

## ALTER-Net, a long-term biodiversity, ecosystem and awareness research network

- Year 7 -

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Norwegian Institute for Nature Research

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Trondheim, March, 2011

ISSN: 1504-3312

ISBN: 978-82-426-2269-3

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AVAILABILITY

Open

PUBLICATION TYPE

Digital document (pdf)

QUALITY CONTROLLED BY

Roel May

SIGNATURE OF RESPONSIBLE PERSON

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CLIENT(S)

The Research Council of Norway & The Norwegian Directorate for Nature Management

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COVER PICTURE

Logo ALTER-Net. Landscape pictures by Terry Parr.

KEY WORDS

Biodiversity

Ecosystem

Awareness

Interdisciplinary research

Research network

NØKKEWORD

Biomangfold

Økosystem

Formidling

Tverrfaglig kunnskap

Forskningsnettverk

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## Abstract

Van Dijk, J., Ulateig, G., Terrasson, D., De Blust, G., Sier, A., Braat, L., Kanka, R., Mirtl, M., Török, K., Furman, E., Kertész, M., & Stadler, J. 2011. ALTER-Net, a long-term biodiversity, ecosystem and awareness research network – Year 7 – NINA Report 685, 83 pp.

During year seven of ALTER-Net several activities have proven the added value of having the network and together with the partner contributions that have been spent on our network activities (i.e. Common Research Programme, Communication & Knowledge Transfer, Common Training Programme, Data Sharing Policy, Long Term Ecological Research - LTER, LifeWatch, InterDisciplinary Research - IDR and Multi-Site Experiment) we have further guaranteed the durable integration of European biodiversity research.

In Vienna ALTER-Net arranged the workshop on our Common Research Strategy (CRS) which was very successful. During the workshop it was agreed to have a regularly updated CRS by means of an annual research priority meeting with Council, young researchers and stakeholders prior to setting our yearly activities. The ALTER-Net website and the e-news letters are highly appreciated and with regular updates of ALTER-Net activities, biodiversity events, job vacancies, funding possibilities members of the website stay informed about what is going on. Both the LTER-Europe secretariat and the team working on the ALTER-Net/LTER-data infrastructure at UBA have been responsible for running the LTER-Europe network and improving the data infrastructure of LTER-Europe respectively.

For our work on InterDisciplinary Research ALTER-Net organized two very successful events; a conference in Vienna (*Biodiversity and Ecosystem Services, what is the link between the two?*) and a workshop in Paris (*Ecosystem Services and Governance*). Both outcomes are combined in a policy document (one long version for the research community and other interested persons and one short version especially for policy makers).

Also this year ALTER-Net organized its Summer School which was again a great success and one of our most visible outputs of the network together with the work on Multi-Site Experiment II. Both the ALTER-Net Summer School and the Multi-Site Experiment involve many ALTER-Net partners and prove the added value of the network.

The impressive list of 45 ongoing collaborative projects and 8 new joint proposals of which 3 are on the EU funding list from 2011, as well as the 198 publications with two or more ALTER-Net partners show that the fundament of the network is in place and the network is functioning.

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## Sammendrag

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I løpet av det sjuende året av ALTER-Net har flere arrangement bidratt til å framheve verdien av nettverket. I tillegg til disse arrangementene viser innsatsen partnerinstituttene har lagt ned i nettverkets faste aktiviteter (Common Research Programme, Communication & Knowledge Transfer, Common Training Programme, Data Sharing Policy, Long Term Ecological Research - LTER, LifeWatch, InterDisciplinary Research - IDR and Multi-Site Experiment) at nettverket er levende, og vi har ytterligere garantert et holdbart Europeisk samarbeid om forskning rundt biodiversitet.

ALTER-Net arrangerte i Wien en workshop for å evaluere nettverkets styringsdokument (Common Research Strategy). Dette var et svært vellykket arrangement hvor resultatet var et regelmessig oppdatert dokument, samt en oppretting av et årlig felles møte for styret i nettverket, interessegrupper og unge forskere som skal holdes i forkant av beslutningen rundt det påfølgende års aktiviteter og begivenheter. ALTER-Nets nettside og e-nyhetsbrev er høyt verdsatt. Regelmessige oppdateringer rundt ALTER-Nets aktiviteter, biodiversitetsarrangement, ledige stillinger og muligheter for finansiering holder medlemmer av nettsiden informert om hva som skjer. Både sekretariatet for LTER-Europe og ALTER-Nets/LTERs avdeling for datainfrastruktur på UBA har jobbet for å holde nettverket ved like og for å forbedre ALTER-Net nettverkets datainfrastruktur.

Under aktiviteten interdisiplinær forskning organiserte ALTER-Net to suksessfulle begivenheter i 2010: en konferanse i Wien (*Biodiversity and Ecosystem Services, what is the link between the two?*) og en workshop i Paris (*Governance of Ecosystem Services*). Resultatene fra disse er kombinert i et politisk dokument (en lang versjon for forskningsmiljøet og andre interesserte, og en kort versjon spesielt for politikere).

ALTER-Nets årlige sommerskole ble nok en gang en suksess i 2010, og er sammen med arbeidet på Multi-Site Experiment II våre mest synlige prestasjoner utad. Både sommerskolen og Multi-Site Experiment involverer mange ALTER-Net partnere, og bidrar dermed til å vise nettverkets verdi.

Den imponerende listen over 45 pågående samarbeidsprosjekt og 8 nye forslag til samarbeidsprosjekter, i tillegg til 198 publikasjoner med to eller flere ALTER-Net partnere viser at fundamentet er på plass og at nettverket fungerer.

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## Foreword

For all actors engaged in Biodiversity research and conservation, the past year has been tremendously important. It was the International Biodiversity Year, the momentum to assess the end result concerning the 2010 target and the year when new targets for the future should be re-negotiated. A huge number of reports have been prepared and conferences have been organised at all scales; local, European, global, political and scientific conferences.

ALTER-Net has of course been requested to participate in a number of events which gives us a first source of satisfaction. It was an opportunity to verify that ALTER-Net was really well known, far beyond the restricted circle of its usual partners, and that there were high expectations with regard to our network. This recognition is definitely encouraging for the continuation of our collaborative work on biodiversity research.

2010 was the second year for the functioning of ALTER-Net in its new lay-out. After a first transition year marked by internal re-organisation, the overall outcome of this second year is an indisputable second cause for satisfaction. The summer school, as one of the most outstanding outputs of ALTER-Net, has been successfully organised and is progressively adapted to the new network context. All the planned events for 2010 have been very successful (i.e. the Vienna Conference "*Ecosystem services and biodiversity: what is the link between the two?*", the Common Research Strategy workshop, the Paris seminar "*Governance of ecosystem services; what kind of research is needed to support fair decisions?*"). Furthermore the website has been renewed and the network gets more organised to coordinate proposals to European research calls.

These good results have been obtained thanks to the dynamic work of the secretariat and thanks to the involvement of a small number of persons, in particular the members of the Management Board and the chairman of the Council. The challenge is now to share the increasing tasks among a larger group of interests after the network has proved it is able to continue without the finances of the EU FP6.

The year 2011 begins with new changes of responsibilities. The mandate of Terry Parr as chairman of the Council came to its end as the Memorandum of Understanding states that this mandate is for a period of two years. This change is of particular importance because Terry Parr has been the coordinator of ALTER-Net during its first five years under the FP6 programme, and has been the initiator of this network. I would like to take this opportunity to express my best thanks to Terry for his leading role in the creation and management of ALTER-Net. In 2011 the management Board has also to be re-elected as a consequence of restructuring our priorities. In all organisations rotation of responsibilities is a necessity and it gives new members the chance to express their talents and their ideas. Eeva Furman from SYKE has been unanimously elected as new chairman of the Council and Leon Braat from Alterra will chair the Management Board.

At the moment where I have to leave my chair because I will soon retire from Cemagref, I would like to express all my confidence in the bright future of ALTER-Net, and wish the new team which will take the lead good luck and many successes.

Daniel Terrasson  
Chairman of the Management Board



# 1 Introduction

The year 2010 was the International Year of Biodiversity. Especially the tenth meeting of the Conference of the Parties of the Convention on biological diversity (COP10) in Nagoya in October and the final decision of the UN General Assembly to support the resolution for an 'IPCC - for Nature', the IPBES, showed that the loss of biodiversity is high on the political agenda. Biodiversity is important for the role it plays in its contribution to the sustainable function of different ecosystems and for the goods and services essential for human survival. But we also know that never before biodiversity has been so threatened, particularly through pressures such as land use change, pollution, climate change and invasive species.

In Nagoya, the Parties to the Convention on Biological Diversity developed a mission "*to take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services...*". The Commission of the European Union aims to achieve this through a set of policy actions identified in the European Biodiversity Strategy for the 2020 targets.

In response to come up with effective science on both the assessment of biodiversity status and change and its implications for sustainable use ALTER-Net is not only addressing biodiversity research in terrestrial and freshwater ecosystems but it also integrates and enlarges the European biodiversity research capacity with its network functioning. Established as a *Network of Excellence* under the EU Framework VI research programme in 2004 ALTER-Net continues today.

ALTER-Net aims to promote a better integrated and stronger European biodiversity research capacity. The result will be the establishment of a lasting infrastructure for integrated ecosystem research, combining ecological and socio-economic approaches, and with greater emphasis on communication with relevant audiences.

During April 2010 – March 2011 the seventh year of ALTER-Net was used to continue with our communication and outreach activities and to implement our second Multi-Site Experiment using 15 monitoring sites managed by 12 ALTER-Net partner institutes and 3 non ALTER-Net partner institutes. In addition ALTER-Net organized in cooperation with the French Cultural Institute in Vienna a conference on the link between biodiversity and ecosystem services which was followed by an ALTER-Net workshop on the governance of ecosystem services in Paris. Also in Vienna, a workshop on our Common Research Strategy was held. This report elaborates on the work done for the new projects falling under our core activities (i.e., Common Research Strategy; Communication & Knowledge Transfer; Common Training Programme; Data Sharing Policy; LTER-Europe; LifeWatch; Inter-Disciplinary Research) in year seven of ALTER-Net. ALTER-Net is currently scheduled to run until March 2014.

## 2 Functioning of the network

### 2.1 Partner institutes and structure ALTER-Net

During the seventh year of ALTER-Net no new members joined the network and thus the size of the network remained the same. 24 ALTER-Net partner institutes committed to durable integration and recognized to contribute and support the seven core activities of ALTER-Net<sup>1</sup>. **Appendix 1, Table 1** gives an overview of the ALTER-Net consortium that signed the Memorandum of Understanding (MoU). For the Institute of Hydrology of the Biology Centra of the Academy of Sciences of the Czech Republic (officially now BC-ASCR-HBI) its former and old abbreviation HBI-CAS is used in this report.

Each partner institute is represented in the Council and has a right to vote during council meetings. The Council has to approve to the proposed activities and budget allocations made by the Management Board (MB). The Council was chaired by Terry Parr, CEH, United Kingdom while the Management Board was chaired by Daniel Terrasson, CEMAGREF, France. The Management Board further consists of 7 members for each core activity and their 7+1 deputies. During the last council meeting under the Framework VI programme it was decided that two deputies should be assigned to the InterDisciplinary Research activity. **Appendix 1, Table 2** lists the persons involved in the Management Board for the year April 2010 – March 2011.

