

Transdisciplinary Research on Biodiversity

*European Workshop on
“Steps towards Integrated Biodiversity Research”*

Cooperation between:

ISOE - Institute for Social-Ecological Research

EBPRBS - European Platform for Biodiversity Research Strategy
and the Belgian Biodiversity Platform

14-15th November 2011

Institute for
Social-Ecological
Research



ISOE - Institute for Social-Ecological Research



EPBRS - European Platform for Biodiversity Research Strategy



Biodiversity.be

Belgian Biodiversity Platform

executive summary

The workshop “*Transdisciplinary Research on Biodiversity, Steps towards Integrated Biodiversity Research*” was organized on 14-15 November 2011 in Brussels by the German-based Institute for Social-Ecological Research (ISOE) in cooperation with the European Platform for Biodiversity Research Strategy (EPBRS) and the Belgian Biodiversity Platform.

The workshop was a follow up of the EPBRS summit “*Positive Visions for Biodiversity*” organized in November 2010, and its aim was to explore ways to further increase the capacities of transdisciplinary biodiversity research in Europe. It brought together researchers and experts, representatives and decision-makers from European institutions and research funding agencies, as well as members from civil society and the private sector.

Participants discussed and identified in working groups **key research topics** and the added value of **transdisciplinary approaches** for three main themes of the “*Positive Visions for Biodiversity*” summit:

- 1/ **The integration of biodiversity into every part of life**
- 2/ **Values and behaviours to a more harmonious way of life**
- 3/ **Governance that is more transparent and effective and that balances global and local responsibilities.**

During the final plenary panel discussion, participants highlighted recommendations for promoting transdisciplinary biodiversity research:

- **Scientists have a role to play in raising awareness** on the importance of biodiversity as a transdisciplinary issue.
- **Environmental policy representatives at national and European level have to open up to and interact with other sectors** to better advocate for global biodiversity agreements and mobilize more funding for transdisciplinary research on biodiversity.

BRIEF

- ▶ There is a **need for scientists who are interested in communicating and advocating**. The biodiversity community needs people who are able to bridge between worlds, both science and advocacy, to get transdisciplinary biodiversity topics on European research agendas.
- ▶ **Scientific academic training should provide means and opportunities to train these new professionals to become the “in-between” links**. Current educational and insitutional frameworks need to be adapted to provide such training and career opportunities.
- ▶ **Innovation should be understood in a broader sense than technology and products with market value**. Research is needed on innovative ways to increase sustainable use, recycling of natural resources and learning from natural processes.
- ▶ **The biodiversity community needs to reinforce its identity and build up larger influential groups** to be able to advocate more efficiently at national and European levels.

Among the main barriers to developing and implementing an efficient transdisciplinary research on biodiversity issues, the current trends in European research agendas to focus on technological and product oriented research is particularly detrimental. Improving advocacy on biodiversity and the implementation of transdisciplinary biodiversity research will be critical for the next decade to ensure the necessary knowledge for informing political decisions.

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background

The European workshop on transdisciplinarity and integrated biodiversity research was initiated and organized by the ISOE-Institute for Social-Ecological Research (Germany) in joint cooperation with the European Platform for Biodiversity Research Strategy (EPBRS) and the Belgian Biodiversity Platform. It took place on the 14-15 November 2011 at the Representation of the State of Hesse to the European Union in Brussels.

The workshop aim was to explore ways to further increase the capacities of transdisciplinary research on biodiversity in Europe.

The specific **objectives** were:

- ▶ To identify **innovative approaches for integrated biodiversity research** in Europe
- ▶ To discuss the **requirements, opportunities and implementation of transdisciplinary research** processes
- ▶ To facilitate an **open exchange between scientists, policy-makers and society's representatives** to develop principles to foster transdisciplinary biodiversity research in future national and EU research policy

The workshop assembled researchers and experts, representatives and decision-makers from different institutions and research funding agencies in Europe, as well as members from non-governmental organizations and enterprises.

