

Global Biodiversity Sub-Committee (GBSC)

Meeting papers

GECC Sub-Committee Minutes

23 August 2005

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**GECC SUB-COMMITTEE ON GLOBAL BIODIVERSITY ISSUES
MINUTES: 23 August 2005**

Attendees:

Kirsty Adam, NERC (on behalf of Pamela Kempton)
 Ian Bainbridge, Scottish Executive
 Richard Berridge, Defra
 Geoff Boxshall, Royal Society & NHM
 Nick Dulvy, CEFAS
 Richard Ferris (Secretariat), JNCC
 Claudine Gibson (Secretariat), JNCC
 Tony Miller, RBGE (on behalf of Mary Gibby)
 Diana Mortimer, JNCC (on behalf of Marcus Yeo)
 Eimear Nic Lughadha, RBG Kew
 Miles Parker (Chair), Defra Science Directorate
 Glenys Parry, Defra Environment and Sustainable Development International
 Andy Stott, Defra Natural Resources and Rural Affairs
 Ben Sykes, BBSRC (on behalf of Clare Rushowski)

Guests:

Neville Ash, UNEP-WCMC
 Sarah Cornell, QUEST-University of Bristol
 Jo House, QUEST-University of Bristol
 Sarah Love, Defra
 Kaveh Zahedi, UNEP-WCMC

Agenda Item 1: Introductions and apologies

Apologies were received from Rob Bowman (FCO), Joanna Elliott (DfID), Tracey Elliott, (DTI), Mary Gibby (RBGE), Gary Grubb (ESRC), Pamela Kempton (NERC), Paul Leonard (Defra), Clare Rushowski (BBSRC), Quentin Wheeler (NHM), and Marcus Yeo (JNCC). DfID indicated that they were unable to attend this meeting but recognised the important role of the GBSC and would send a representative to future meetings.

Kaveh Zahedi, acting Director of UNEP-WCMC, welcomed GBSC and gave a brief overview of the Centre's work. The Chairman thanked Kaveh and reiterated that the groups' remit was to ensure government policy on global biodiversity conservation remains suitably informed by the science base.

Agenda Item 2: Defra Review of Ecosystem Services (GECC GBSC (05)14)

Sarah Love (Defra) described the background and context for the report *The Economic, Social and Ecological Value of Ecosystem Services: a literature review* (Eftec, 2005). For details of the full report go to <http://statistics.defra.gov.uk/esg/reports/ecosystem/default.asp>.

Presentation Summary

The aim of the project was to consolidate the current evidence base by conducting a broad literature review of the different studies that have looked at the value of ecosystem services, especially non-market values. The links between ecosystem conservation and poverty alleviation were also explored.

The report structures its findings around the concept of Total Economic Value which distinguishes between direct use, indirect use and non-use values of ecosystems. The report finds evidence that ecosystem services provide benefits at several levels (local, regional and global) and to different groups (individuals, commercial firms, public bodies) but that these benefits tend to be undervalued due to a lack of knowledge on ecosystem functions and the benefits they provide and also because these services tend not to be

priced in a formal market. Ecosystem services are found to be particularly important for the rural poor who have most to gain from sustainable management.

The report recommends further work on the range of benefits (services) provided by ecosystems and the interactions between these services; thresholds in the provision of services; and mechanisms by which the value of ecosystem services can be 'captured'.

Agenda Item 3: DfID / UNEP-WCMC Biodiversity-Ecosystem Services Linkages Project
Neville Ash (UNEP-WCMC) described this DfID-funded study, which will be completed later in 2005.

Presentation summary

The aims of the Project are to review the state of knowledge regarding the link between biodiversity and ecosystem services, particularly for poor people and to assess the utility of biodiversity conservation in safeguarding the supply of ecosystem services to poor people. In this context, ecosystem services are defined as "benefits that people obtain from ecosystems". The project examines which attributes of biodiversity are important for the supply of particular ecosystem services, how much is needed, and what are the thresholds, etc.

Although theoretical knowledge exists, the consequences of the loss of species and populations are not fully understood. The relationship between biodiversity and ecosystem functioning has been demonstrated in only a few cases (often in relatively simple systems, in laboratory settings, and only recently, i.e. the last 10 years). Thresholds are particularly important (and policy relevant), and yet we have a very limited ability to predict when these might be reached.

Initial findings suggest that local populations are of greatest importance for poor people, and functional characteristics of biodiversity are most important in the provision of services. In many cases, declines in species diversity lead to a reduction in ecosystem functioning. Diversity is important in providing adaptability to changing environmental conditions, and for increasing the capacity of ecosystems to supply a range of services. Furthermore, abundance is important in order to meet increasing demands, and interactions between components of biodiversity are important to support supply.