The ALTER-Net secretariat is hosted by NINA, Norway. NINA succeeded to get financial support from both The Research Council of Norway and from the Norwegian Directorate for Nature Management also for the seventh year of ALTER-Net. With this support it was possible to run the ALTER-Net secretariat and appoint a coordinator (0.5 FTE) and a deputy coordinator (0.5 FTE). With support from the financial administration at NINA the coordinator and deputy coordinator are responsible for coordination of the network activities.

The MoU states that Council will by a majority vote elect its Chair from among its members, who will serve for a two year period and this period runs out for Terry Parr in March 2011. During the last Council meeting in Potsdam (March 2011) Eva Furman from SYKE, Finland, was unanimous elected as new Chair for the next two years. Because Daniel Terrasson will retire from CEMAGREF June 2011, also his position as chairman of the MB became vacant. During the last Council meeting Leon Braat from Alterra, The Netherlands, was elected as new chairman of the MB.

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<sup>1</sup> The seven core activities are: Common Research Strategy, Communication & Knowledge Transfer, Common Training Programme, Data Sharing Policy, LTER-Europe, LifeWatch, and InterDisciplinary Research.

## 2.2 Activities of the secretariat

### Staff

The secretariat's workload was also in year seven divided between the coordinator and a deputy coordinator. In addition the secretariat received daily support from NINA administration for financial matters.

To work towards the added value of having the network, the secretariat spent also in year seven a great deal of effort in obtaining different overviews from the partner institutes about their activities for the network. These overviews resulted in:

- a frequently updated list of events on the website with an indication whether or not ALTER-Net is involved/participates (see [www.alter-net.info](http://www.alter-net.info))
- advocate and manage both the New research initiative fund and the Mobility fund (see **Paragraph 2.5**)
- a biannually updated list on how many persondays the different partner institutes have used on the different activities compared to the originally pledged in-kind contributions (see **Paragraph 2.5** and **Appendix 5**)
- a list of ongoing collaborative projects, new projects and new proposals (see **paragraph 2.5**)
- a list of joint publications (see **Paragraph 2.5** and **Appendix 6**)

### Biodiversity Knowledge (KNEU)

This project, with many ALTER-Net partners involved, had a successful bid in 2010 and started at the end of 2010. The project aims at developing a European scientific biodiversity network to inform policy-making and economic actors. The overall objective of the project is to develop a recommended design for a scientific biodiversity Network of Knowledge (NoK) to inform policy-makers, the policy-making process and other societal actors. The network shall be open, transparent, flexible, equally accessible to all, independent, be scientific- and evidence-based and have a robust structure. It will develop links to relevant clients to support the science-society interface in Europe and beyond.

Although the project started officially already in November 2010 there was a kick-off meeting in February 2011 where the deliverables were discussed and a time schedule was set. During the first half year of 2011 a prototype of the NoK will be set up and with help of 3 regional stakeholders workshops (Nordic, Central European and South European) the NoK will be further developed. The website <http://www.biodiversityknowledge.eu> is now available.

### ICSU Visioning Open Forum

On the 22<sup>nd</sup> June 2010, the International Council for Science (ICSU) organized at UNESCO in Paris, in cooperation with the International Social Science Council, the so called *Visioning Open Forum* (<http://www.icsu-visioning.org/open-forum/>). The aim of this Open Forum was to explore the institutional frameworks that are needed to support and deliver the '*Grand Challenges in Global Sustainability Research*'. Therefore, a platform to facilitate exchange of information and perspectives was established. The '*Grand Challenges in Global Sustainability Research*' is the report produced on the basis of a consultation process and a following workshop, organized earlier this year (see [http://www.icsu-visioning.org/wp-content/uploads/GrandChallenges\\_Pre-publication.pdf](http://www.icsu-visioning.org/wp-content/uploads/GrandChallenges_Pre-publication.pdf)).

ALTER-Net contributed to that consultation process by discussing and formulating a research question and commenting a previous draft report. The final result of ALTER-Net's initiative was positive; 'our' research question "*How does mankind, responsible for climatic and other anthropogenic changes including geo-political and cultural processes, interact*

*with biodiversity, ecosystems and the services they provide?*” was considered (on the number of votes it received) as the most important one in the categories *Biodiversity* and *Interdisciplinary*. This could be a stimulus for ALTER-Net to continue efforts to contribute significantly to effect scientific priorities for global sustainability research.

The ‘*Grand Challenges in Global Sustainability Research*’ were presented and briefly discussed during the meeting. The selection of the challenges resulted from a consultation round, followed by a workshop of scientists, science-policy experts and research funding agencies that formulated the draft document which was then circulated for review. As a result, five grand challenges in global sustainability were formulated, each with several top-level research priorities that must be addressed during the next decade in order to make significant progress in resolving the risks from global change (see ‘*Grand Challenges in Global Sustainability Research*’).

**Challenge 1: Forecasting** “Improve the usefulness of forecasts of future environmental conditions and their consequences for people”.

**Challenge 2: Observations** “Develop the observation systems needed to manage global and regional environmental change”.

**Challenge 3: Thresholds** “Determine how to anticipate, recognize, avoid and adapt to abrupt global environmental change”.

**Challenge 4: Responses** “Determine what institutional, economic and behavioural changes can enable effective steps toward global sustainability”.

**Challenge 5 Innovation** “Encourage innovation (coupled with sound mechanisms for evaluation) in developing technological, policy, and social responses to achieve global sustainability”.

The challenges themselves are united as elements of a systems approach to global sustainability research. None of them can be successfully addressed without progress made in addressing the others.

It is obvious that the vision and starting-point of ICSU to attain a successful research strategy for global sustainability research are rather similar to these of ALTER-Net, namely

- studying the coupled social-environmental system;
- strongly promoting integration of scientific disciplines, of science and policy and of different knowledge systems.

During the meeting we took the opportunity to (very) briefly introduce ALTER-Net and highlight its importance for the requested integrated research. We pointed out the pan-European composition and the synergy of the network, the link with European science policy, the strategy followed so far to achieve durable integration and interdisciplinarity, the preparation of a Common Research Strategy, the support of and collaboration with the LTER and LTSE infrastructure (as a perfect example of the facilities needed for global sustainability research) and the development of EBONE, the European Biodiversity Observation Network, as the result of our capability to play an important role in coordinating European methods and standards for biodiversity monitoring at a continental scale (as such EBONE is Europe’s contribution to GEO-BON).

As a final message, we argued the importance of a coordinated and simultaneous bottom-up and top-down science policy. Bottom-up, a network of research institutes should receive the incentives to reach true institutional and scientific integration on the basis of an elaborated strategy and strong commitment to collaborate, while top-down a mutual discussed and agreed strategic plan, including the ‘research priorities for the decade’, its international scientific and policy framework and an effective science-policy interface, provides the umbrella and the structure that ensure that knowledge supply meets knowledge requirements.

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### **BiodivERsA2 Kick-Off meeting, Lisbon**

The BiodivERsA consortium invited ALTER-Net to its Kick-Off conference organised on the 2nd of February 2011, in Lisbon, Portugal. BiodivERsA presented the network's renewed ambitions and discussed critical issues for biodiversity research in Europe today. Keynote speakers addressed critical issues for biodiversity research today. The conference also highlighted the project's renewed ambitions and presented its past achievements and future contributions to the European research area in biodiversity.

BiodivERsA2 is a network of 21 research-funding agencies across 15 European countries, coordinated by the Foundation for Research on Biodiversity (FRB) in France. It is a second-generation ERA-Net, funded under the EU's 7th Framework Programme for Research, and works to coordinate national research programmes on biodiversity across Europe and to organize international funding for research projects in this field, on a competitive basis. The consortium has launched its second European call on biodiversity and ecosystem services in November 2010, and is planning to come up with a new call each year.

ALTER-Net has tried to come up with a strong consortium for this particular BiodivERsA call but because each participating country had its own restrictions applicable to national research institutes it was not possible for ALTER-Net, as a united European research network, to send in a proposal. Some ALTER-Net institutes however were able to join other smaller consortia.

### **DG-Research meeting, December 2010**

Terry Parr (Chairman ALTER-Net), Daniel Terrasson (Chairman Management Board) and Jiska van Dijk met DG-Research in Brussels and informed DG-Research about the ongoing activities within ALTER-Net, the outcome of our Biodiversity and Ecosystem Service conference in Vienna, the outcome of the Common Research Strategy workshop, our future contribution to IPBES, the future of ALTER-Net's summer school and the relationship between ALTER-Net and the commission (i.e. both DG-Research and DG-Environment).

## 2.3 Activity plan, allocated budget and financial overview April 2010 – March 2011

The ALTER-Net secretariat received all annual cash contributions from the different partner institutes who pledged cash contributions. Also the contribution from the Norwegian Directorate for nature management and the contribution from the Research Council of Norway were according to the agreements.

Based on the expected income (**Appendix 2, Table 1**), the activity plan (**Appendix 2, Table 2**) and working budget (**Appendix 2, Table 3**) were developed during the Management Board meeting in Hungary (March 2010) and later approved by the Council in Uppsala (April 2010).

An overview of the budget spent during year 7 is also given in **Appendix 2, Table 3**. Looking at the income and the costs ALTER-Net is less than 1,000 € in plus which will be included in next year's budget.

## 2.4 Added value exercise

In January 2011 the secretariat sent out a request to the Management Board members to describe the added value of the ALTER-Net partnership for their institute and vice versa; the added value of the institute for ALTER-Net. The institutes asked were CEH, Alterra, NINA, SYKE, IEB-HAS, ILE-SAS, INBO and UBA. The main conclusion was that all these institutes see “increase of internationalisation of biodiversity research” as the most important value of ALTER-Net for their institute. Also the value of intern processes like the Summer School and Lifewatch got high scores. Less important was the value of ALTER-Net for use at national levels (i.e. to influence national policy). The institutes identified “being part of other networks and initiatives” as the most important contribution of the institute to ALTER-Net. The value of national contacts and in-kind and financial contributions were also seen as important. See **Appendix 3, Table 1** and **2** for the complete overview.

The added value exercise gives a fairly detailed picture of the situation in ALTER-Net, both considering what the institutes demand from the network and what the network can expect from the institutes. This is useful as the network is entering the final stage of the current financial situation, and is probably looking at reduced funds already from next spring for which priorities have to be redefined.

## 2.5 Involvement of the partner institutes and its researchers

### New research initiative fund

In 2010 the 'New research initiative fund' was created to support bottom-up activities at the research level. A small amount of money (5.000 € per proposal) should serve as seed money to be able to build a small network within ALTER-Net to work together on a specific feasible and "hot" research topic and to work towards a successful proposal. One condition was that at least 3 different ALTER-Net institutes would be involved in the proposal. The deadline was 1<sup>st</sup> of March 2010 and the secretariat received only a few proposals of which one was selected and granted.

