Network of knowledge

To address the short- and long-term impacts of biodiversity changes, a better knowledge basis for science-policy interfaces is crucial, as **Dr Carsten Neßhöver**, **Dr Rob Jongman** and **Dr Stefan Schindler** explain

What are the objectives of the project BiodiversityKnowledge and what needs does it address?

CN: The main objective of the project stems from a long-term observation regarding European knowledge on biodiversity and ecosystem services. There is plenty of it, which should make informed actions possible in all policy areas; but information and knowledge is still scattered across many different types of institutions. Thus, the main aim is to construct a Network of Knowledge we call 'BiodiversityKnowledge': a meta-network of institutions' knowledge, ensuring a high quality and broad scope of the knowledge available, while at the same time acknowledging the expertise of these institutions and their experts.

How does the BiodiversityKnowledge approach seek to overcome the challenges of creating a multifaceted network? How does it adopt a new approach?

SS: The idea for a Network of Knowledge was set up by the European Platform for Biodiversity Research Strategy (EPBRS). Thus, it is based on an established platform for biodiversity research, which has gathered experience and overviews on European biodiversity knowledge holders and users over the last 12 years. The project will build on these experiences and will include a suite of methods (eg. adaptive management and systematic scientific reviews) for assessing knowledge across different disciplines. We will test them in policy-relevant case studies, to assess these methods' performance.

Who do you anticipate will be the principal end-users of the developed Network of Knowledge?

RJ: The principal end-user of the Network of Knowledge will be the policy institutions at European and global levels, but it is also possible that policy institutions at the national level will profit in those countries where such networks do not yet function well. The main European users are the European Environment Agency (EEA) and the European Commission DGs, who in this way can have improved direct contact with research groups in all European countries. The project has been set up from the heart of biodiversity research management in DG Research, in interaction with DG Environment: they are the first which expressed the need for this interface. The European Platform for Biodiversity Research Strategy (EPBRS), in which DG Research and research groups in Europe cooperate, has been instrumental for this. When the Seventh Framework Programme (FP7) started in 2008, the European Biodiversity Observation Network project (EBONE) strongly confirmed the need for this interface, so I am glad we now can strengthen this between EBONE and BiodiversityKnowledge.

To what extent is BiodiversityKnowledge concerned with improving science-policy interfaces so that short-term issues can be better addressed and ultimately resolved? What kind of issues might this help address?

SS: BiodiversityKnowledge aims to develop a functioning 'science part' of a European science-policy interface on biodiversity issues. Short-term issues are the most difficult challenge, as it is impossible in a very short time to test different solutions or to perform thorough systematic reviews. In a time-pressured scenario, it might even be difficult to make a complex system like a Network of Knowledge run, but we believe strongly that through BiodiversityKnowledge we will develop an approach that leads to better results than the current 'phone call to a single expert' – probably the most commonly used method today for addressing short-term issues. Short-term issues might include compensation measures for impacts on biodiversity and the influence of biofuel production on biodiversity. Currently emerging topics are identified through horizon scans and examples from the latest global horizon scan include issues such as nitric acid rain, protected area failure, climate governance, and denial of biodiversity loss.

What are your hopes regarding the duration and benefits of the project? What tangible impact do you expect to have made by the time of its completion?

CN: Our aims for this project over the next three years are challenging ones. If we can propose a suitable framework for a future Network of Knowledge on biodiversity, supported by many institutions, it would be great. We know from policy makers that they see the need for such a structure, so we feel a strong responsibility to deliver.

Biodiversity research is ready to provide targeted policy-relevant information, but will need the right tools and support to do so

Biodiversity is the best policy

Through BiodiversityKnowledge, the European-funded Coordination Action **KNEU** will instigate a robust structure through which the best expertise can inform policy making and economic sectors

WITH THE EUROPEAN Commission's May 2011 targets announcement to halt loss of biodiversity by 2020 and fully protect ecosystems by 2050, the stakes have never been higher for joined-up science and policy making. Unparalleled species extinction and ever-increasing threats to habitats mean meeting these targets will require a coordinated and cross-sectoral approach.

