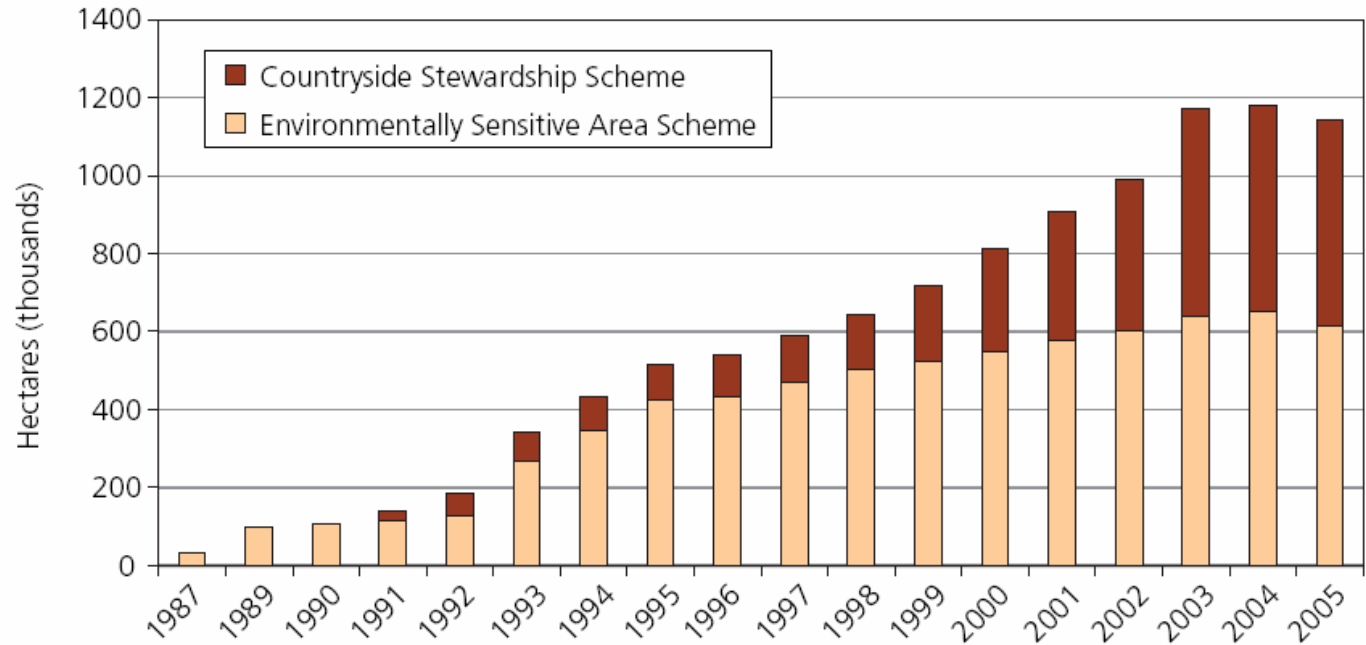
93 species and 9 species-groups are not included, of which the status of 56 is unknown, a further 38 species show no clear trend and 8 are no longer classified as true species.