The New research initiative fund supported the editing and publishing of the book "Long Term Socio-ecological Research (LTSER): Studies in Society-Nature Interactions across Spatial and Temporal Scales" by Simron Jit Singh, Helmut Haberl, Marian Chertow, Michael Mirtl and, Martin Schmid. The book is expected to be out by July 2011 and several ALTER-Net partner institutes contributed.

### Mobility fund

During the first ALTER-Net period under the sixth framework program the mobility scheme was very successful, contributing to durable integration in biodiversity research in Europe. In June 2010 the mobility scheme was reopened to encourage people to meet one another within the network and work together. The goal was to get staff members and PhD/postdoc students from ALTER-Net partners to work on biodiversity research at another ALTER-Net partner institute. During year seven 4 persons received funding from the Mobility fund and were able to attend the ALTER-Net conference in Vienna. During the ALTER-Net conference one of them, Jan Dick from CEH, organized a side-meeting on Ecosystem Services and how Long Term Social Ecological Research sites (LTSER-sites) could contribute with research data on this item (see **Appendix 4**).

### Involvement of the partner institutes and use of their in-kind contribution

Once a year partner institutes are asked to update their information how many person days the different partner institutes have used on the different ALTER-Net activities compared to the originally pledged in-kind contributions. 16 institutes had officially pledged in-kind contributions and 2 more institutes (NINA and PIK) contributed in-kind although not officially pledged. **Appendix 5** gives the overview of person days used on the different ALTER-Net activities and the specifications given by the different institutes. Although the Council decided to exclude the in-kind contributions assigned to national LTER and LifeWatch processes as being not strictly part of ALTER-Net core activities the table and specifications show that ALTER-Net in-kind contributions are, in some cases, used for national LTER and LifeWatch processes.

### Ongoing collaborative projects and new joint proposals

Partner institutes were asked to provide information on which ongoing projects and new proposals they were involved in that proves the added value of the network. The Council decided to include collaboration projects when two or more ALTER-Net partners are involved. **Table 1 and 2** give the overview of the information received. 45 collaboration projects are ongoing and 8 new proposals have been sent in during April 2010 – March 2011 of which 3 are on the funding list. During the Council meeting in Uppsala, 27<sup>th</sup> of April 2010, it was discussed how to improve the processes for new joint proposals, to increase



the number of joint proposals and to increase our effort in evaluation processes on former and new calls. It was decided that the secretariat should ask all partners whether they wish to participate and what they are willing to contribute with. This was also up for discussion at the Council meeting in Potsdam 8<sup>th</sup> and 9<sup>th</sup> of March 2011, because the secretariat received few interests in 2010. It was decided that the secretariat should keep up with the facilitating process this year, based on the added value exercise which showed that internationalization is the most important value of ALTER-Net for the partner institutes, and joint projects is included as a feature here.

**Table 1. Overview of ongoing collaborative projects**

ONGOING PROJECTS	Funding	Period	Coordinator	ALTER-Net Partners (all)
Assessing and controlling the spread and the effects of common ragweed in Europe	EC DG ENV	2011-2012	CEH	ECNC
BACCARA	FP7	2009-2012	external	ALTERRA, SLU
BIOFRESH	FP7	2010-2015	external	UFZ, and ALTER-Net as stakeholder represented by HBI-CAS
BIOSTRAT	FP6	2006-2010	external	CEH, CSIC, ILE-SAS, NERI, SLU, UFZ
CARBO-Extreme	FP7	2009-2013	external	PIK, SLU and others
CBIO NET	Nordic TF1/NordForsk	2010-2013	NERI	NERI, SYKE
Dealing with conflicts in the implementation and management of the Natura 2000 network	EC DG ENV	2008-2010	ALTERRA	ALTERRA, ECNC, EUROSITE
EBONE	FP7	2008-2012	ALTERRA	ALTERRA, EMU, CEH, CEMAGREF, ILE-SAS, INBO, NINA, SLU, UBA, UFZ, UNIBUC
EELIAD	FP7	2008-2012	external	CNRS, CSIC, NINA
ENCI	FP7	2009-2011	PIK	CNRS, PIK
EnvEurope	Life+ 2009	2010-2013	external	CSIC, CONECOFOR, ERCE, IEB-HAS, SLU, UBA, UFZ, UNIBUC
European Topic Centre on Biological	EEA	2009-2013	external	ECNC, ILE-SAS, SLU, UBA
EVOLTREE	FP6	2006-2010	external	ALTERRA, CEH, CNRS, PIK, SLU
EXPEER	INFRA-2010.1.1.17	2010-2014	INRA	BGU, CEH, CSIC, ERCE, IEB-HAS, SYKE, UBA, UFZ, UNIBUC
FUME	FP7	2010-2013	external	PIK, CNRS, CEMAGREF, SLU and others
GHG Europe - Greenhouse gas management in European land use	FP7	2010-2013	external	PIK, ALTERRA, CEH and others
GLOWA	national	2000-2010	external	PIK, UFZ
GREENCYCLESII	FP7	2010-2013	external	PIK, CNRS, SLU and others
Habistat	national	2007-2011	external	INBO, Alterra
HUNT	FP7	2009-2012	Macaulay	Macaulay, NINA, others
Integrated assessment of vulnerability of environmental resources and ecosystem-based adaptation measures	EC DG ENV	2011	Alterra	ECNC
ISOIL	FP7	2008-2011	UFZ	ALTERRA
Journal for Nature Conservation	-	ongoing	ECNC	ALTERRA, SYKE, UNIBUC
Biodiversity Knowledge (previously	FP7	2010-2013	UFZ	ALTERRA, CEH, CSIC, ECNC, IEB-HAS, NINA, SYKE, UFZ and others
Ladybird ecology	no external funding	2010-2011	INBO - CEH	INBO, CEH, several universities
LIFEWATCH	FP7	2008-2012	UvA	ALTERRA, CEH, CSIC, ILE-SAS, INBO, NERI, NINA, SYKE, UBA
LNS (Living North Sea)	Interreg IV B (NSR)	2009-2012	external	INBO, NINA
MEDIATION	FP7	2010-2013	PIK	ALTERRA, PIK, SYKE
METIER	FP6	till 2010	UFZ	CEH, CEMAGREF, NERI, SYKE, UFZ
MILLENNIUM	FP6	till 2010	external	CEH, UFZ
MIRAGE	FP7	2009-2011	ALTERRA	ALTERRA, CEH
MODAP	FP7	2009-2012	external	ALTERRA
MOTIVE - Models for Adaptive Forest Management	FP7	2009-2013	external	PIK, ALTERRA, SLU
MS.MONINA	FP7	2010-2013	external	INBO, CEMAGREF
NANOIMPACTNET	FP7	2008-2012	external	ALTERRA
NITROEUROPE-IP	FP6	2006-2011	CEH	ALTERRA, CEH, PBL, SYKE
POLICYMIX	FP7	2010-2014	NINA	NINA, UFZ, SYKE
REFRESH	FP7	2010-2013	external	SYKE, ALTERRA, SLU, MACAULAY, CSIC, BC_HBI-CAS, CNRS
SCALES	FP7	2009-2013	UFZ	NINA, UFZ, SLU, SYKE
SCENES	FP6	2007-2010	SYKE	ALTERRA, CEH, SYKE
SPIRAL	FP7	2010-2013	CEH	Macaulay, UFZ, UNIBUC, INBO
STEP	FP7	2009-2014	external	UFZ, SLU, Alterra, SYKE, CSIC
VOLANTE	FP7	2010-2015	external	CNRS, PIK, UNIBUC
WATCH	FP6	2007-2011	CEMAGREF	CEH, CEMAGREF, CNRS, CSIC, PIK
WISER	FP7	2009-2012	external	CEH, ALTERRA, SLU, SYKE

**Table 2.** Overview of new proposals sent in. *ROBIN, BESAFE and ECOBOS are on the funding list*

NEW PROJECTS	Funding	Status	Coordinator	ALTER-Net Partners (all)
REHAB	ENV2011:2.1.2-1	/not on funding list	NINA	Alterra, CNRS, ERCE, ILE-SAS, INBO, NINA, UNIBUC
BIC_LATIN	ENV2011:6.2.1.4	/not on funding list	UFZ	CSIC, NINA, UFZ, others
ROBIN	ENV2011:6.2.1.4	/on funding list	CEH	ALTERRA, CEH, IFF, PIK, others
TippingPoints	ENV2011:6.2.1.4	/not on funding list	NERI	Alterra, CNRS, INBO, NERI, NINA, SYKE, UFZ, UNIBUC, others
BESAFE	ENV2011:6.2.1.4	/on funding list	Alterra	Alterra, CEH, INBO, NINA, SLU, SYKE, UFZ, UNIBUC, others
noiSy	ENV2011:6.2.1.4	/pending	ICCR	ECNC, CNRS
FLUCIE	ENV2011:6.2.1.6	/ not on funding list	ULUND	Alterra, CEH, CEMAGREF, SYKE, ?
ECOBOS	INFRA2011:1.1.1	/on funding list	external?	CEH, ERCE, many other ALTER-Net partners

### **Joint publications on biodiversity research**

A list of 198 joint publications on biodiversity research (see **Appendix 6**) was created by searching ISI Web of Science, using the information send to Andy Sier (CEH) for placing on the website and by asking the Council members to send information on joint publications. All publications are published between 2009 – March 2011. Also in **Appendix 6** a list of 19 publications in which ALTER-Net is acknowledged is given.

### 3 Common Research Strategy

In 2010 the activities concerning the Common Research Strategy (CRS) focused on:

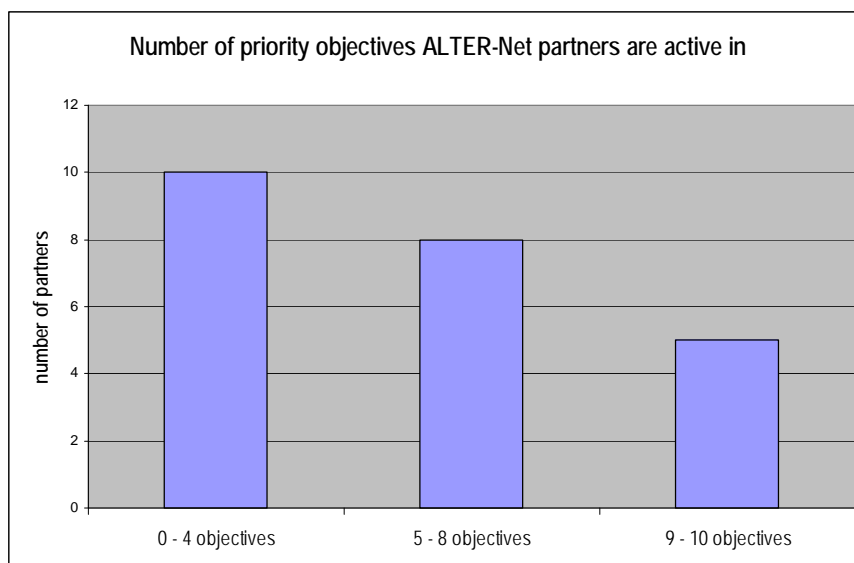
- collecting the opinions of ALTER-Net partners regarding the CRS and
- organizing the CRS workshop in Vienna, November 5 2010.

