Conservation is for Biologists? Connecting the Pieces: The Geographers Approach

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Looking Narrowly

- Individual, rare or symbolic species important in own right eg twinflower, Scottish primrose.
- But will only survive if consider them in there wider habitat context eg bluebells
- Re-introducing persecuted species need to consider fully habitat and prey needs eg sea eagle
- Looking after migratory species need to recognise habitat and food requirements here and in other parts of the world eg Manx shearwaters
- Many species in decline in terms of numbers eg Atlantic salmon, eg farmland and woodland birds, and many much narrower geographical distribution eg corncrake. Cannot take action to reverse trends without knowing all of the requirements of the species.

The Role of Protected Areas

- Protected areas (eg nature reserves, national parks etc) the key global mechanism for conserving species and their habitats: map of Scottish protected areas
- But often marked change in management at the protected area boundary eg Olympic National Park: satellite and ground photos.
- Most protected areas on private land and therefore marked differences in management eg heather moorland
- Much of land not in protected areas ie 85% Scotland therefore what happens particularly on agriculture land, eg East Lothian, is crucial.

Living in Compartments

- Create compartments for simplicity using administrative divisions eg counties for Areas of Search eg SNH Areas.
- Money from Government is also in compartments with difficulties in transferring between them: pie graph of cash
- What is called “silo mentality” eg concrete silos and the five penguins.

The sustainable development challenge

- Sustainable development and Agenda 21 create a challenge for removing compartments and connecting the social with the economic, and with the environmental
- The Convention on Biological Diversity brings the challenges of delivering conservation of wildlife, sustainable use of natural resources and equitable sharing of genetic resources. A more realistic and integrated approach is at the centre: the ecosystem approach. It requires: appropriate knowledge, empowerment of key constituencies, clear communication between constituencies, harmonised governance between all sectors, building of capacity of stakeholders, focusing on the functioning of ecosystems and not just static nature, the development of the decision support tools all within the context of "integrated planning".
- Locally this means the identification of geographical units which make sense in terms of environmental systems and processes and ensure that protected areas are connected fully to the wider countryside

including areas of intensive human activity: schematic diagram of integrated planning.

- An example from Iceland. Protected areas in Iceland have fairly weak powers, governed by an agency with only advisory powers; soil erosion by wind and water is key environmental degradation issue (two pictures) cannot be solved by protected areas; systematic multi-spectral air photo examination with ground truthing to identify scale of problem; agronomic research to identify best seeds for soil stabilisation (slides); application of seeds by local farmers using government equipment (tractor and re-seeding slides). Integrated approach is connecting analysis of the problem and its causes, with science-based solutions using understandable decision support tools to allow local farmers to do the job.

Integrated Planning in Scotland: a new approach

- Clear signals from the past and experience in other countries: integration of activity within and outwith protected areas; integration of wildlife, landform and landscape protection management; involvement of community of interests in management; integration of environmental, economic and land use policies and schemes of assistance; and rigorous but practical,

simple but not simplistic, sub-division of the country recognising its diversity.

- In drawing up new framework need to recognise following six features:
  1. We have a largely managed landscape and we require flexible mechanisms for its long-term care.
  2. There are large areas of high quality and we need a wider perspective to protection than purely protected areas.
  3. We have a predominantly “working” landscape and therefore require integrated land management approaches.
  4. Inevitably there will be change and therefore we need a flexible strategic framework within which we and others can operate.
  5. There is a great deal of cultural pride in the current landscape and we therefore must build in local community involvement.
  6. There are diverse organisations involved and each must have a commitment to their contribution to the integrated whole.

- Need to remember that SNH has a variety of natural heritage aims and purposes: conservation, enhancement, understanding, enjoyment and

sustainable use which require an integrated approach. Also a series of balancing beauties which we must take appropriate account of: ecological and environmental change, needs of agriculture, fisheries and forestry, need the social and economic development, need to conserve sites and landscapes of archaeological and historic interests, interests of owners and occupiers, interest of local communities. All of this needs a much broader approach.

- Also our statute does not give us dictatorial powers rather our role is to advise and to take action. Hence our Management Strategy with the goals of influencing attitudes and policies and securing practical management.
- Therefore NHZ programme is about integrated planning and decision-making for our own use and also jointly with all relevant partners both nationally and locally within Scotland.

Defining the Zones

- Must recognise the diversity of Scotland within a very small land area as a result of geology, geomorphogical processes, climate, soils etc. Photo West Cairngorms to Speyside, block diagram of Scottish zones.

- Sub-dividing Scotland into its natural, bio-geographic zones is spatial foundation for more integrated approach.
- Start with six taxonomic groups: breeding birds, diurnal insects, non-marine molluscs, liverworts, mosses and vascular plants; add 16 climatic variables to give 10-zone map of Scotland. Modify to take into account topography and soils. Add landscape components arising from landscape character and land use to derive Natural Heritage Zones. 21 in total. Hope they are recognisable as obvious bio-geographic units in Scotland.

Components of the Zonal Programme

- Basically three components:

1. gathering all relevant data in more coherent and consistent fashion than before on earth science, landscape, freshwater, recreation and access, biodiversity of species, biodiversity of habitats and basic environmental data. Undertaken for the whole of Scotland and for each of the 21 zones.
2. National overview through prospectuses on mountains and moorlands, coast and shore,

farmland, forest and woodland, settlements, and freshwater.

3. Prospectuses for each of the 21 zones.

- Prospectuses describe the natural heritage, analyse the drivers of change in the immediate past, present and likely future, paint a vision for 25-years hence and identify objectives and possible actions, and the role which stakeholders can play in achieving the vision.
- Vision: needs to be challenging but realistic and to confront the essential choice between exploitation of environmental resources (Lingerbay) and restoration of environmental degradation (three stage restoration diagram). Basically choice between quick wins ("soft wood" approach) and long-term gain ("hardwood" approach).
- Essential therefore to see integration of the different elements of the land from the strictest protection in the core of protected areas through to areas of relatively heavy exploitation of environmental resources (diagram).
- Essential to have appropriate information and interpretation of drivers of change (ECN site), analysing long-term trends (NMCS: Grampian and overview diagram), understanding causes of changes (red data bar chart on causes of species decline).

The Stakeholders and the Beneficiaries

- Deliberately using slogan “Scotland’s Environment for Scotland’s People”: trans-generational and across the income/education/ethnic divides (picture Scotland’s environment for Scotland’s people)
- Stakeholder engagement absolutely critical, SNH only one player, local authorities, local enterprise companies, agriculture and forestry, fisheries interests etc all critical (slide of negotiating meeting, picture of land management debate).
- Pride in success by land managers: eg the gamekeeper providing income for landlord, managing access and restoring environments
- Benefit for visitors through wildlife spectaculars and helping local community (eg sea eagles)
- Improved management of environment (eg riparian margins of Tummel) and key ecosystems in Scotland (such as Caley pine).