The workshop was a follow up of a participatory summit organized by EPBRS on 16-19 November 2010 under the Belgian Presidency of the EU: "*Positive Visions for Biodiversity*". The outcomes of the "*Transdisciplinary Research on Biodiversity*" workshop directly feed into implementing the visions developed at this summit to bring humans in a sustainable and mutually beneficial relationship with the living world¹.

¹ *Positive Visions for Biodiversity*: <http://www.positivevisionsforbiodiversity.org>

METHODOLOGY

The workshop was organized in three sessions (programme is documented in Annexe 1):

Session 1: Keynote presentations provided insights on the characteristics of transdisciplinary research, on current trends and priorities in European science policy and on developments in science policy interfaces in Europe. (*Presentations are available on: <http://www.positivevisionsforbiodiversity.org> in the Files section*).

Session 2: Participants were split in three working groups to address three different **themes** extracted from the EPBRS “*Positive Visions for Biodiversity*” vision framework:

- Working group 1: **The integration of biodiversity into every part of life**
- Working group 2: **Values and behaviours to a more harmonious way of life**
- Working group 3: **Governance that is more transparent and effective and that balances global and local responsibilities**

For each of these themes, working group discussions moderated by a facilitator addressed the following **questions**:

- **What are the key research topics related to the respective theme that require a transdisciplinary approach?**
- **What is the added-value of using a transdisciplinary approach for the identified research topics?**
- **How can we increase the use of transdisciplinary approaches in biodiversity research related to the respective theme?**

Session 3: A plenary panel discussion was carried out to address the outcomes of the working groups and to focus on recommendations for the next steps to be taken promoting European transdisciplinary biodiversity research.

CHARACTERISTICS OF TRANSDISCIPLINARITY

The theoretical starting point of the workshop was the definition of transdisciplinary research as:

Transdisciplinary research applies to research efforts focused on real world problems (problem oriented research) and integrates practical knowledge (see Bergmann et al., 2005²).

This definition was discussed among participants who suggested extending it. A first suggestion was to include the added value of transdisciplinary research compared to mono disciplinary or any other applied research process. That includes bringing in non-scientific knowledge in an appropriate way so that new scientific knowledge and questions are produced and proposals for action and problem solutions are formulated. Another suggestion was to differentiate knowledge in problem framing and problem solving. It was further discussed that both practical and scientific knowledge play a role in the process of transforming a societal problem into a scientific problem and in the formulation of the resulting research question. Transdisciplinary research, when working on a problem, is continually crossing the borders between disciplines and departments, as well as those between scientific knowledge and non-scientific knowledge, with both of these kinds of knowledge being necessary to the process of dealing with the research question at hand.

² Bergmann, M., Brohmann, B., Hoffmann, E., Loibl, M.C., Rehaag, R., Schramm, E. (2005): Quality Criteria of Transdisciplinary Research. ISOE-Studientexte, No.13.

RESEARCH TOPICS

TOPICS FOR TRANSDISCIPLINARY RESEARCH ON BIODIVERSITY

Working group discussions generated key biodiversity research topics that should be addressed in a transdisciplinary approach (Table 1).

Table 1: Overview of research topics per working group to be addressed in transdisciplinary biodiversity research.

| RESEARCH TOPICS | EXAMPLES |
|---|---|
| <i>Working group 1: The integration of biodiversity into every part of life</i> | |
| Consumer behaviour : impact on biodiversity | <ul style="list-style-type: none"> - Communication of impacts to consumers/change makers e.g. via certification - Ways of measuring biodiversity impact to show progress - Assessment of impacts of products and services on biodiversity |
| Relation between biodiversity, agriculture and human well-being | <ul style="list-style-type: none"> - Importance of traditional agrobiodiversity - Importance of wilderness for biodiversity and human well-being - Interaction of food, food processing, agriculture and biodiversity |
| Improved communication strategies | <ul style="list-style-type: none"> - Evaluation of trade-offs - Translate research results into challenges for change makers/entrepreneurs |