The aim of the first task was to provide a broad overview on how the current CRS is implemented and used by the partners, what their expectation are regarding a CRS and to collect first ideas for improvement or completion of the CRS.

The objectives of the workshop was to discuss the CRS with all partners in order to further

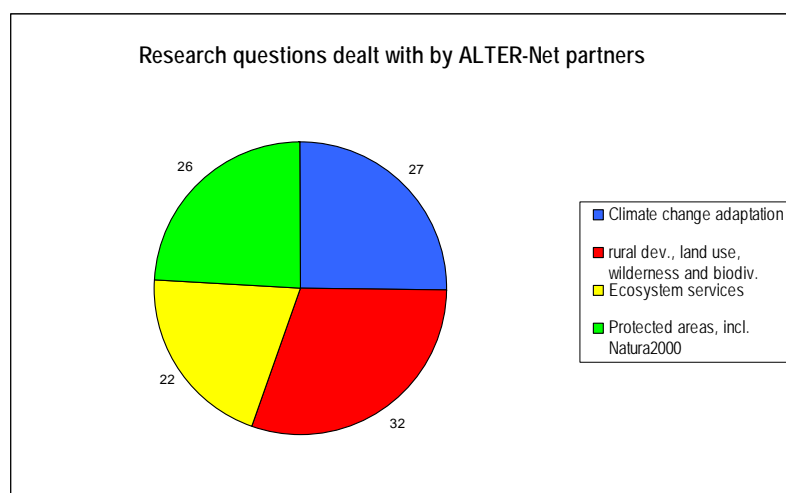
- explore the function of the CRS for ALTER-Net (partners);
- detail and update the CRS;
- define the conditions for a successful implementation of the CRS;
- elaborate and agree upon a strategy to reach that successful CRS;
- relate ALTER-Net's CRS to research programmes, strategies of other organizations and initiatives.

In the current CRS, nine priority research questions from four areas of research and four development objectives are defined. A search of the partner's websites (n = 23) shows the number of priority objectives the partners are active in. When analysed for eight research questions (we combined two of the three topics of the area 'ecosystem services') and two development objectives (i.e. sharing data and developing observatories), we got the result showed in **Figure 1**.



**Figure 1.** Number of priority objectives ALTER-Net partners is active in.

Research on *rural development, land use, wilderness and biodiversity* seems to be most important, while research on *ecosystem services* is less important (**Figure 2**).



**Figure 2.** Research questions dealt with by ALTER-Net partners. The maximum score per area = 46 (2\*23).

In reply to a questionnaire on the CRS, partners in general agreed with the formulation of the CRS which is broad enough and hence allows a flexible interpretation. Some specific issues that are missing were mentioned (such as how to assess environmental quality, urban ecology and biodiversity, climate change adaptation, governance and policy implementation, sustainable harvesting and wild biological resources, and natural risk assessment and management).

In general there is unanimity about the function of the CRS for ALTER-Net. It serves as framework for research and gives the scientific direction for the network. It also facilitates collaboration through harmonized approaches, agreed priorities and joint project development. The CRS also makes biodiversity research more visible.

Partners expectations regarding the CRS range from a guidance for joint research, awareness for emerging trends and opportunities, its use for lobbying and agenda setting to leading towards high level of publications.

Some partners think the CRS needs to be more detailed and regularly updated while other partners think the CRS is detailed enough and allows multipurpose interpretation. However not many partners have implemented the CRS and only few partners have distributed the CRS among scientific staff and management.

It was concluded that important challenges are ahead. The development of a more detailed and/or more tailored CRS is a common desire. The CRS should be such that:

- all partners can identify themselves with it
- it gives partners the possibility to keep their character and use their expertise
- it inspires people
- it includes new topics that stimulate action and collaboration
- it motivates other institutes to join
- it has an impact on science policy and agenda setting
- it has a moral value and stresses the importance of action

The results of the website search and the questionnaire were further discussed during the CRS workshop in Vienna. This workshop was organized by the secretariat of ALTER-Net in close collaboration with the Management Board and the French Cultural institute in Vi-

enna. The workshop was attended by 30 representatives of 16 ALTER-Net partner institutes.

During the two morning sessions, general information was given and plenary discussed regarding:

- the context and content of the current CRS;
- the expectations and implementation of the CRS by the partner institutes;
- the experience of the LTER-network with developing a common research agenda;
- the role of a CRS in alternative structures for the future ALTER-Net.

In the afternoon, smaller discussion groups focused further on the functions of the CRS, especially from the point of view of the researcher, and explored the conditions and necessary arrangements to achieve a practical and realistic CRS.

### **Outcome CRS workshop**

The general agreement was that, being a partner of a scientific network of expertise is becoming more and more important for research institutes. Institutes want to show their own stakeholders, clients, funders, etc. their expertise and scientific quality by referring to the networks they belong to and especially by stressing the link between their priority research topics and activities, and the common research programme of the network. The link proves that their research is highly relevant and that a lot can be gained by collaborating on the same topics or by combining efforts in synergetic activities. However, apart from a steadily increasing knowledge gain regarding research and policy issues that concern all, and which is covered by long term programmes, the individual institutes also have to deal with 'immediate' knowledge demands that require more flexible and short term work plans. Therefore, ideally, the CRS of ALTER-Net should address both functions: providing a strong structure and road map for the (potentially) common long term research on the top priorities for biodiversity policy and a structure that facilitates efficient collaboration and a regular attuning and updating of targeted short term research questions that meets the needs of individual partners and their stakeholders.

During the workshop all the representatives of partner institutes present, expressed the importance for their organization of a CRS and underlined the need for a strategy that serves both the strategic, more long term and overarching vision on common research themes and emerging topics, as well as the day-to-day discussions, collaboration, knowledge exchange, on current and focused research questions. The first function is already covered for the greater part by the current CRS, although we should think on how to include new emerging research areas in it and how to link it more clearly and effectively with the major research funding programmes and science policy. For the second function, we should strive for a structure that makes the CRS more dynamic so that adaptations are available at particular times. All this means that the CRS should also consist of two parts. In the first part the vision is given. So, the common key research topics related to the main challenges biodiversity is confronted with are summarized, and the approach and the starting points to achieve high quality research within the network are presented. In the second part, the strategy is explained to communicate among the ALTER-Net partners about new knowledge demands and research needs and to explore ongoing opportunities for cooperation. It is clear that this strategy has to be defined in close collaboration with the development of the network as a whole. The Memorandum of Understanding is clear in this respect; the different goals listed in that paper are means to realize the overarching CRS. There was a consensus amongst the participants of the workshop that the current ALTER-Net CRS should be further developed in this sense. For the elaboration of the new version, it was also proposed to more involve relevant stakeholders, especially when it is our aim not only to think ahead, but also to be relevant for and influence national and international research agendas. Then it is important to include stakeholders from the different policy le-

vels: the European level especially for the strategic research strategy objectives and national or regional stakeholders for the changing and regularly updated short term research issues.

The results of a limited and quick analysis of the institutes' main research activities and the information obtained from the completed questionnaire as discussed above, and from replies to questions sent to participants preliminary to the workshop, made clear that the ALTER-Net partners vary largely regarding size of the institute, research domains covered and scientific disciplines involved, specialities and expertises. This is a threat, for instance institutes may not profit equally from being a partner in the network or don't share the same power, but it can be an opportunity as well, as partners' specific qualifications may fill expertise gaps and complement the whole network. This was indeed an important message from LTER. This network benefits from the diversity of its partners and research sites when arranging collaborative research, and does not necessarily try to formulate research questions as common as possible in an attempt to achieve maximal participation. Also during the discussions in the workshop, the different positions institutes hold, was an issue of concern. It was recognized that this is a challenge for the CRS. If the CRS is further developed so that all partners can identify with it, then the risk is that result can be very vague, without a clear focus, and that it consolidates more the present interests and situation than that it gives guidance for new and emerging developments. In this sense, it was remarked that the current CRS does not stress enough the need for and the way towards truly integrated biodiversity research. ALTER-Net was originally set up to facilitate and realize inter- and trans-disciplinary biodiversity research; now some partners fear that currently not enough attention is paid to this objective. So, the advice is that the CRS should be analyzed critically for this purpose.

During the afternoon sessions, the conditions were explored to achieve a vivid CRS which results in active and targeted collaboration of ALTER-Net scientists. The ideal content of a CRS and the actions needed to achieve this as discussed previously, were again underlined. But success will not be expected, was said, if the CRS is only developed following a top-down approach. A strong bottom-up approach is equally important, especially to guarantee an active adaptation by the scientists. They have to see the surplus value of a CRS for their own work. The management of the consortium and of the partner should therefore foresee the structure, means and facilities.

A first condition recognized was that more emphasis should be put on discussing the CRS in the different institutes. It was a general feeling that at the moment, the CRS is hardly known by individual scientists. However, it was equally stated that discussions and active adaptation would only be successful if the CRS has also a more practical part and is accompanied by means to implement it.

The appointment of contact persons per institute for the different objectives and themes of the CRS (more or less comparable with the former organization during the first phase of ALTER-Net) and of a general coordinator on the level of the consortium for each of the CRS objectives, was thought to be another condition to facilitate the elaboration of collaborative research. Targeted workshops per theme (reference was made to the successful ALTER-Net Ecosystem Services and Biodiversity workshop that preceded the CRS workshop in Vienna) would speed up this process substantially. Not only because then, the issue can be discussed and analysed in detail, but also because people get to know each other better, which is crucial for future collaboration. Providing opportunities to have personal contacts should gain more attention in the network.

Collaboration is established more successful in the context of funded research. So efforts should be maintained to develop joint research projects responding to the main funding programmes. The initiative of the ALTER-Net secretariat to stimulate and facilitate joint preparation of such projects was highly appreciated in this respect. To ensure continued

collaboration within the network and to establish new partnerships apart from the funding programmes, it was recommended that an ALTER-Net database of expertise “who is who and who is doing what” should be developed. It is recognized that this is a huge task, especially because it needs regular updating in order to maintain effective, but it is necessary to achieve a real working network.

‘Seed money’ and mobility funds for small projects and initiatives that have the capacity to initiate more durable ways of collaboration and integration should be made available. In this respect more attention should also be placed on the potentials for sharing data and research infrastructure and platforms.

Targeted involvement of stakeholders was found to be another important aspect to implement the CRS. That means active communication of the strategy and of ALTER-Net’s objectives, as well as joint lobbying at the different policy levels. The ALTER-Net science-policy interface should thus be revitalized.

The general feeling and conclusion of the ALTER-Net CRS workshop were that there are high expectations of the CRS and a lot of good will to realize it. Setting up a structure and arrangement to regularly update the CRS and discuss parts of it with relevant stakeholders and scientists, can be a first action to be put in place. The participants of the workshop are convinced that there are enough colleagues in the institutes to then adopt the CRS and give ALTER-Net a bright future.



## 4 Communication and Knowledge Transfer

Communication and Knowledge Transfer (CKT) is one of ALTER-Net's activity areas. The Management Board members responsible are Andrew Sier, CEH (lead) and Marjolein Sterk, Alterra (deputy). **Table 3** gives an overview of progress with CKT tasks.

