Discussion paper for the Global Biodiversity Sub-committee of the Global Environmental Change Committee

Initial report on the GBSC Arctic Biodiversity Research workshop (9 October 2009)

Background

At its September 2008 meeting, the GBSC agreed to establish a working group on Arctic biodiversity issues and JNCC agreed to organise and host a workshop of invited experts to address the issues raised by the GSBC. This workshop took place in October 2009; this paper is early feedback on this workshop and a full report will be finalised and sent to the GBSC in due course.

Participants included the GBSC Secretariat, Stephen Dyer (CEFAS), Vin Fleming (JNCC, Chair), Andy Hartley (Met Office Hadley Centre), Tavis Potts (SAMS), Jim Reid (JNCC), David Stroud (JNCC), and Des Thompson (SNH). Unfortunately, Ken Norris (NERC / Univ. of Reading), Rob Bowman (FCO) and Stuart Doubleday (FCO) were unable to attend.

Aims of the working group

The workshop considered all of the actions identified by GBSC:

- to consider priority Arctic biodiversity research issues from a UK perspective;
- to consider the risks to Arctic (and shared) biodiversity and how to rank these;
- to identify what is important to the UK;
- to consider how to collate what is currently being done and to identify any serious gaps;
- to determine how we might achieve better cohesion or synergy with UK research; and
- to report back to GBSC.

Draft conclusions

1. A number of recent events had helped to raise the profile of Arctic research in the UK:

    - FCO Arctic stakeholders workshop – Oban March 2008, including a directory of UK research interests collated by Ray Leakey at SAMS
    - NERC Arctic programme meeting – Birmingham May 2009
    - UK Arctic science conference – Southampton July 2009

2. NERC November Council meeting will be considering a recommendation for a £15m programme of Arctic research (in which biodiversity work will focus on role of biodiversity in biogeochemical cycles on land and sea); NERC also recently announced opening of a new office to support UK Arctic researchers.

3. There is considerable scope to make better use of Arctic-relevant UK data through collaboration with other (Arctic) countries. The quality of UK science places us as valued and respected contributor to Arctic research and as an observer to the Arctic Council (more so than the EU overall); this role is likely to become more valuable in the future.

4. There is unlikely to be a mechanism equivalent to the Antarctic Treaty; substantial issues will need to be addressed by the circum-polar countries and biodiversity concerns are common to all of these.

5. There is a clear need to consider priorities on the basis of risk analysis to inform targeted research or remedial action. Key risks for Arctic biodiversity identified in discussions included the following:

   - Shared populations of migratory species
   - New shipping routes
   - Ecosystem services
   - Fisheries
   - Ocean acidification
   - Sea ice and permafrost melt
   - Energy exploration
   - Tourism

6. In determining priorities for UK research on Arctic biodiversity, there is an important distinction between the impact of changes in the Arctic on shared / UK biodiversity (and thus our statutory obligations) and simply understanding what is happening in the Arctic itself. These issues might be considered at three different scales and priorities determined for each, as follows:

   - Direct UK link – shared migratory wildlife (e.g. waders, geese etc.)
   - UK 'footprint' – e.g. through our direct (and indirect) use or consumption of Arctic resources (fish / gas / shipping)
   - Arctic in wider world - considering the role of UK as contributor to climate change and the role of the Arctic as a regulator of global climate in which changes will affect the UK and others.

7. Participants felt that the following could be suitable priorities for consideration by GBSC:

   - Direct UK activity - Shared migratory populations. The priority need is better status trends for UK/Arctic migratory species. Efforts should focus on better use of existing datasets rather than seeking to generate new ones; there are issues of data access and GBIF might help in this context.

   - UK impact / footprint - Energy exploration. An area with potential for significant effects upon biodiversity, but typically linked to contingency planning and environmental impact assessments and, as such, research needs should be addressed by developers. Likely to be a role for UK expertise.

   - UK impact / footprint - Fisheries. Direct and indirect (e.g. seabird by-catch) impacts on biodiversity potentially significant. Modelling studies to look at cumulative impacts (harvesting, pollution and climate change) are needed that take an ecosystem approach. There is a continuing need for evidence of status change, as well as understanding underlying processes (causal processes) driving these.

- UK impact / footprint - Shipping. Potential impacts include pollution and transfer of [invasive] non-native species between ocean basins (especially Pacific-Atlantic transfers). There is a need to establish baseline data for plankton and other marine organisms in Arctic in order to assess change (possibly an issue for Arctic Council).

- Wider world – broader climate impacts. Already a significant amount of work underway, including by UK scientists, most of which was in the physical sciences and focused on understanding climate processes and their consequences; for example, a recent call from NERC for research on ocean acidification with specific reference to the Arctic. However, such work may not fully consider ecosystem level impacts, or make full use of other data/initiatives, e.g. CAFF (Conservation of Arctic Flora and Fauna) research. Some of the issues, such as the impacts on primary and secondary productivity of loss of sea ice, cut across the three scales identified above.

8. In addition to the risks identified earlier the following issues are likely to affect Arctic biodiversity:

   - changes in Arctic weather patterns e.g. increased spring precipitation and, conversely, increased periods of drought (with related risk of increased wildfires and peatland burning);
   - changes in river discharge to the Arctic with implications for marine and freshwater biodiversity; and
   - land use transformation, such as afforestation and livestock farming over peatlands.

   Overall, given the scale of the issues to be addressed, these are probably more relevant to GECC than GBSC.

9. The review of UK research on Arctic related topics, commissioned from SAMS (Ray Leakey) by FCO, was a valuable exercise, but it would be valuable to broaden and update this regularly. GBSC could consider a mechanism to keep this updated for Arctic biodiversity research, linked perhaps to an analysis of the ERFF database.

10. The issue of making available the results of research done by the UK in the Arctic was considered. This needs to ensure that results are presented in a relevant and easily assimilated way for policy makers; this would require producing summaries in relevant languages (e.g. Russian) as well as English. In this respect the Arctic scorecards[1] and the value of CAFF in disseminating Arctic biodiversity information were noted. Sharing biodiversity data through mechanisms such as GBIF is desirable.

11. FCO has given a commitment to coordinate across Whitehall as appropriate and lead on the Arctic Council. UK science can play an important part in the Council discussions and we should continue to push for greater UK participation in and collaboration with relevant Arctic Council working groups. Biodiversity research may be a useful, non-controversial lever to enable better cross-Arctic collaboration and to enhance the role of the UK.

12. The EU is taking a much greater interest in the Arctic and draft European Council conclusions are expected in November 2009. These will build on those agreed in

[1] http://www.arctic.noaa.gov/reportcard/index.html

December 2008 and pave the way for more detailed discussions and work within the Commission and Council. Environment, fisheries and science are all highlighted (and will be underpinned by sustainable development). Therefore, the EU will also act as a driver for UK science and research on biodiversity, and GBSC may wish to consider whether it should provide advice to UK Government on Arctic biodiversity science for informing the scope of future Framework Programmes.