Developed and communicated by the European Coordination Action 'Developing a Knowledge Network for EUropean expertise on biodiversity and ecosystem services to inform policy-making and economic sectors' (KNEU), BiodiversityKnowledge aims to establish a robust Network of Knowledge structure. Through this, policy makers and decision makers, as well as other societal actors, should be able to access the best available knowledge on which to base their actions – evidence not presently being put to best use.

To that end, Project Coordinator Dr Carsten Neßhöver believes it is necessary to reach out to the broad biodiversity knowledge community, as he explains: "When talking about biodiversity, and especially ecosystem services, we need to incorporate knowledge from many scientific disciplines and areas – but also other societal actors, which surely operate from different viewpoints and target systems".

A CHALLENGING SCATTERING

The challenge then, is to incorporate this diverse knowledge and its diverse backgrounds, trying to assess relevant conclusions for better decisions from it, based on a sound scientific approach. At the core of BiodiversityKnowledge are the key principles that such a process needs to be flexible, open, transparent, independent, and equally accessible to all. A robust structure is therefore essential. The initial idea for such a network stemmed from the EPBRS (European Platform for Biodiversity Research Strategy) through discussions on the need for an improved science-policy interface for biodiversity in Europe.

The paper proposing the Network of Knowledge stated it should: provide clients with policy-relevant information, options and scenarios; report on issues its members wish to highlight; design and coordinate multiple-scale assessments, responding to the needs of decision makers; provide reliable, evidence-based and policy-relevant information and interpret findings for the network's clients. Communicating with clients, scientists and, where appropriate, the public, concerning the implications of findings, will be relevant as well.

While the quality of biodiversity research being undertaken in Europe is of a high standard, knowledge is currently diffused across disciplines, scales, and a huge array and quantity of institutions or individuals. With a view to ensuring this knowledge becomes accessible while also acknowledging the work of those who contribute to it, Neßhöver believes that inclusion through the Network of Knowledge's inception will be key: "Policy makers and decision makers, as potential clients of

BIODIVERSITYKNOWLEDGE

DEVELOPING A KNOWLEDGE NETWORK FOR EUROPEAN EXPERTISE ON BIODIVERSITY AND ECOSYSTEM SERVICES TO INFORM POLICY MAKING AND ECONOMIC SECTORS

OBJECTIVES

To develop a framework for a scientific Network of Knowledge on biodiversity and ecosystem services to inform policy making and others societal actors.

PARTNERS

UFZ, Germany • **NERC**, UK • **RBINS**, Belgium • **CIIMAR**, Portugal • **NIOZ**, The Netherlands • **FRB**, France • **Alterra**, Netherlands • **UNIVIE**, Austria • **NINA**, Norway • **CSIC**, Spain • **IEB HAS**, Hungary • **ECNC**, Netherlands • **Bangor**, UK • **EVINBO**, Belgium • **EAA**, Austria • **SYKE**, Finland • **BEC**, Ireland • **VLIZ**, Belgium

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MAG DR STEFAN SCHINDLER is research assistant at the Department of Conservation Biology, Vegetation and Landscape Ecology of the University of Vienna. He is coordinator of the Austrian Platform for Biodiversity Research (BDFA) and Austrian delegate to EPBRS.

BiodiversityKnowledge, will be invited to engage in all stages of the project: prototype development, test cases and further discussions. We want to make sure that our design is adequate and relevant to them," he explains. This means transparency about knowledge sources, quality and uncertainties, all kept as relevant as possible to client's needs, and could significantly improve the science-policy interface – while retaining the intellectual property rights of knowledge holders.