results

| RESEARCH TOPICS | EXAMPLES |
|--|--|
| <i>Working group 2: Values and behaviours to a more harmonious way of life</i> | |
| Inner development: Understanding socio-cultural, psychological and emotional aspects to achieve sustainability | -How to influence perceptions and attitudes to the value of nature to change a personal or group behaviour - Obstacles to match behaviours and stated values and how to overcome them - Reasons for denial of issues such as biodiversity crisis or climate change - Conflicting and changing values over time and the use of valuation of ecosystem services -Understand how the values of various cultures influence the biodiversity in which they live |
| Community values | -Study bottom up initiatives such as the ' <i>Transition</i> ' concept ³ -How to learn from other value systems/cultures not based on money and consumption |
| Relation between biodiversity and human well-being | -What is the importance of economic wealth on human well-being and happiness -What is human well-being with regards to biodiversity |
| Broaden the idea of innovation | -Broaden the idea of innovation with regards to values and biodiversity that sets the agenda for ' <i>Horizon 2020</i> ' -Research on how to reach human well being, healthy ecosystems, as well as sustainable economies. Innovation: how to achieve the WIN-WIN-WIN situation -Understanding conflicting goals, trade-offs, possible synergies |
| Life cycle/system approach | -Research on how to operationalise the ecosystem approach -Research on how to close the carbon and nutrient cycle -Real impact of green projects on biodiversity: life cycle full cost of green technology |
| Positive communication & methods | - Language power: e.g. hand print -How to develop positive messages/medias to make people change their behaviour -How to activate the power of consumers towards more sustainable consumption -How to better communicate research information: messages/medias - Translating sustainability into goals and practices that can be shared worldwide -Better understand the way new ideas and concepts evolve and reach the public to change personal lifestyle |

³ Transition concept refers to the Transition Network: <http://www.transitionnetwork.org/>

RESEARCH TOPICS

TABLE 1

| RESEARCH TOPICS | EXAMPLES |
|--|--|
| <i>Working group 3: Governance that is more transparent and effective, and that balances global and local responsibilities</i> | |
| Improved communication of scientific results, political decisions and stakeholder needs | <ul style="list-style-type: none"> -At different governance levels and spatial scales, actors (incl. science, policy and business) -Tools for science-policy and science-society dialogue -How to identify obstacles to change dominant view, and removing obstacles -New and effective ways of communicating global and local levels of government -How to reach the not yet convinced private sector |
| Power and decision making in a broader sense including distribution of power and equity | <ul style="list-style-type: none"> -Assessment of the role and responsibility of the different actors involved -Institutional structure, taking existing processes into account -Instruments, mechanisms, value systems and valuation instruments, especially for non-economic ways of valuing biodiversity -How to transform/integrate them into decision making |
| Methodological issues | <ul style="list-style-type: none"> -Comparative approaches for transdisciplinary approaches -Using case studies/practices |

results

The only research topic that was comprehensively highlighted and discussed in all three working groups was the urgent need for **better communication strategies**. This includes vertical (within the research community) as well as horizontal communication (e.g. science-society interface).

The latter is especially important from a transdisciplinary perspective in order to involve relevant stakeholders. Several aspects were characterized as being a specific **added-value of transdisciplinary research on biodiversity**. These include:

- ▶ Interdisciplinarity
- ▶ Reality check of the research under investigation
- ▶ Increase of acceptance of the observed results
- ▶ Integration of non-scientific problems
- ▶ Tool for a more democratic and transparent (research) process
- ▶ Empowerment of people
- ▶ Allow a better involvement of stakeholders
- ▶ Link with practical knowledge
- ▶ Knowledge exchange between users and providers (not one-way transfer)
- ▶ Innovative ways of working and outputs / knowledge creation

Overall, there was **broad consensus** among workshop participants that **transdisciplinary approaches will be critical as biodiversity research addresses more and more the underlying societal causes of biodiversity loss**. However, many efforts are still needed to ensure research structure, institutions and funding allowing for efficient implementation of transdisciplinary research on biodiversity.

RECOMMENDATIONS

TABLE 2

RECOMMENDATIONS TO INCREASE THE USE OF TRANSDISCIPLINARY APPROACHES IN BIODIVERSITY RESEARCH

Subsequently, working groups focused on how to increase the use of transdisciplinarity in biodiversity research and what requirements and factors are to be implemented (Table 2).