**Table 3.** Overview of progress with CKT tasks (ALTER-Net work plan April 2010-April 2011). More information is given in later sections where indicated in the table.

Activity	Estimated funds re-quired	Partner(s) L=lead	Progress/notes
Develop publica-tions database	750	<ul style="list-style-type: none"> <li>• CEH (L)</li> <li>• All others</li> </ul>	<ul style="list-style-type: none"> <li>• JvD prepared lists for annual report and for DG Research meeting</li> <li>• Could consider developing as part of new website</li> <li>• When we are notified of relevant publica-tions by partners they have been added to the website ('Outputs'). Some web news items relating to papers have also been is-sued.</li> </ul>
Develop database of experts	750	<ul style="list-style-type: none"> <li>• CEH (L)</li> <li>• All others</li> </ul>	<ul style="list-style-type: none"> <li>• Plan to develop as part of new website</li> <li>• Members have been asked several times to check and update their personal profiles.</li> </ul>
Flyers for events	500	<ul style="list-style-type: none"> <li>• NINA and CEH (joint L)</li> </ul>	<ul style="list-style-type: none"> <li>• Generic ALTER-Net flyer produced by NINA</li> <li>• Produced the flyer for the Biodiversity &amp; Ecosystem Services conference in Vienna,</li> <li>• Several of us developed a policy brief; there is scope for improvement and to develop a series of such briefs</li> </ul>
General website management, ad-dition of routine content, e-news service	0	<ul style="list-style-type: none"> <li>• CEH (L) – web mgt</li> <li>• All others - content</li> </ul>	<ul style="list-style-type: none"> <li>• &gt; 70 news items added since 1 April</li> <li>• Website lists a large number of biodiversity-relevant events</li> <li>• 5 x <i>e-Updates</i> (to 600 ALTER-Net mem-bers) &amp; <i>e-News</i> (to 460 other registered users) sent since April, plus several other ad-hoc messages to members</li> </ul>
Web development	750	<ul style="list-style-type: none"> <li>• CEH (L)</li> </ul>	<ul style="list-style-type: none"> <li>• We must develop a new website by 1 June 2011, since current web host wish to 'pull the plug' on the system we are using. This is on-going.</li> </ul>
Other specific web content	0	<ul style="list-style-type: none"> <li>• NINA and CEH (joint L)</li> </ul>	<ul style="list-style-type: none"> <li>• Added details of: Vienna meeting, mobility fund, Summer School, new initiatives fund, FP7 proposal collaboration &amp; governance of ES initiative</li> </ul>
News & Views	500	<ul style="list-style-type: none"> <li>• CEH (L)</li> <li>• All – con-tent, pro-motion</li> </ul>	<ul style="list-style-type: none"> <li>• April to end Sept: &gt;3,800 visits (av. 12.6 per day). Av. time on site: 1:05.</li> <li>• Launched linked Twitter profile, @NatureNewsViews. Gradually building a following. Have tweeted about some ALTER-Net news. Scope to develop this further</li> <li>• Will investigate using Facebook</li> <li>• Have added new quick polls</li> <li>• Need to add new topics</li> </ul>

Activity	Estimated funds re-quired	Partner(s) L=lead	Progress/notes
Partnership with Ecsite	1500	<ul style="list-style-type: none"> <li>• CEH (L)</li> <li>• Others – input knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• See note below</li> </ul>
Public science communication training	0	<ul style="list-style-type: none"> <li>• CEH (L)</li> </ul>	<ul style="list-style-type: none"> <li>• No progress to date, though discussed training with Ecsite Nature Group SC. Ecsite are running training courses in partnership with COST and this is a possible way in which to fund a course.</li> </ul>
<b>Totals</b>	<b>4750</b>		

### ALTER-Net website

Since 2006, the ALTER-Net website has used a Content Management System (CMS) originally developed by VBN Ltd. This company was taken over by Sift, another UK company, in 2007. Until now, Sift has continued to support users of the VBN platform. However, in November 2010 we received notice that as of June 2011, Sift will no longer operate the VBN CMS. Therefore, we must migrate our site to another CMS platform. Andy Sier has prepared separate papers on this issue.

We are beginning to exploit social media tools for communication. News & Views has a Twitter profile (<https://twitter.com/#!/NatureNewsViews>) and the ALTER-Net Summer School alumni have developed a LinkedIn group. Andy also started to investigate potential uses of Facebook.

We will try to develop this as part of the new website. Before then, we will encourage members to add information to the personal profile.

### Ecsite Nature Group

The Ecsite Nature Group is now well-established in Ecsite (the European Network of Science Centres and Museums) and the Nature Group's sessions at Ecsite's annual conference have been popular. Andy Sier attended a meeting of the Ecsite Nature Group Steering Committee on 15 September 2010. It was agreed that the group had to become more active, and not focus only on running sessions at the Ecsite Annual Conference. There has been limited progress since then, and the focus has been on planning for the Ecsite Annual Conference. It is possible the the group may manage to coordinate a joint public communication activity for World Environment Day (early June 2011). It was decided at the Management Board meeting in February 2011 to discontinue our formal involvement in the Ecsite Nature Group since it was not proving of much value to ALTER-Net, despite the best efforts of Andrew Sier to forge links. This decision was endorsed by the Network Council.

## 5 Common Training Programme

### ALTER-Net Summer School 2010

ALTER-Net held its 5<sup>th</sup> Summer School on “Biodiversity and Ecosystem Services” in September (5-14 Sep 2010). The 32 participants came from 16 countries, mainly European but also from Mexico and South Africa, and spent 10 days looking at aspects of biodiversity and ecosystem services.

The 5<sup>th</sup> Summer School was again organized in the small village of Peyresq, in the French Alps in Southern France. The village is managed by the “Association Nicolas-Claude Fabri de Peiresc”, a Belgian foundation dedicated to art and science, which has assigned it as a location for scientific and cultural meetings. Again, this place has proven to be simply ideal for this endeavour which is why all ALTER-Net Summer Schools have taken place there.

Allan Watt from CEH (Scotland), Uta Fritsch from EURAC research (Italy) and Wolfgang Cramer and Sabine Lütke-meier from PIK (Germany) were the four ALTER-Net conveners. CEH and PIK thereby used the institute’s in-kind contribution to the network to support the school. In addition the Summer School had five tutors coming from IFF, PIK, EURAC research, Alterra and Bergen University (Norway). Sabine Lütke-meier from PIK was responsible for organizing the Summer School while the secretariat at NINA took care of the financial administration. There were 20 speakers, including local/regional stakeholders, Martin Sharman (EC, DG Research) and Hal Mooney (Stanford University, DIVERSITAS chair). Speakers from ALTER-Net institutes had their contribution to the Summer School (travel costs and working hours) reimbursed by their own institute, speakers from non-ALTER-Net partners had their travel expenses reimbursed by the ALTER-Net secretariat. Furthermore the “Association Nicolas-Claude Fabri de Peiresc” (which already has a non-profit price setting) provided a further special discount for accommodation and for using their facility in order to make the school possible.

The Summer School received again 50.000 € in funding from the ALTER-Net general budget. The participant fees was set to 800 € per participant. The duration of the 2010 Summer School was 10 days instead of the 14 days as before and the evaluation showed that this was an adequate duration. The target group was again PhD-students, young post-docs and ALTER-Net staff.

The initial feedback from the students on the 2010 ALTER-Net Summer School has been very good: it clearly resulted in another set of young ambassadors for ALTER-Net. The Summer School also provides a clear opportunity to advertise the ALTER-Net brand. A community of about 160 young professionals have now been trained in the essentials of biodiversity and ecosystem services, and they consider themselves a living “alumni” network (see **Table 4**). On the Summer School website (<http://www.pik-potsdam.de/alter-net/>) a special site has been created for all Summer School participants, conveners, tutors and speakers (<http://www.pik-potsdam.de/alter-net/alumni>) and now at LinkedIn a special group (ALTER-Net- Summer School Alumni group, <http://www.linkedin.com/groups?mostPopular=&gid=2695023>) is developing through their own initiative.

When looking at the number of students, speakers and tutors from ALTER-Net partners who participated/contributed versus non-ALTER-Net partners (see **Table 4**) it is clear that the contribution of ALTER-Net partners could still be essential higher, but it also proves that the Summer school reaches out into the world.

**Table 4.** Overview of the number of students, speakers and tutors from ALTER-Net partners and Non ALTER-Net partners who participated and contributed to the ALTER-Net summer schools (I-V)

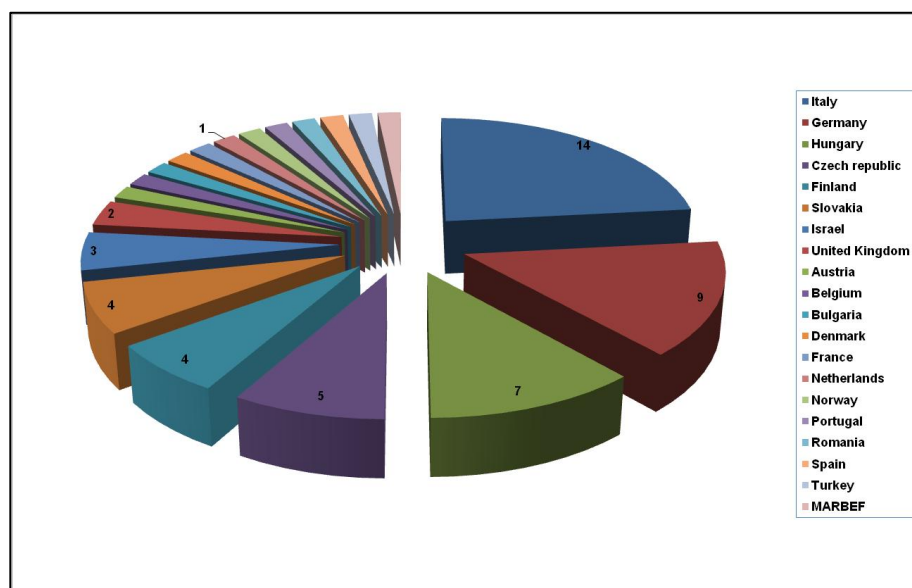
	Students	Speaker/tutor	Total
ALTERRA	16	4	20
CEH	5	4	9
CEMAGREF	1		1
CNRS	2	1	1
CSIC	1		1
HBI-CAS	1	1	2
IAES-EMU	2		3
IEB-HAS	4		4
IFF	2	4	6
ILE-SAS	2		2
INBO	1		1
Macaulay	2	1	3
NERI	1		1
NINA	6	4	10
PBL		1	1
PIK	9	9	18
SLU	2		2
SYKE	1	1	2
UFZ	6	1	7
UNIBUC	3		3
non-ALTER-Net affiliation	90	26	116
ALTER-NET affiliation	67	31	98
TOTAL	157	57	214

## 6 Data Sharing Policy

The work and progress of the task “Data sharing policy” (DSP) have been carried out during the period 1.4.2010 – 31.3.2011 in compliance with Annex 4 “Data sharing policy” of the Memorandum of Understanding, which was approved and signed by the all partner institutions. The work was performed by the common collaboration with the staff - Miklós Kertész and Réka Aszálós - responsible for the Annex 6 “LifeWatch” under the demonstration project “Sharing data collected at LTER-Europe”.