AS POLICY-RELEVANT AS POSSIBLE

Through the Science-Policy Interfaces For Biodiversity: Research, Action, And Learning (SPIRAL, p65) project – which conducts application-orientated research on how science-policy interfaces on biodiversity issues operate in Europe and beyond – BiodiversityKnowledge will be given useful direction in developing the Network of Knowledge. As Neßhöver points out, encouraging a broad array of institutions to engage in the development process of the network, is as important as linking with policy makers: "We will use our experiences and contacts with policy makers, on the national and European level, to discuss how the Network of Knowledge can be as policy-relevant as possible," he enthuses.

Their FP7 coordination grant has started by initially providing an overview of the biodiversity knowledge landscape in Europe, as the basis for design and potential contributors to the Network of Knowledge. From there, a first prototype will be developed and its structural, methodological and functional issues discussed through a set of workshops – regional and European – as well as through the project website. This prototype will be tested in three major case study areas of biodiversity governance: agriculture, conservation and marine biodiversity. The experience gained will be put to use in further revising the Network of Knowledge prototype, discussing best practices and all the time ensuring results are evaluated thoroughly and disseminated as broadly as possible to the biodiversity knowledge community.

ANTICIPATING IPBES

BiodiversityKnowledge in its test phase will allow temporary, ad hoc associations for an array of organisations in order to assemble and communicate knowledge for specific needs raised by its clients. In harnessing these existing organisations, such an approach might minimise the administrative and overhead costs – as organisations are more and more open to contribute to such efforts if they are properly acknowledged for this work.

Ahead of the envisaged founding of the Intergovernmental Science Policy Platform for Biodiversity and Ecosystem Service (IPBES), BiodiversityKnowledge could also play a useful role. The Network can provide insights into the knowledge generation process 'ahead of the curve' for the IPBES, and thus support the way IPBES steers its future work, flagging up problems and best practice for specific challenges. As Dr Rob Jongman points out, to address such a monumental issue requires significant collaboration: "Biodiversity research is not yet as well standardised and harmonised as other fields of science. With IPBES, we can help to set the important steps in cooperation and integration, but also in the discussions about transparency and reliability". BiodiversityKnowledge will support this process from a European perspective.

COOPERATION, NOT COMPETITION

The project consortium currently consists of 18 leading institutions on biodiversity and ecosystem services research and governance including partners from: Germany, UK, The Netherlands, France, Belgium, Portugal, Austria, Hungary, Norway, and Spain. Within such a broad array of cultural contexts and governmental systems, Jongman acknowledges that a complex range of factors are at play which prevents cooperation being as comprehensive as it might be: "Within countries, funding for research is based on competition, not cooperation. EU Research Framework Programmes overcome these problems, as they stimulate cooperation across administrative borders: but this requires some harmonisation and European policy too requires cooperation," he states.

YOUR EXPERTISE IS NEEDED!

As the main 'capital' of the venture, the knowledge of institutions and individual experts is invaluable. This means not only the knowledge on biodiversity and ecosystem services themselves, but also in a broader sense the other enriching skills and assets that these experts can contribute to developing the Network of Knowledge, as Neßhöver elaborates: "We understand 'knowledge' not in a purely scientific sense," he says. "When talking about biodiversity and ecosystem services, we have to take into account practical management knowledge and indigenous knowledge as well." So in this 'knowledge landscape', personal expertise and views on developing their approach will be highly welcomed – and actively invited.

Through continuous web updates, a newsletter, discussions through regional and methodological workshops, open consultations on draft concepts and two major conferences for setting up the prototype (early in 2012) and discussing its further improvement (during 2013), BiodiversityKnowledge aims to gain the fullest feedback from the first instance, ensuring it is on the right track.

Despite challenges of defining guidelines and processes to ensure transparency, rigour and independence, Neßhöver believes that encouraging stakeholders to take part will lead to positive outcomes for BiodiversityKnowledge: "There has been considerable debate and method development on how to make the work transparent, indicating which knowledge is used and how we can judge its reliability. Biodiversity research is ready to provide targeted policy relevant information, but should obtain improvements by getting acknowledged for this work, and also by support in coordination, infrastructure, and implementation of research strategies," he concludes.