Air Pollution Policy and Implications

Alison Vipond
Air and Environment Quality Division

defra
Department for Environment
Food and Rural Affairs

Outline

- The policy framework
- An “effects-based” approach
- European agreements
- National Air Quality Strategy
- Current policy focus
- Where next?
- How the conservation agencies can help

defra
Department for Environment
Food and Rural Affairs

Policy Framework

- Local, national, European, even hemispheric effects of air pollution on health, materials and vegetation
- National **Air Quality Strategy**:
  - Health objectives for 8 air pollutants
  - Ecosystem objectives for NO_x and SO_2
- **UNECE Protocols, EU Directives on** emissions, air quality objectives, sector/technology specific controls

defra
Department for Environment Food and Rural Affairs

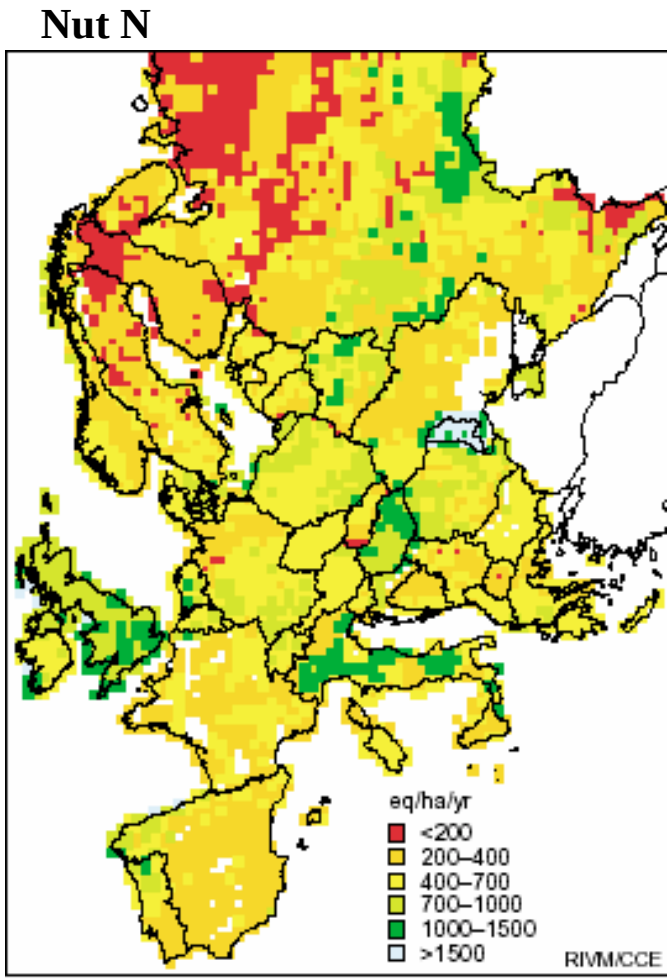
UNECE

- 1979 Convention on Long Range Transboundary Air Pollution
- 1985 – 1991 Protocols (SO_2, NO_x, VOCs): straightforward % emission cuts
- Simple and intelligible to policy makers, but impacts not quantified

$\Rightarrow$ Effects-based approach

defra
Department for Environment Food and Rural Affairs

Critical Load Concept



- Critical Load: "a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on specified elements of the environment do not occur according to present knowledge"
- Exceedance: deposition above critical load
- 'Gap closure' : identify emission reduction scenarios to reduce exceedance

defra
Department for Environment Food and Rural Affairs

Effects-based Approach

- 1994 Oslo Protocol (further cuts in SO_2) Aimed to gradually attain critical loads for acidity
- 1999 Gothenburg Protocol (Multi-pollutant, multi-effect Protocol)
- Set ceilings for SO_2, NO_x, VOCs and NH_3 to be achieved by 2010
- Scheduled for Review in 2004/5

defra
Department for Environment
Food and Rural Affairs

EU

- EC 1997 Acidification Strategy – effects-based approach
- 2001 National Emission Ceilings Directive (Review in 2004/5)

- EC 1996 Air Quality Framework Directive
- Daughter Directives: ozone, NO_x, PM_{10}, etc. + 2 objectives for ecosystems

defra
Department for Environment Food and Rural Affairs

What will these commitments bring?