The first round of the questionnaire survey took place in the previous project period, in January 2010, the questionnaire was sent to the members of council, management board and contact points for DSP. The return rate was small and seven filled-in questionnaires were received from UK, Hungary, Spain, Germany, Norway, Belgium and Slovakia. In addition another questionnaire also outside ALTER-Net was sent out to get more replies with regard to data sharing policies.

The second questionnaire was slightly changed and had a more user-friendly design. The e-mail contacts recorded in LTER meta-database InfoBase were used. From more than 600 requested persons, 60 filled-in questionnaires from 19 countries were returned. 35 e-mail addresses recorded in InfoBase have been cancelled or changed (undelivered e-mails). The highest number of the filled-in questionnaires was returned from Italy (14), Germany (9) and Hungary (7). 11 countries sent one filled-in questionnaire but from prominent LTER countries such as Sweden and Poland we didn't obtain any response (see **Figure 3**).



**Figure 3.** Number of questionnaires returned from each country, including one from the Marine Biodiversity and Ecosystem Functioning EU Network of Excellence (MarBEF).

### Results questionnaire

*With regard to InfoBase (database management of LTER):*

- 60 % of respondents are familiar or partly familiar with InfoBase; 44 % of bodies represented by the respondents have recorded all or part of the data in InfoBase.
- dissatisfactions related to the work with InfoBase reflect the same topic: the recording of metadata in Info Base appeared quite complicated, too difficult and time-consuming, at

least for marine ecosystems - the database appears to be mainly conceived for terrestrial sites.

*With regard to data and databases:*

- the data are stored in many different ways - old Floppy disks, computers, external hard-disks, servers; databases and formats – from raw data in paper sheets and documents (reports and articles) to Excel, Access and MySQL databases
- 44 % of LTER sites or LTSEER platforms covered by the respondents have own database (30.5 % is managed), 49 % not
- the databases are owned by 1, 2 or several institutions (almost 50 %)
- the data management is providing mainly by the own scientific staff – 65 %, pure data managers represents only 2 %
- the understanding and interpretation of the categories according to the access to data used in InfoBase: limited, controlled, open, partly open is very various; there are 10 different interpretations for the each category at average
- the majority of respondents has mainly positive experiences with data sharing (66 %), only 8 % negative
- 42 % of institutions have own data sharing policy, but DSP for LTER sites or LTSEER platforms reported 13 % of respondents
- 33 % of respondents owns “unsharable” data
- 30 % of respondents are able and oblige to change and modify database in the case of agreed common data sharing policy, 58 % perhaps and only 7 % not

## **Summary and conclusions**

Data sharing policy related to the long-term data is a very necessary but exacting task. The synthesis and analysis of questionnaire brought us essential information and outlined the possible focusing of our effort. The principles anchored in ILTER DSP are inspiring, guiding and motivating, however very varied situation related to data gain, management and storage within the frame of the consortium require careful and sensitive approach.

As the very positive aspect we can consider 42 % of respondents represent institutions with functional and operational DSP and 66 % have mainly positive experiences with data sharing.

Of course, we need to do several steps leading to the functional and operational DSP e.g.:

- to promote InfoBase more intensively at the LTER National Committees
- to keep InfoBase updated
- to learn more from ILTER data sharing
- to learn from the already existing and functional DSP of particular partners
- to learn more from INSPIRE
- to minimise the huge amount of data formats, ways of storage, types of management
- to make a strong and stable inter-institutional connections in data sharing

## **Time schedule**

Completion of the final version of the DSP draft is planned for May 2011. Draft will be distributed for comments to the Management board staff, Council and contact persons for task DSP.

## 7 LTER-Europe

The institutional composition of the ALTER-Net consortium and the national role of ALTER-Net institutions reflect the strong integration with LTER-Europe as a network of national *in situ* networks and underpin the dual character of ALTER-Net. Not only are 70% (17 out of 24) ALTER-Net institutions involved in LTER, but also do most of them play a decisive role in the national LTER networks in their respective countries. This supports the strategic importance of ALTER-Net institutions in the national context as hubs for infrastructure development, holders of important sites and strategic interfaces to European processes and projects. In addition, ALTER-Net institutions hold all key positions in LTER-Europe (co-ordination, expert panels) and have been involved in several projects that emerged in the context of LTER.

This synergistic overlap of roles is crucial for strategic activities towards

- *“supporting the establishment of the ALTER-Net research infrastructures to address pan-European biodiversity issues”* and
- *“supporting a formal European network of LTER and LTSEER field sites (which are at least partly dedicated to biodiversity research and monitoring) through co-ordination, synthesis and harmonisation activities”*

Activities since March 2010 made maximum use of this overlap and focused on:

**Infrastructure development:** The European Strategy Forum on Research Infrastructures (ESFRI) is playing an important role in developing of the European Research Infrastructure (ERI) as part of the European Research Area (ERA). It has been a major effort to achieve proper consideration of observational and biodiversity related sites in the EXPEER project (Distributed Infrastructure for EXPerimentation in Ecosystem Research) (INFRA/I3-call 2010, 10 ALTER-Net partners) and coupled ANAEE (Analysis and Experimentation on Ecosystems) initiative towards a new ESFRI preparatory project “ALEC”. A core group of ALTER-Net institutions accomplished a Memorandum of Understanding facilitated by the thematic working group of ESFRI, Biological and Medical Sciences (BMS), guaranteeing equal consideration of observational and experimental approaches and the coverage of European environmental gradients. ALTER-Net/LTER institutions are also involved in the complementary INFRA/I3 project for aquatic and marine sites (EcoBOS). The ESFRI preparatory project LifeWatch has just been finished. ALTER-Net institutions involved in the project itself as well as associated through the Policy and Science Board, Data Providers Platform and National Champions Group managed to achieve proper consideration of infrastructure generating biodiversity related data in the key documents of LifeWatch (Master Plan, Construction Plan, PR material). Furthermore, as a consequence of the above efforts the infrastructure unit of DG Research has recognized, that our kind of infrastructure, is lacking proper consideration in EC’s infrastructure policy, especially with respect to more extensive sites with biodiversity focus. Therefore the responsible officer, Anna-Maria Johansson, has proposed a meeting between DG Research, DG Environment, the European Environment Agency and LTER (represented by ALTER-Net institutions) to develop strategic options. Another line of action is the work towards integration of *in situ* networks with the UNECE ICPs (International Cooperative Programme on Effects of Air Pollution and Other Stresses on Vegetation) Integrated Monitoring and Forest. In 2010 a COST action on “super sites” was started, conceptualizing requirements for highly instrumented sites for tackling biosphere-pedosphere-atmosphere interactions. The LIFE+ project EnvEurope has one work package (lead by ALTER-Net partner CONECOFOR) specifically dedicated to LTER *in situ* network integration and optimization in order to better serve generation of combined biodiversity and environmental data. In terms of expanding the geopolitical coverage of LTER, Sweden joined the network (national network co-ordinated by the ALTER-

Net partner SLU). Denmark/NERI and Belgium/INBO are considering to join in 2011 and a decision of Norway/NINA is still pending.

- **Supporting the networking** is the key responsibility of the LTER-Europe secretariat, comprising website, contacts data base, organization of meetings, fund raising efforts and presentation material.
- **Standards, methods and testing:** The development of standard parameter sets and methods for the observation of biodiversity and related environmental drivers has been tackled by the funded projects LIFE+/EnvEurope and EXPEER. As a result of continuous lobbying ALTER-Net institutions hold key work package leads in both. EnvEurope has a focus on more extensive sites, whereas EXPEER is developing criteria, standard parameters and methods for highly instrumented sites.
- **Use of LTER Sites and LTSER Platforms:** The last year has seen a convergence between action InterDisciplinary Research (IDR) and LTSER Platforms as hot spots for real interdisciplinary research. LTSER Platforms have been used in various ALTER-Net projects. The emerging LTSER reports (LTER series of Springer) on experiences in the implementation of IDR/LTSER at several LTSER Platforms will further develop the concept of LTSER. The forthcoming ALTER-Net LTSER manager workshop in Finland will serve both training and conceptual work. Building on earlier projects such as the global Ecosystem Service Initiative, about 35 LTSER Platforms and LTER Sites are currently used for testing a rapid ecosystem service assessment method (lead by CEH). LTER Sites are being used in EXPEER (12), EnvEurope (60) and the Multi Site Experiment (15).
- **Information management:** Since April 2010 the focus was to review user requirements and prioritize activities for the next contracted phase under consideration of synergies with other projects (EBONE, EnvEurope, EXPEER, global LTER, LifeWatch).

A detailed report is given in the report "ALTER-Net activity "LTER-Europe", LTER-Europe secretariat and ALTER-Net Information centre – Technical Activity Report for the year April 2010 – March 2011", by Micheal Mirtl, Johannes Peterseil and Kinga Krauze.



## 8 LifeWatch

### Closing the LifeWatch preparatory project

The LifeWatch preparatory project was closed by 31 Jan 2011. Both ALTER-Net1 and ALTER-Net2 supported LifeWatch all along the preparatory phase, either directly, or through LTER Europe. Terry Parr participated in every major LifeWatch events.

### Data Providers Platform

Terry Parr, Michael Mirlt, Miklós Kertész, Mark Frenzel, and Martin Fortius participated in the meetings of the DPP. From behalf of ALTER-Net, Terry Parr signed the Letter of Intent to establish DPP as a durable LifeWatch supporting organisation, in January 2011.

### Transition from LifeWatch preparatory phase to construction phase

Between the closing of the LifeWatch preparatory project and subscription for LifeWatch ERIC, a transition phase is in progress. Five countries signed the Memorandum of Understanding to prepare the subscription for LifeWatch ERIC: Netherlands, Italy, Spain, Romania, and Hungary. In the latter three countries, ALTER-Net partners have been playing key role in the process.

### Proposed projects supported by ALTER-Net

The LifeWatch community proposed two EU FP7 projects which are in the review phase:

- BioVEL for which Jiska van Dijk has sent a supporting letter on behalf of ALTER-Net, and Michael Mirlt on behalf of LTER-Europe. IEB-HAS is member of the proposed consortium.
- EcoBOS in which several ALTER-Net institutes are member of the consortium.

### Demonstration project “Sharing data collected at LTER-Europe”

Planned duration: 1 Dec 29 – 30 June 2010

Support: 5000 EUR. As of 31 March 2011, 1150 EUR has been spent.

Outline of the project: The general aim of the project is to strengthen the link between LTER-Europe and LifeWatch in a proactive way, by means of real data sharing methodology to help LifeWatch develop informatics tools. ALTER-Net will demonstrate how data from LTER sites can be used to respond to scientific and policy questions. The aim is to analyse the potential to share data from different sources, involving minimum 5-7 data providers. During the project the following questions will be clarified:

- Which bodies have the Intellectual Property Right (IPR) for sharing the data?
- What are the legal instruments to make the data accessible and to which communities?
- What is the advantage of data sharing for the collectors/managers and IPR holders of the data?
- What are the major opportunities and challenges of data sharing without centrally financed network project?