Table 2: Summary of recommendations to increase the use of transdisciplinary approaches in biodiversity research.

| RECOMMENDATIONS | EXAMPLES |
|--|--|
| Clarify the <i>transdisciplinary</i> concept and theory | <ul style="list-style-type: none"> -Be more specific on the ‘business case’ of transdisciplinary research -Define research questions that could be investigated through transdisciplinary approach -Explore where transdisciplinary research is adding value -Include stakeholders in all stages of the (research) process |
| Foster culture of transdisciplinarity inside Academia | <ul style="list-style-type: none"> -Establish a day of transdisciplinarity -(Nobel) prize for transdisciplinary projects |
| Find the right types of knowledge and skills | <ul style="list-style-type: none"> -Guarantee that scientific and non-scientific knowledge is included in the research process -Evaluate research projects in terms of impact on society |
| Implement innovative ways of working to better engage with practitioners | <ul style="list-style-type: none"> -Include dialogue spaces in research projects, such as ‘<i>Common kitchen</i>’ -Guarantee the implementation of research projects results in practice |
| Improve communication and interactions between researchers and policy makers | <ul style="list-style-type: none"> -Establish communication on a permanent basis (e.g. co-working movement, information design results) -Communicate on success and added value of transdisciplinary research to all stakeholders |
| Build projects that include early and efficient engagement of relevant stakeholders | <ul style="list-style-type: none"> -Integrate all relevant stakeholders, build trust and communicate efficiently -Identify relevant stakeholders, define the concept of stakeholders -Train and engage ‘<i>translators</i>’ to better express and frame questions/problems important for stakeholders |

results

Table 2 (continuation): Summary of recommendations to increase the use of transdisciplinary approaches in biodiversity research

| RECOMMENDATIONS | EXAMPLES |
|--|--|
| Diversify funding strategies | -Jointly lobby for more funding options on transdisciplinarity -Promote other funding options, such as crowd funding or philanthropic funding (using the link between biodiversity and societal issues) |
| Implement rewarding systems for all stakeholders (policy makers, practitioners, local people, etc.) | Foster a diversity of rewards and incentives for researchers and other actors working in transdisciplinary research projects |
| Guarantee research results implementation | Ensure transdisciplinary research results are implemented in policy decisions and management practices |

PROMOTION OF T.R.

PROMOTION OF TRANSDISCIPLINARY BIODIVERSITY RESEARCH

During the final plenary discussion the outcomes of the working groups were presented and discussed. Furthermore, the final discussion aimed at identifying strategies to promote transdisciplinary research on biodiversity in Europe.

RESEARCH AND ADVOCACY

The discussion began with the suggestion that more advocacies for the importance of biodiversity and transdisciplinary research are needed, both at the local and the European level.

Different types of advocacy for biodiversity or nature conservation exist, but a conclusion was reached that:

- ▶ **Scientists have a role to play in raising awareness** on the importance of biodiversity as a transdisciplinary issue
- ▶ **Scientists have a role to play in advocating** for biodiversity research

Though the scientific community can not advocate for a “specific road to take”, it could ensure that the appropriate questions are addressed and that research generates necessary information to explore and evaluate options. Practically, this advocacy action should be well organized and done professionally to raise biodiversity research and transdisciplinarity profiles in policy.

POLICY FRAMEWORK AND RESEARCH FUNDING

Given the large scale policy frameworks such as the adapted Strategic Plan for Biodiversity (2011-2020)⁴, including Aichi biodiversity targets of the Convention on Biological Diversity (CBD) as well as the adapted EU Biodiversity Strategy to 2020⁵, there is a clear need for research to provide the basis to implement them efficiently. However, current research policy in Europe is focusing on neither biodiversity nor transdisciplinarity related issues.