Source: Joint Nature Conservation Committee, Natural England

# Farmland Birds PSA target

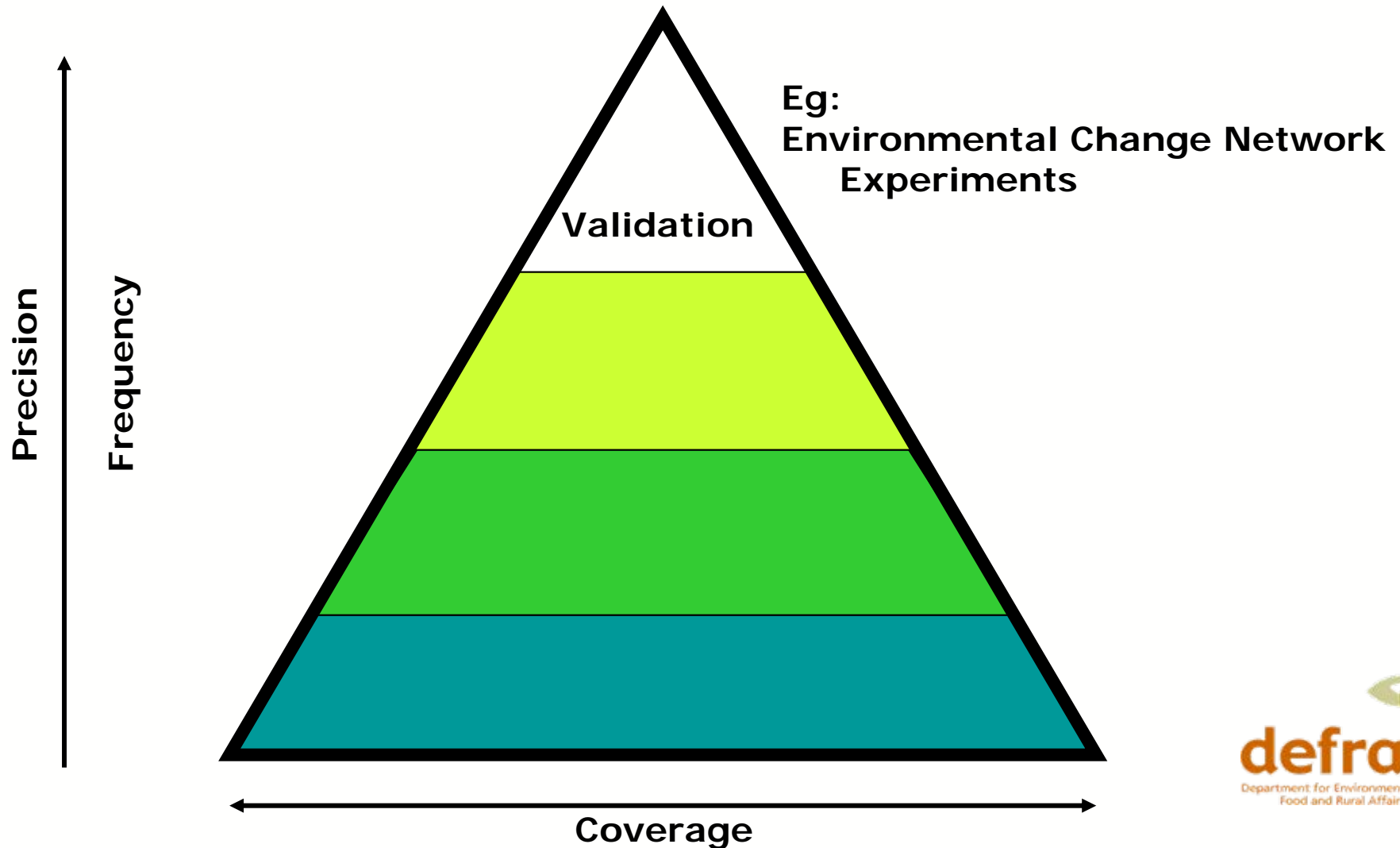


Area of land under agri-environment scheme agreement in England 1987 – 2005



Source: Defra

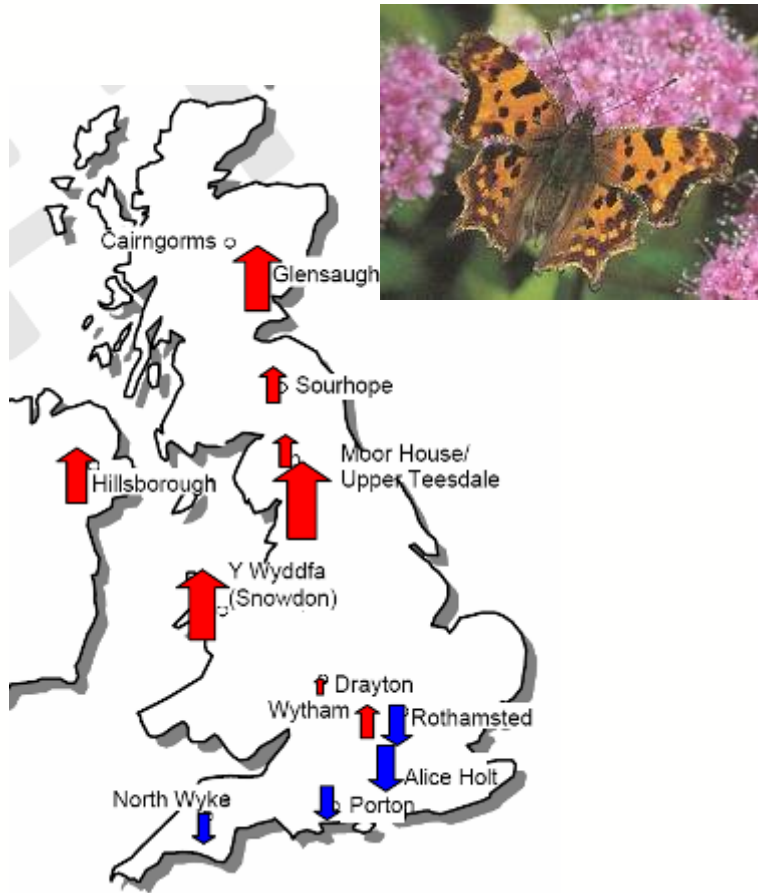