The aim of the data collection is not only the use of collected data for obtaining any cross-site result, but making them accessible for the LTER community, and, if possible, beyond.

The project is behind schedule. So far, 12 potential partners expressed their intent to collaborate, but the actual data sharing has not begun. Miklós Kertész and others have outlined a research paper titled „Building effective data sharing network without networking project, based on available network sources”.

## 9 InterDisciplinary Research

During the past year, Interdisciplinary Research within ALTER-Net was managed by SYKE together with INBO and NINA; Eeva Furman (SYKE), with Odd Terje Sandlund (NINA) and Francis Turkelboom (INBO). Eeva took part in the management board meetings while Odd Terje and Francis were more involved in supporting the various activities on Ecosystem Services.

The activities can be divided into four:

- 1) ALTER-Net conference: *Ecosystem services and biodiversity: What is the link between the two?*
- 2) ALTER-Net workshop: *Governance of Ecosystem Services*
- 3) Policy Brief: *Research needs for the sustainable governance of ecosystem services and biodiversity*
- 4) the PEER/PRESS project: *A spatial assessment of ecosystem services in Europe: methods, case studies and policy analysis..*

### **ALTER-Net conference: Ecosystem services and biodiversity: What is the link between the two?**

The Conference was organized by ALTER-Net, the long-term biodiversity, ecosystems and awareness network, and the Scientific service of the French Embassy / French Cultural Institute in Austria as a contribution to the International Year of Biodiversity 2010.

The main objectives of the conference were:

- To explore into the links between society, ecosystem services and biodiversity and how they affect each other;
- To find means/possibilities to manage ecosystem services in a way that promotes ecological sustainability.

The conference was addressed to researchers of different disciplines from ALTER-Net and non ALTER-Net organizations and to invited experts from research, policy and international conservation communities.

The conference was structured as follows:

- 3 November, morning: Research and policy links and action (keynote presentations);
- 3 November, afternoon and 4 November, morning: Evidence of links between ecosystem services and biodiversity (keynote introductions, presentations and posters);
- 4 November, afternoon: How to manage ecosystem services in Europe: changes required in governance, research knowledge and practical management (focus on facilitated group discussions to produce statements).

The expected outcomes of the conference are:

- A summary statement with key outcomes and advice to the EU Commission with respect to post 2010 targets on halting the biodiversity loss, to be delivered to the EU Commission, the scientific community and relevant stakeholders;
- Messages from the conference will be communicated in the ALTER-Net Ecosystem services and Governance process;
- Key outcomes will be further elaborated upon during the ALTER-Net workshop on the Common Research Strategy (5 November 2010, Vienna);
- Ideas will feed into the biodiversity component of the PEER (Partnership on European Environmental Research) project on Research on Ecosystem Services (PRESS).

*Summary of key points, outstanding research and policy questions, conclusions and key messages:*

The following emerged from the presentations, plenary discussions and workshop sessions:

From presentations and discussion:

- We failed to halt biodiversity loss; has this been replaced by halting the loss of ecosystem services?
- Is there no link between biodiversity and ecosystem services?
- Is biodiversity just one more function of ecosystem services?
- Policy makers are taking decisions to conserve ecosystem services and this could harm biodiversity.
- Cultural services could be used as a link.
- Are we dealing with the right biodiversity when talking about the link between biodiversity and ecosystem services?
- The news from Nagoya show a shift in policy related to biodiversity.
- The concept of ecosystem services has been introduced in the field, raising new questions.
- There is a need to establish a baseline for ecosystem services.
- Multiple ecosystem services imply multiple trade-offs and then biodiversity comes back to the game.
- If we do not take into account multiple services we get easy solutions such as perverse incentives.
- Evidence/belief
- No direct link between biodiversity and ecosystem services?
- How to measure ecosystem services, what is the baseline
- Use of traits (but if we use traits for dominant species there is no need of biodiversity)
- Analogy with a cartoon which asks what is the best animal to climb a tree (seal, elephant, monkey, frog...)
- Biodiversity contributes to multifunctional landscapes in a very different way
- Opportunities for win-win situations
- Long-term benefits of high biodiversity (e.g. resilience)
- Concentrate ecosystem services in multifunctional landscapes (the relationship between biodiversity and ecosystem services is less clear in protected areas, agro-ecosystems...)
- Sometimes biodiversity and ecosystem services are too close (e.g. in soils)
- We need holistic measures of ecosystem services (e.g. WFD and good ecological status, HD and favourable conservation status; not applicable for ecosystem services)
- We can deliver win-win options in multifunctional landscapes

From workshop sessions:

Research gaps:

- Ecological knowledge relationships between biodiversity structure, biodiversity function and ecosystem services.
- Cultural ecosystem services (more work needed).

Stakeholders:

- Large sectors (resource extractors) such as fishery, forestry agriculture.
- Financing bodies.
- Sharing the knowledge is expected from stakeholders.

How:

- Permanent dialogue/2-way interactions.
- Effective communication involving scenarios, languages, media.
- Crystal clear universal definitions and concepts.

Communication actions:

- Train biodiversity ambassadors.

- Include all stakeholders for dialogue on research questions.

What to do:

- Toolbox of standardisation of methods and approaches to quantify ecosystem services and biodiversity-ecosystem services relationships.
- Synthesis and integration of methods across disciplines; and common language.
- Elaboration of FP7 call and work on relevant proposals.
- Need for common language and definitions; and communication tools - need for intermediary institute.

Governance and Policy Needs

- Bottom-up approach needs to relate to top-down principle.
- Introduced ecosystem services in planning, incentives and legislation.
- Participatory approaches to defining issues, privatising ecosystem services, encouraging engagement.
- Management etc to be done at appropriate scales were ecosystem services and stakeholders.
- Recognizing e.g. uncertainties about ecosystem services by monitoring of ecosystem services in response to management.

### **ALTER-Net workshop: Governance of Ecosystem services.**

The goal of the project was to identify and prioritize interdisciplinary research needs linked with ecosystem services. The main aim was to support the formation of active research teams by bringing together researchers with different disciplines within and between ALTER-Net partner institutes, and stakeholders from policy making, management, livelihoods, civil society and science donors. The research teams have been supported in their efforts to develop research plans and funding applications.

The task force consisted of Frederic Archaux (Cemagref), Leonard Sandin (SLU), Odd Terje Sandlund (NINA), Francis Turkelboom (INBO), Janne Rinne (SYKE) and Taru Peltola (SYKE, leading).

During the 2<sup>nd</sup> phase of the project, the activities can be divided into three parts: planning the workshop, running the workshop in Paris, December 7-8, 2010, and after the workshop, supporting the research teams in further collaboration and carrying out outreach of the outcomes from the workshop.

*Planning of the workshop* took place through a kick-off meeting of the task force in Helsinki (Jan 2010) and email. The work included planning the programme of the workshop, inviting key note speakers, stakeholders and researchers from ALTER-Net institutes. A facilitator was hired to run the dialogue process, during the workshop. The working method had been tested earlier in the ALTER-Net workshop on bioenergy-biodiversity interlinkages. Cemagref took the responsibility of providing the venue in their localities while SYKE organized the travel and lodging of the participants.

*The workshop.* Altogether, 28 participants from 18 different institutes participated in the workshop. The group work produced approximately 380 research ideas related to the governance of ecosystem services. Of these, 22 were chosen as preliminary topics for research proposals, and finally, 5 working groups were formed to further develop research proposals for the research programme on governance of ecosystem services (see **Table 5, 6 and 7**).



After the workshop, the outcomes have been revisited by the research teams who were responsible from each of the five final research ideas. The revised versions have been placed in the website of the project. Some of the teams have taken their idea further eagerly while others are looking for suitable funding channel before acting more rigorously. The members of the workshop have passed the five research ideas to key persons in the EU (DG research and DG environment) and on the national level (e.g. Norway and Finland). The outcomes have also been communicated to UNEP IPBES office.

Major achievements for news items on the website: [www.environment.fi/syke/ess](http://www.environment.fi/syke/ess) path to which is found also from [www.alter-net.info](http://www.alter-net.info)

Although the project is to end, the Council of ALTER-Net decided to carry out a follow-up workshop during year 8 which elaborates further the outcomes from the Paris workshop as well a TEEB workshop during year 8 which focuses in specific to one of the five research ideas.

**Table 5.** Titles of the research proposals for the research programme on governance of ecosystem services

1. Boundaries and opportunities of monetizing the benefits of ecosystem services
2. Redesigning institutions. (In)Compatibility of Ecosystem Services with Parliament of Things
3. Power and Justice
4. Are there rules that relate biodiversity to ecosystem services, or are the relationships always specific to the social and geographical context?
5. Indicators for ecosystem services

**Table 6.** Titles of preliminary ideas for research proposals.

1. Have non-humans valuing systems?
2. Safe spaces for interdisciplinary confusion & thinking like a mountain
3. Religion and nature management
4. How to bridge paradigms?
5. Commodification of ecosystem services
6. Should all the decisions be local?
7. Expertise – role/reflection/input/blur/accountability/legitimacy/politics/motivations/selection of
8. Scenarios of ecosystem services bubble
9. Human behavior and ways of life
10. Analysing the interactions between social and ecological processes
11. Alternative governing methods
12. Disservices of ecosystems
13. Research on mental models on ecosystem services

14. Epistemological complexity & Philosophy
15. Public health
16. Who are the beneficiaries?
17. Indicators of ecosystem services
18. How far is monetisation possible and useful?
19. Justice and power relations
20. Explore relationship between ESS and BD in terms of governance
21. Can we identify rules that relate biodiversity to ecosystem services in any given context, or are the relationships always context specific?
22. Parliament for nature

**Table 7.** *The five final interdisciplinary research ideas developed at the workshop*

**a) Indicators for Ecosystem Services**

*Can an indicator or a set of indicators be developed to measure ecosystem services in a changing socio-ecological context?*

Human well-being is dependent on services provided by ecosystems. Given the increasing trend toward environment policy built on the concept of ecosystem services, there is an equally pressing increasing need for indicators of ecosystem services. These indicators are not only potential communication tools for policy-making, but the concept of ecosystem service can itself be operatively approached using indicators, and linked to measurements of well-being of the kind explored in the *GDP and Beyond* initiative.

Detailed understanding about our impacts and dependence on ecological systems is needed. Only few indicator sets focus on ecosystem services, or on the dynamic properties of socio-ecological systems. The limitations for using indicators of ecosystem services are not yet always clear, and it is not even obvious what services or aspects of services might be simplified to indicators and what can not. This project will study the extent and the ways in which indicators can be applied in describing ecosystem services. Feasible indicators – as well as the most important information gaps – will be identified.

Particular emphasis will be given to the issue of resilience. There are still few studies which focus on the dynamic properties of socio-ecological systems that tend to encourage or provide resilience. Developing indicators which reflect these issues is one potential way to push them more into policy dialogue. Understanding and measuring the ecosystem services – and the related resilience of socio-ecological systems – requires a systemic and interdisciplinary approach focusing equally on the properties of ecosystems and the societies exploiting them.