Thus, participants raised questions regarding these policy frameworks and how they should influence research funding priorities, especially in Europe: “*Why do these policy tools seem to have such little effect “on the ground” especially on research funding priorities?*”; “*How can we better influence research policy at the European scale?*”

⁴ <http://www.cbd.int/doc/strategic-plan/2011-2020/Aichi-Targets-en.pdf>

⁵ <http://ec.europa.eu/environment/nature/biodiversity/policy/>

results

Discussing major constraints on these issues, it was emphasized that research funding agencies usually have a tendency to be more trustful towards their personal contacts (individual researchers) than large-scale policy targets for setting up their agenda. Furthermore, the implementation framework of the EU Biodiversity Strategy is being developed, but at the same time funding to biodiversity research has decreased drastically.

To biodiversity policy it was recommended that:

- Environmental Ministers should be more vocal in all sectors about the international biodiversity agreements
- **Environmental policy representatives at national and European level have to open up to and interact with other sectors** to better advocate for global biodiversity agreements and mobilize more funding for transdisciplinary research on biodiversity

ACADEMIC TRAINING

The audience emphasized that there is a need for scientists who are interested in communicating and advocating. The biodiversity community needs people who are able to bridge between worlds, both science and advocacy, to get transdisciplinary biodiversity topics on European research agendas. This includes translating capacities to give appropriate feedback to funders and decision-makers on success stories. However, scientists who take on this role of “translators” face the problem that without being deeply anchored in either world, they may lose credibility and be considered more as “Public Relations” rather than reliable channels of scientific information. To overcome this drawback:

- **Scientific academic training should provide means and opportunities to train these new professionals to become the “in-between” links.** Current educational and institutional frameworks need to be adapted to provide such training and career opportunities

It was also noted that in science, achievements are mainly measured in publication rates, which can be problematic for scientists who would like to invest time into activities related to science policy interfacing and indirectly conducive to publications:

- There is an **urgent need to have different rewarding systems for scientists** and for stakeholders involved in transdisciplinary research processes

PROMOTION OF T.R.

INNOVATION AS A “TROJAN HORSE” OF TRANSDISCIPLINARY RESEARCH ON BIODIVERSITY

Biodiversity research, and particularly with a focus on transdisciplinarity, has currently dropped from the EU research agendas such as the EC research programme, Horizon 2020, due to a strong focus on jobs, innovation, and growth. Innovation in this sense is often restricted to a market and product-oriented concept, whereas social innovation is left aside. Participants suggested that:

- ▶ **Innovation should be understood in a broader sense than technology and products with market value.** Research is needed on innovative ways to increase sustainable use, recycling of natural resources and learning from natural processes

LEARNING FROM OTHER RESEARCH FIELDS

It was pointed out that other research communities such as astronomers or astrophysicists are more successful in lobbying and raising funds than environmental or transdisciplinary research communities. One possible reason could be that astrophysics requires large amounts of money for research infrastructures. Lessons could also be learned from the Marine community that seems to be more successful at advocating for marine research. An important factor is that the marine community is quite small, and all marine scientists have to talk to each other, share infrastructures and have a common interest and identity. Building on this context, they developed good lobbies in Brussels and are benefiting from current political interest on using oceans for various economic activities to ensure enough money to be allocated to marine research. As a consequence, the audience concluded that:

- ▶ **The biodiversity community needs to reinforce its identity and build up larger influential groups** to be able to advocate more efficiently at national and European levels
- ▶ **There is a need for more ambitious costly projects** to increase visibility and promote the importance of the biodiversity issue

conclusion

The results of the workshop clearly illustrate the **critical need of transdisciplinary research on key biodiversity topics especially as more and more attention is given to the underlying societal causes of biodiversity loss**. Participants identified **recommendations to ensure that appropriate research funding, structures and human resources are made available in the near future to take up these research challenges**.

These key recommendations to promote transdisciplinary biodiversity research address both, the science community and the research policy and are summarized in Figure 1 (page 21).

Among the main barriers to developing and implementing an efficient transdisciplinary research on biodiversity issues, the current trends in European research agendas to focus on technological and product oriented research is particularly detrimental. **Improving advocacy on biodiversity and the implementation of transdisciplinary research on biodiversity will be critical for the next decade to ensure the necessary knowledge for informing political decisions**.