DISCUSSION SUMMARY

Building on these two presentations, the discussion considered how to ensure that government policy on global biodiversity is:

- a) suitably informed
- b) aware of gaps in research and understanding

Research needs fall into two blocs:

1. how to perform socio-economic valuation
2. how to understand and model ecosystem functioning to increase our predictive capacity, e.g for the identification of thresholds of change
 - A need for clear definitions to be introduced to the scientific arena in order to facilitate integration between socio-economics and natural science was identified. For example, attention needs to be given to the concept of ecosystem health – how do we measure this? Currently we do not have any metrics for ecosystem health, yet this concept is key to understanding many of the issues associated with this topic.
 - The importance of addressing truly global services was stressed, e.g. biogeochemical processes. While poor people tend to be more dependent on

local/regional services (and are less able to influence global services), the DfID / UNEP-WCMC report recognises the importance of addressing global services (since we must sustain our global system in order to support regional and local services). It was felt that, to some degree, both studies could be enhanced by further attention to the global scale. Given the policy relevance of scale issues, there is a need to consider how we might aggregate patch-scale studies.

A paradox was highlighted, namely that the poorest parts of the world are often those with the most biodiversity, and yet why aren't these biodiversity benefits being used to alleviate poverty?

Ecosystem services have use, intrinsic, and option values. It was suggested that more research is needed on valuation of social benefits (a form of use value), as distinct from the economic benefits that the use value of an ecosystem provides. The example was given of the Parsis in India who dispose of their dead by leaving their corpses to be cleaned by vultures and who are now suffering major problems as a result of the catastrophic decline in vulture numbers due to diclofenac-poisoning. How could this kind of benefit arising from an ecosystem service be valued? It was considered that, at progressively more local scales, the social value of a particular ecosystem service becomes more and more important to people relative to its use value.

Another research gap that needs addressing is the valuation of multiple services from a given ecosystem, or multiple services across more than one ecosystem. At the moment, case studies of the valuation of ecosystem services generally consider only one service at a time.

Summary of identified themes for further research:

- How to perform social vs. economic valuation of ecosystem services (using a broader range of case studies);
- an improved understanding of ecosystem health & thresholds of change (cause-effect models);
- the need to ensure the appropriate distribution of the costs and benefits of ecosystem services (who supplies, who benefits? all scales);
- how to undertake global-scale valuation of ecosystem services (this is perceived to be easier currently for marine ecosystems);
- developing a common understanding (definitions, standard conceptual models);
- raising awareness.

Item 5: Minutes of the last meeting (GECC GBSC M(05)11)

These were read and accepted as a true record of the previous meeting, held on 24th June 2005.

Item 6: Actions and Matters Arising (GECC GBSC MA(05)12)

Outstanding actions were reported on and this item was discharged.

Action 5/1 from 24/07/05 will be carried forward.

ACTION 6/1: all GBSC members to consider how each work programme should be addressed, appropriate timescales, and anticipated outcomes; commenting in particular on the draft work programme (sent out to members 29/07/05) and submitting all suggestions to the Secretariat by the 30th September.

Action 7/2 (24/07/05): PK to discuss with Gerry Lawson the value of UNEP-WCMC databases as a source of information for BiodivERsA WP4.

Response:

GBIF, EEA and CERIF were invited to the launch meeting in June. BiodivERsA will keep in touch with UNEP-WCMC, and are grateful to the GBSC for this advice. BiodivERsA is however not concerned with databases of species information or protected areas; it is more concerned with building a metadatabase of information on overseas biodiversity programmes and projects with research components which are funded in participant countries.

Item 4: Update from the MEA working group; draft Terms of Reference (GECC GBSC (05)15); Research/Science Gaps paper (GECC GBSC (05)16)

Andrew Stott (DEFRA) provided a brief update. The key question is how the GBSC should take forward the prioritisation exercise, and address the gaps that are identified. Priorities need to be considered from a biodiversity policy standpoint and a development standpoint. Criteria need to be identified for use in this exercise, e.g. what happens if we do nothing? (i.e. will biodiversity increase, remain unchanged, or decrease?); will doing something make a difference? Where do we have expertise? Criteria can be grouped as follows:

1. policy criteria
2. national science capacity criteria
3. fundamental biological/ecological criteria

It was suggested that a tabular approach would be useful.

ACTION 4/1: all GBSC members are asked to submit their comments on the draft paper (GECC GBSC (05)16) to the GBSC Secretariat by Friday 9th September.

Item 7: BBSRC consultation on biodiversity research – responses

Ben Sykes (BBSRC) gave a brief report on the responses received (19 in total by the 31/07/05 deadline: 12 from organisations, 7 from individuals). These were generally favourable. The document was intended to clarify existing research within BBSRC, in order to attract more focused proposals within BBSRC's remit. The timescale for completion of the revised document has not been agreed, because of the need to interface with other bodies (see below).