- Reduction in critical load exceedence (%ecosystem area)
- But areas still at risk
- Including many conservation areas

ACIDITY

1995-7 66.5% area

2010 40% area

NUTRIENT N

1995-7 62% area

2010 44% area

defra

Department for Environment Food and Rural Affairs

Air Quality Strategy - UK

- 8 objectives on health effects of air pollutants

- 2 Ecosystem and vegetation objectives:

NO_x annual mean **30** micrograms / m^3

SO_2 annual & winter mean **20** micrograms / m^3

But <u>not in exclusion zones</u>:

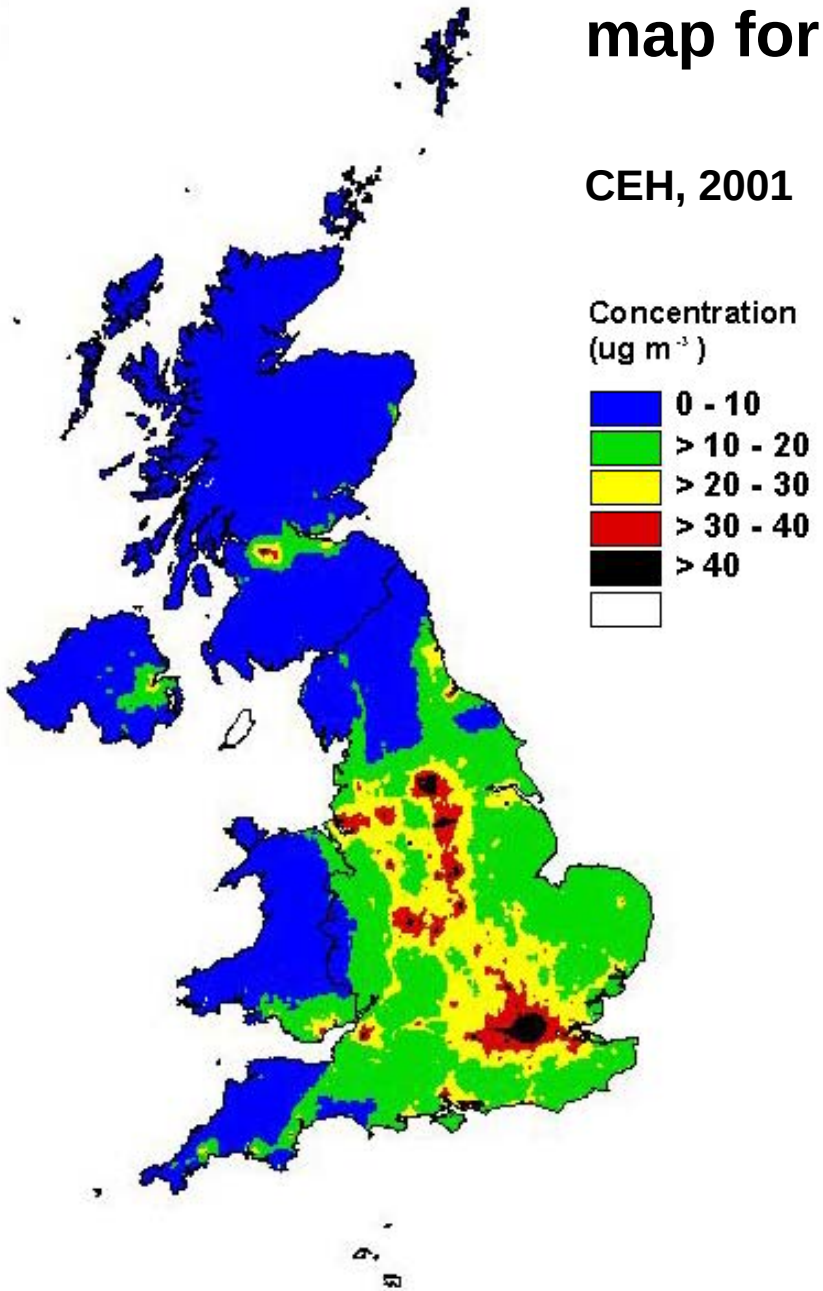
< 20 km from agglomeration

< 5 km from motorways, built-up areas and industrial plant

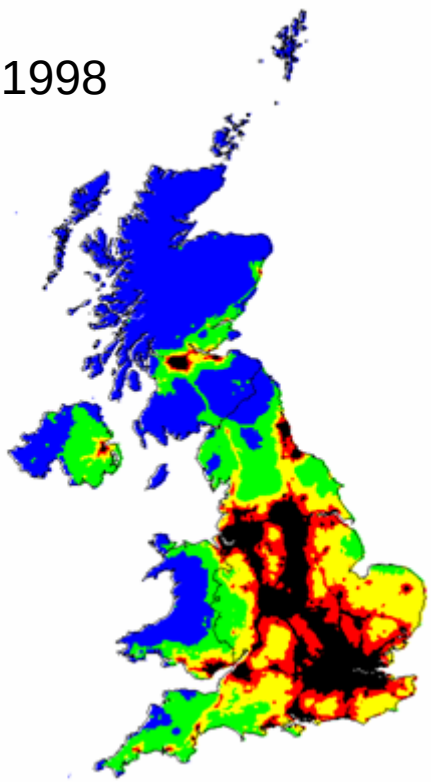
defra
Department for Environment
Food and Rural Affairs