# Linking between the scales - validation



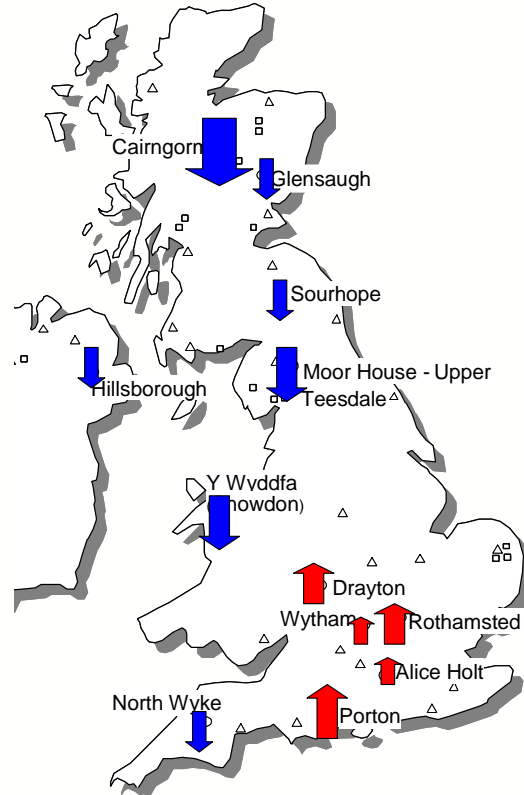
# WHY?

- **So we can validate rapid/periodic surveillance methods**
- **So we can understand and discriminate different processes and drivers**
- **So we isolate different factors in controlled experiments**