ACTION 7/1: BBSRC to keep GBSC members informed of progress with the position paper.

GBSC members highlighted a need for explicit reference to UK commitments under the Convention on Biological Diversity (CBD). Problem areas relating to taxonomy and biodiversity informatics were identified. It was suggested that other research funders should clarify their biodiversity remit, to provide a comparison and minimise the chance of double funding (although the Research Councils considered this to be unlikely, given systems that are in place).

There is an important need to ensure that there are no gaps between the Research Councils, and the GBSC were encouraged to learn that BBSRC and NERC are in close discussion. Links between the Research Councils and research funded by SEERAD need to be strengthened.

BBSRC reported that a working group has been formed with the Institute of Biology. Defra, RBGE and Kew would all like to be involved with this.

ACTION 7/2: BBSRC to consider extending the working group to include Defra, RBGE and Kew, and invite them to join if appropriate.

Item 8: The QUEST Programme

Kirsty Adam (NERC) outlined NERC's commitment to the QUEST Programme. This is a 6-year programme, with an investment of £21M. NERC is looking for a step-change improvement in our ability to monitor global environmental change in support of policy, and hope that the benefits can be maximised through appropriate synergy and targeted, interdisciplinary research.

Sarah Cornell (QUEST-University of Bristol) presented an introduction to the QUEST Programme. For full details see <http://quest.bris.ac.uk>

Points from discussion

- It was noted that QUEST are not setting out to do new work but are concerned with consolidating existing scientific information into a central location where a variety of users can access information.
- GBSC asked QUEST to consider functional diversity – what is important and how it is impacted by global change
- A workshop is being developed in relation to biodiversity. QUEST will keep GBSC informed of progress.

ACTION 8/1: Secretariat to arrange for a link to the QUEST website to be provided from the public area of the GECC GBSC website.

Item 9: Update and review of emerging scientific questions**Royal Society report on *Ocean Acidification due to increasing atmospheric carbon dioxide* (policy document 12/05)**

<http://www.royalsoc.ac.uk/document.asp?tip=0&id=3249>

This report has effectively identified a new, specific driver of change for biodiversity. Given its apparent importance, it was felt necessary to add this to the list of key drivers which the GBSC considers. Where does ocean acidification rank? This depends on the focus, as this is certainly very important on reef systems and in the southern ocean. An important question to be addressed concerns the 2⁰C warming limit set by the European Union – what will this mean in terms of ocean acidification?

UNEP *Environment Watch*

<http://science.unep.org/environmentwatch.asp>

It was noted that there was virtually no mention of biodiversity in the main body of the document. However, it was reported that biodiversity would form an integral part of *Environment Watch*. It represents a framework to wrap up ongoing activities into a more systematic approach (possibly eliminating duplication of effort). It will be based on national and regional focal points.

ACTION 9/1: GBSC members to respond directly to UNEP, ensuring that all GBSC members are copied in to any submissions, by 15th September 2005. Any points of clarification can be raised with Kaveh Zahedi at UNEP-WCMC.

Item 10: Diary / meeting dates

The MA meeting at the Royal Society will take place on 17th November 2005 (subject to confirmation). It would aim for a maximum of 30 attendees, including GBSC members. If the numbers rose to nearer 40 attendees, it might be preferable to operate in a series of breakout groups, e.g. addressing scenarios and trends (what are the big messages? what are the strengths and weaknesses?)

It was important to consider the role of the GBSC MA research gaps paper. This would act as a prompt for discussion, and would be available in a draft form on 17th November.

Action 10/1: MA Gaps working group to develop structure for the meeting

The February GBSC meeting would focus on the theme of climate change, to cover outcomes from the EPBRS Meeting on 2-5th October 2005; plus a presentation by Martin Parry (Tyndall Centre). The meeting would be held in London, with the date and precise location to be confirmed.

ACTION 10/2: Secretariat to invite Martin Parry to attend the meeting, and inform all GBSC members of the date and location no later than 17th November 2005.

Item 11: AOB

CSR07

GBSC might need to look at the timetable for this exercise at the February 2006 meeting (see above).

ACTION 11/1: Miles Parker to report back to the Secretariat as soon as the timetable is known.

Annual GECC Meeting

To be held on the 12th October 2005

ACTION 11/2: Secretariat to draft an annual report on GBSC activities, to be presented at the Annual GECC Meeting. A draft will be circulated to GBSC members by 16th September 2005

DfID Science Programme Consultation

GBSC members are encouraged to take a look at, and respond to this document.

<http://www.dfid.gov.uk/consultations/science-main.asp>

ACTION 11/3: GBSC members to submit responses to DfID by 19th September.

Thanks

Claudine Gibson was thanked for her invaluable contribution to the GBSC, as this would be her last meeting. UNEP-WCMC was thanked for hosting the meeting.

The meeting closed at 1600.