CONCLUSION

FIGURE 1

Figure 1: Overview of recommendations on how to promote transdisciplinary research in science community and research policy

HOW TO PROMOTE TRANSDISCIPLINARY RESEARCH IN:

SCIENCE COMMUNITY

Education and training

Reward system and publications for
transdisciplinary research in biodiversity

Good way to include stakeholders

Added value for cooperation

Clarify the concept of transdisciplinary research
and make the business case for biodiversity

RESEARCH POLICY

Improve communication and use of
research results

Have a better lobbying action

Use the current *innovation vague* but show how
transdisciplinary research and biodiversity
research can create innovation

annexe 1

PROGRAMME

MONDAY, 14 NOVEMBER 2011

OPENING

- 12:00 Registration
13:00 **Representation of the State of Hesse to the European Union, Brussels**
(Claus-Peter Appel)
13:10 Introductory statements (Marion Mehring, **ISOE**; Katalin Torok, **EPBRS**)

ORAL PRESENTATIONS

Moderated by Marion Mehring, ISOE

STATE OF THE ART: POSITIVE VISIONS FOR BIODIVERSITY

LESSONS LEARNED AND FUTURE PERSPECTIVES

- 13:20 Presentation of the “*Positive Visions for Biodiversity*” meeting
(Estelle Balian, **EPBRS**)

TRANSDISCIPLINARY CO-OPERATION

- 13:40 The rhetoric and reality of integrated research
(Martin Sharman, **European Commission**)
14:00 Approaches from transdisciplinary research – methods for integration
(Engelbert Schramm, **ISOE**)

RELATIONS BETWEEN SCIENCE AND DECISION-MAKING:

FROM INFORMATION TRANSFER TO CO-OPERATIVE KNOWLEDGE TRANSFER

- 14:20 Experience from “*Biodiversity Knowledge Network*” (Angelique Berhault,
EPBRS)

WORKING GROUPS

- 14:30 Introduction (Marion Mehring, **ISOE**)
*Group discussions on selected themes of EPBRS workshop “Positive Visions
for Biodiversity”*

WORKING GROUP 1:

The integration of biodiversity into every part of life

Hosts: Heidi Wittmer, **UFZ** with Kristina Articus, **Belgian Biodiversity
Platform**

PROGRAMME

WORKING GROUP 2:

Values and behaviours to a more harmonious way of life

Hosts: Julian Rode, UFZ with Ciprian Ionescu, OREE

WORKING GROUP 3:

Governance that is more transparent and effective and that balances global and local responsibilities

Hosts: Allan Watt, Centre for Ecology and Hydrology with Lasse Loft, BiK-F

- 14:45 Key question 1: For the theme of our table what biodiversity research topics should be addressed in a transdisciplinary approach?
- 16:30 Key question 2: How can we increase the use of transdisciplinary approaches in biodiversity research to our topic?
- 18:00 CLOSING WORKING GROUPS

TUESDAY, 15 NOVEMBER 2011

CONSEQUENCES AND NEXT STEPS

Moderated by Stefan Schindler, EPBRs

- 09:00 PRESENTATION OF OUTCOMES FROM WORKING GROUP HOSTS
- 09:30 COMMENTS ON THE WORKING GROUP OUTCOMES
- **Business & Biodiversity Campaign**, Paula Silva
- **European Commission**, Martin Sharman
- **German Federal Ministry of Education and Research**, Rainer Müssner
- **CEEweb for Biodiversity**, Andras Krolopp
- 10:15 FINAL DISCUSSION: MODERATED ROUND TABLE
Moderated by Estelle Balian, EPBRs
- 11:45 CLOSING REMARKS (Estelle Balian, EPBRs; Engelbert Schramm, ISOE)
- 12:00 END OF WORKSHOP

annexe 2

LIST OF PARTICIPANTS

| Surname | Name | Institution | Country |
|--------------------|--------------|--|-----------------|
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FOR REFERENCES

Mehring, M., Balian, E.V., Berhault, A., Schramm, E. (2012). Transdisciplinary Research on Biodiversity – *Steps towards Integrated Biodiversity Research*. ISOE/EPBRS, Frankfurt am Main, Germany/Brussels, Belgium. 32 pp

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