2010 concentration map for NOx

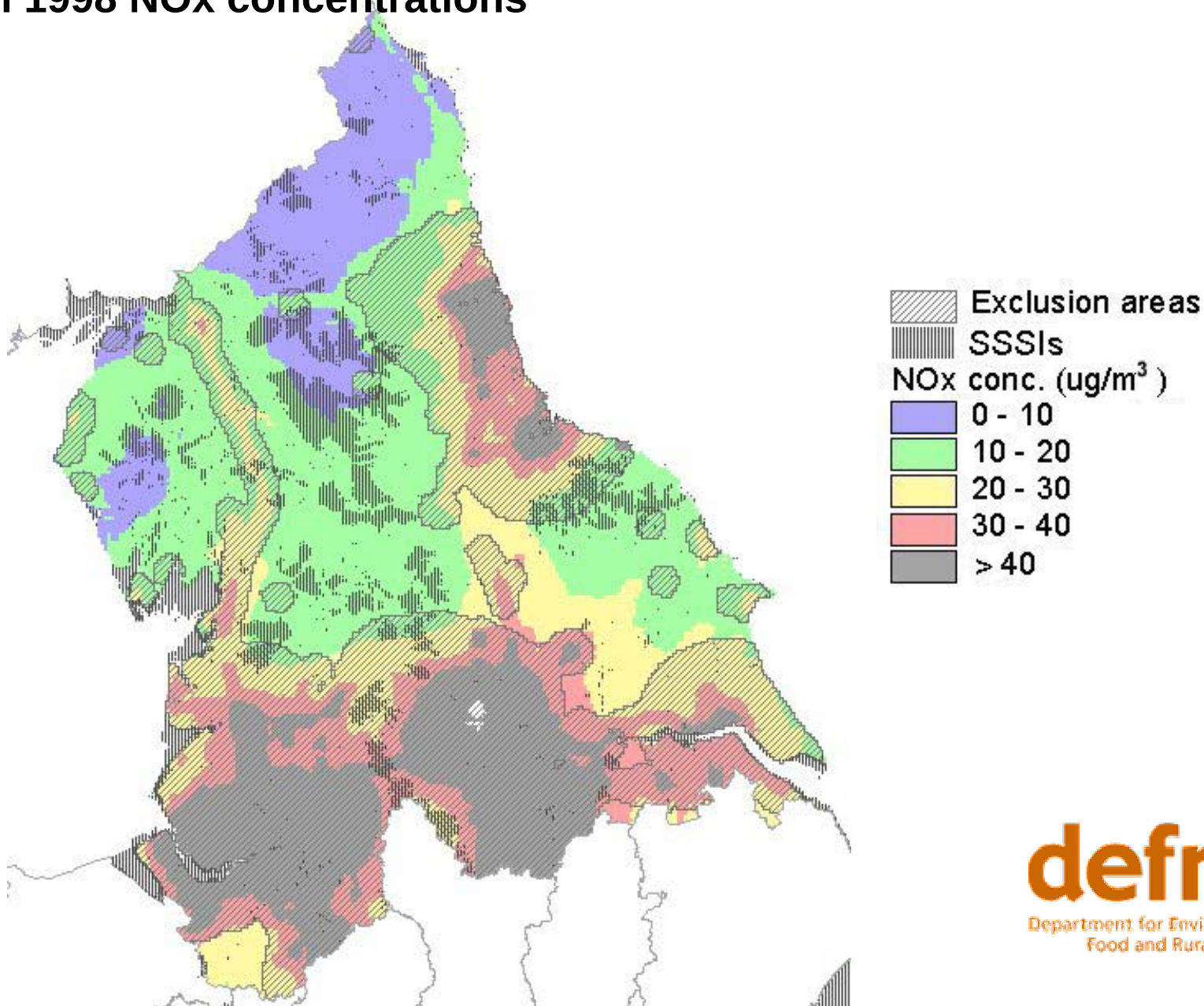
CEH, 2001



1998



EXAMPLE: Location of SSSIs in Northern England with 1998 NOx concentrations



defra
Department for Environment
Food and Rural Affairs

Air Quality Strategy

- Current ecosystem objectives are met

- BUT large areas within exclusion zones exceed NOx critical level
- Other pollutants and deposition not included

- How to strengthen objectives for ecosystems?
- Targets for conservation sites?
- Priority pollutants?
- Link with Habitats Directive, IPPC, etc
- Site-relevant information needed

defra
Department for Environment
Food and Rural Affairs

Ammonia – a new challenge

- Significant local and long-range effects
- Mainly from livestock manure
- IPPC controls for large pig & poultry units
- Annual emission ceiling for 2010

- Defra research on abatement options
- Abatement difficult - risk of diverting pollution
- “Ammonia in the UK” booklet

defra
Department for Environment
Food and Rural Affairs

Policy relevant issues

- Significant ecosystem areas still “at risk” in 2010
- Damage/recovery intrinsically slow
- Field evidence emerging – CS2000, Plant Atlas
- Condition of conservation sites?
- Habitat management – role and extent?

- Further emission cuts will be costly
- So far, policy focus on national & European scale, need more fine scale information

defra
Department for Environment
Food and Rural Affairs

UK: Where next….?

- Air Quality Strategy: strengthen ecosystem objectives (currently SO_2, NO_x critical levels)
- A focus on Conservation sites
- Evidence, risks, new AQS objectives
- Ammonia – potential UK abatement strategies

defra
Department for Environment
Food and Rural Affairs

Europe: Where next….?