# Discriminating climate change effects? *Environmental Change Network*

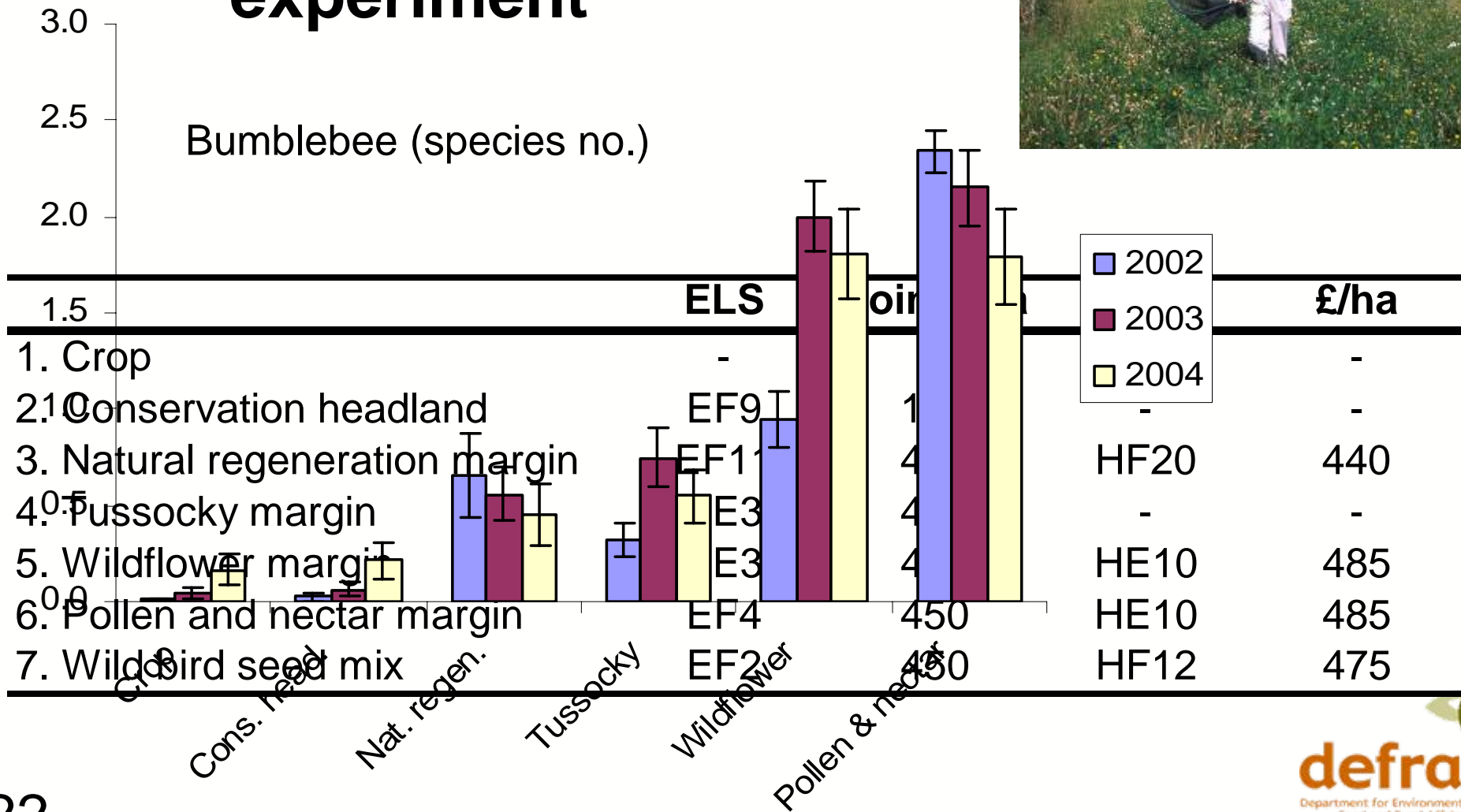


## Carabid beetles (no of species)

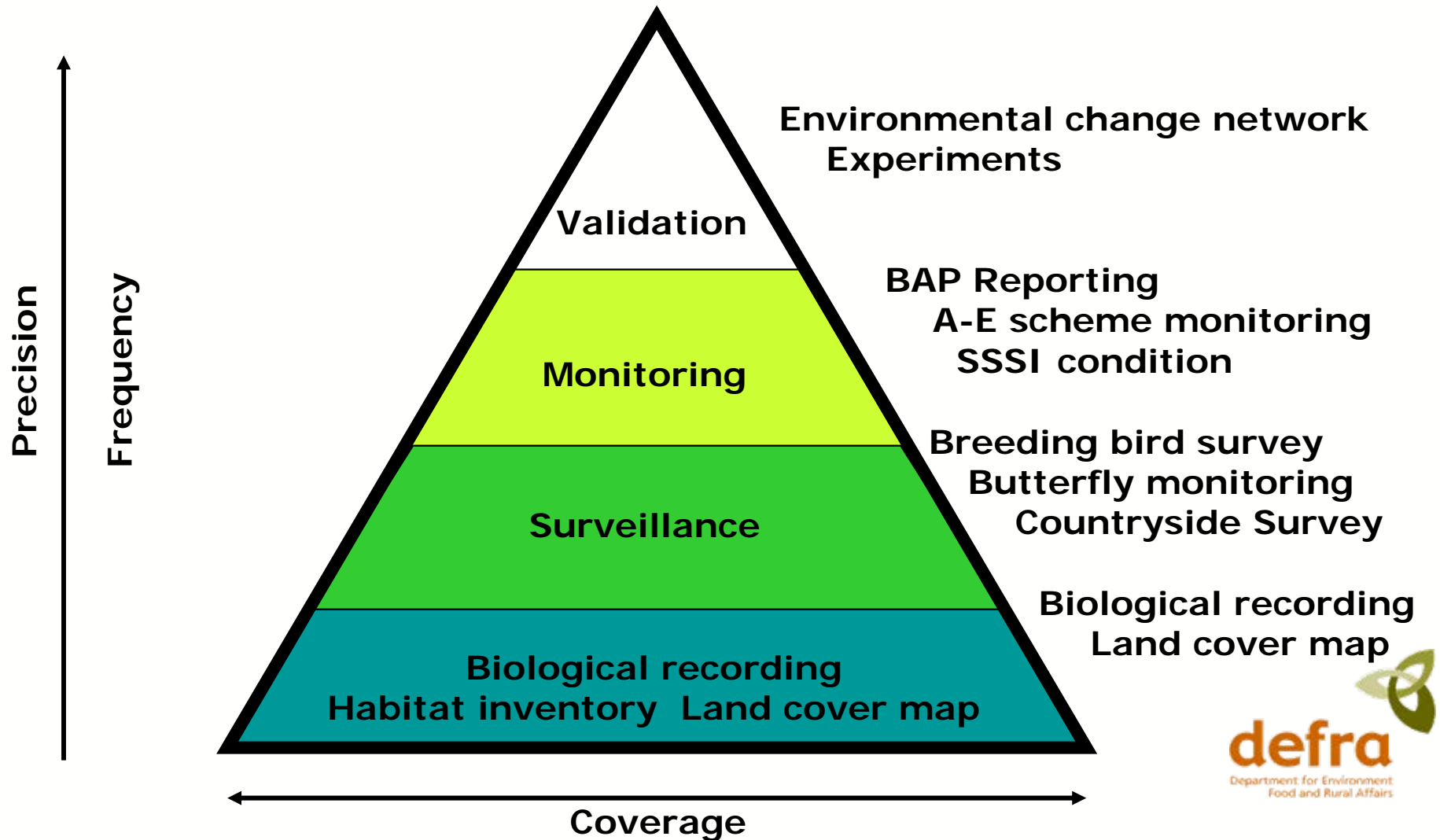


Butterflies (no of species)

# Management of cereal field margins – the Buzz experiment



# Linking between the scales



# Conclusions

- **We have a lot of requirements and limited resources, so we need to:-**
  - make better use of existing information to inform decisions;
  - carefully prioritise our work;
  - influence investments by others;
  - maximise the value of the new surveillance and research (linking across scales);
  - develop innovative ways to share data and expertise.