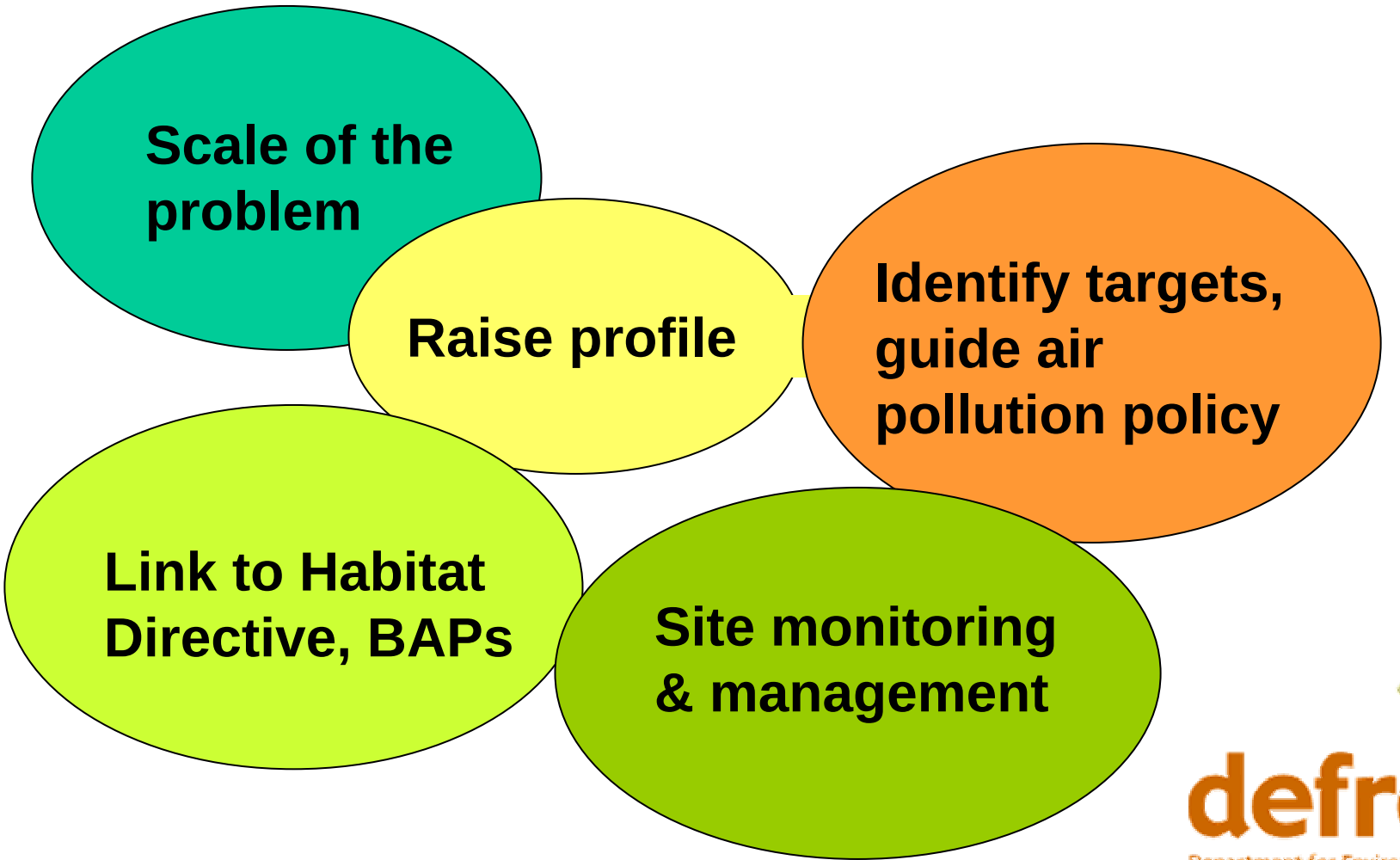
- Preparation for Gothenburg/NECD review: focus on ammonia, particles

- Sulphur Emissions from Ships – EU negotiations
- Other controls: solvents, large combustion plant

- Climate change interactions
- Global ozone – hemispheric approach?

defra
Department for Environment Food and Rural Affairs

How the Agencies can help



defra
Department for Environment Food and Rural Affairs

Thank you for your attention

defra
Department for Environment
Food and Rural Affairs