**b) Boundaries and opportunities of monetizing the benefits of ecosystem services**

The proposal regards the boundaries and opportunities of monetizing the benefits of ecosystem services. The key research question is: How can monetization of ecosystem services help correct the market failures associated with not accounting for “external” benefits? The emphasis is on these external benefits, as these are underrepresented in public as well as private decision making, and in existing neo-classical economic studies. The study would encompass review of current approaches to monetization, analysis of boundaries and limitations of monetization, analysis of special characteristics of benefits as opposed to cost estimates, developing improved methods and testing. The deliverable would be a guideline for the monetary component of benefit assessment of ecosystem services which could function as an addition to current EIA/SEA guidelines.

**c) Redesigning institutions to include non-human entities into nature conservation**

*Is the concept of Ecosystem Services a support or a hindrance?*

This project idea starts from a concern that present policy developments and planning practices have not delivered expected conservation outcomes (e.g. it has been widely acknowledged that the 2010 target has not been met) and biodiversity has largely continued diminishing. The Ecosystem Services is a concept that has recently received immense interest and expectations as an approach

to boost nature conservation. The concept is built upon a notion of benefits that humankind gains from the world's ecosystems. This in turn introduces another concern: is conservation of nature only to serve identifiable human interests. There is a risk that interests of non-human entities are recognized only as long as they are compatible with human interests.

The project idea is built upon Bruno Latour's idea of "Parliament of Things". It is an institution above all designed to facilitate decision-making in a way that avoids an artificial separation of societal interests to human and non-human kinds. In other words, it is an institution to include non-humans into decisions pertaining to nature conservation. Critical questions for a design are who participates (who speaks for the non-human entities) and how such institutions can operate across levels and scales? The project will study how the popular concept of Ecosystem Services fits to this ideal. Does it help in including non-human concerns or is it, in fact, an obstacle for it? Does it help opening, developing and then closing controversies about nature and what kind of closures? Is ESS responsive to emerging concerns, i.e. what issues and which concerns does it help to recognize and which are excluded?

The project will:

- 1) study the launch and evolution of IPBES (if created): to what extent does it correspond to the notion of the "Parliament of things"? What room is attributed in this new global institution to the notion of ESS? In what way does it influence the way biodiversity problems are being defined, framed and treated? What types of stakeholders find it easy or on the contrary difficult or even impossible to express their concerns, expectations, and interests in the terms of ESS?
- 2) establish exploratory parliaments of things to test the idea. Two experimental "Parliaments of things" will be set up: one focusing on marine environment (e.g. fisheries in a broader ecosystem perspective) and a terrestrial one. The experiments require participation and close cooperation with various actors. Is it possible to establish exploratory parliaments of things to test the idea? Two experimental "Parliaments of things" might be set up: one focusing on marine environment (e.g. fisheries in a broader ecosystem perspective) and a terrestrial one. The experiments would require participation and close cooperation with various actors.

#### **d) Context specificity of an ecosystem service**

Can ecosystem services be assessed independently of the biodiversity from which they derive or the stakeholders who benefit from them?

An "ecosystem service" is defined as something derived from the living world that is of benefit to humans. Humans and their requirements and desires are therefore an integral part of the concept – as is the biodiversity that underpins the services. This is equally true if the definition is extended to disservices to humans.

Much current environmental policy is built on the assumption that ecosystem services are properties of the ecosystem itself, and therefore independent of the stakeholder, and at the same time autonomous of the biodiversity from which they derive. For this approach to be valid it would require that the relationships between biodiversity and ecosystem services are not specific to the cultural, social, economic or geographical context in which they are enjoyed.

If ecosystem services are not fixed products of ecosystems, but instead the social context is a significant determinant of the ecosystem service, it would be unwise to establish general policy on the basis of any particular set of instances without understanding the validity of that generalisation.

Understanding the rules that link biodiversity with ecosystem services and human well-being is therefore of considerable importance to both policy and management. This understanding requires a trans-disciplinary view of the underlying biodiversity, of the stakeholders of the service, and of the processes that link them.

#### **e) Power and Justice: Does the concept of ecosystem services support justice in EU policy?**

The concept and consequent policy practice of ecosystem service will have profound impacts on biodiversity-related governance and incentive structures in Europe and elsewhere. As the concept is put in practice and new ecosystem-based benefits are identified and created, the questions con-



cerning justice and power become of burning relevance. It is a matter of specific and case-based comparative institutional analysis (focus on power) and deliberative institution building (focus on justice) to harness the potentials of ecosystem services and practice the ecosystem approach in substantially and procedurally just manner. Expected outputs are an ex-ante policy evaluation and models of successful justice.

### **Policy Brief: *Research needs for the sustainable governance of ecosystem services and biodiversity***

It was decided at the Vienna conference, that ALTER-Net provides a Policy Brief from the outcomes, having social scientist as the drivers of the writing process. Later it was agreed to include the outcomes from the Paris workshop to the Policy brief.

The following people contributed to the Policy brief: Eeva Furman, Terry Parr, Andrew Sier, Jiska van Dijk, Esther Kelemen, Heli Saarikoski, Taru Peltola and Simron Singh. The present state Policy brief is targeter for the research use: for drafting research agendas by the funding agencies, for building research strategies for institutes and for planning research projects. A more policy makers oriented outreach will materialise when ALTER-Net organises during its 3rd phase a venue in Brussels.

The Policy brief is given in **Appendix 7**.

### **The PEER/PRESS project: *A spatial assessment of ecosystem services in Europe: methods, case studies and policy analysis.***

The PRESS project is lead by the PEER institutes ([www.peer.org](http://www.peer.org)). ALTER-Net was invited to contribute to the study and the management board was keen to step on board. The project develops methodology and does case studies of mapping ecosystem services spatially on the European scale. In addition, the study analyses the tradeoffs between various ecosystem services by analysing synergies and conflicts between policies driving the use of the ecosystem services. The project was initiated in March 2010 and its report was published in April 2011. The project will continue with phase II in 2011 where work is concentrated on water purification, recreation and pollination services, as well as policy analysis of trade offs.

ALTER-Nets role in the actual project has not materialized as such, however, indirect participation and linking the PRESS with activities of ALTER-Net has taken place. Four concrete acts are as follows:

- PRESS team and ALTER-Net joined in building a proposal to the EC call on argumentation for biodiversity (BESAFE). The BESAFE project was successful and the joint project is to start in 2011
- PRESS team organized its stakeholder meeting in Paris back to back with the Ecosystem Services and Governance workshop. This showed that the two networks are able to collaborate and it facilitated the participation of representatives from EEA and JRC to take part in both venues. The outcomes from the ALTER-Net workshop were communicated in to the participants of the PRESS workshop as background information
- the PRESS project organized a meeting with the DG Environment experts on ecosystem services and biodiversity in January 2011. PRESS-team provided ALTER-Net an opportunity to present its results as well, and Eeva Furman gave an overview of the main outcomes and delivered a draft policy brief handout to the participants
- preliminary negotiations of developing another joint proposal to the FP7 programme on ecosystem services have taken place

## 10 Multi-Site Experiment II

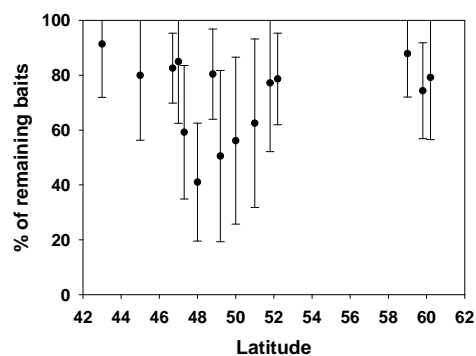
The first Multi-Site Experiment (MSE) was set up within ALTER-Net to explore the feasibility of using the LTER network of sites for such an experiment, bringing together 16 partners and 40 sites. The MSE was a pan-European experiment on the resilience of ecosystems to trampling pressure. It was decided to do a second Multi-Site Experiment on decomposition rates, and UFZ offered to coordinate this. The decomposition experiment was set up by 17 partners at 19 sites across a biogeographic gradient that covers a range from boreal, continental, oceanic to mediterranean climates.

The experiment started in the middle of June in 2010. A total of 15 experimental plots per sites, each of 1 x 1 m<sup>2</sup> have been installed in forest or grassland ecosystems. The plots were fertilized with nitrogen or carbon every 3<sup>rd</sup> week (in total 9 times) during the vegetation period. The control plots were treated with water only. Treatments stopped in November when some partners reported a permanent snow cover. Litter bags (fine and coarse mesh size) were filled with 2g barley leaves of different quality (fertilized and non-fertilized during growth). Six bags of each mesh size were exposed in the field on the plot; three with low and three with high litter quality. The first set of four litter bags of each plot (one of each mesh size and litter quality) were collected from the field by all partners during September and the second half of October. Litter bags were sent to the UFZ for all further analyses. At present data are entered into a data bank. The litter bags will be cleaned and prepared for further experiments in 2011. The third (= last) set of litter bags will be collected in spring 2011.

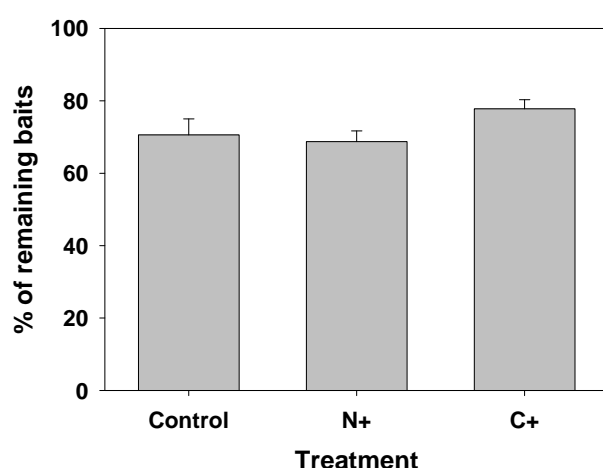
Additionally, at the end of July at each plot five bait laminas were exposed in the field. After 15 days the bait laminas were removed and sent to the UFZ for estimating bait removal. Laminas will be also cleaned and refilled for further experiments (see below for the plans for 2011).

### First results:

The data of the litter bags are not yet available for analysis. However, comparing the percentage of remaining baits across the biogeographic gradient supported our initial hypothesis that the activity of soil organisms shows a humped-shaped relationship along the geographic gradient (**Figure 4**): in Boreal and Mediterranean ecosystems fewer baits were removed by soil microorganisms than in Middle Europe. Furthermore, the C-treatment had a negative effect on plants and the soil organisms, although C-treatments were in the range of other published experiments (**Figure 5**).



**Figure 4.** Relation between latitude and amount of bait material remaining after 2 weeks of exposure in the field. Error bars are raw standard deviations across all lamina.



**Figure 5.** Influence of the N and C-treatments on the feeding activity. As an inverse measure of feeding activity of soil microorganisms the graph plots the percentage of remaining bait material ( $\pm$  standard deviation) for the control and treatment plots.

Some partners reported unusual weather conditions in 2010 (extraordinary drought/ rain-fall). The idea is to re-fill the litter bags with standard litter in two quality levels (low/high). The standard litter can again be provided by the UFZ to repeat the whole experiment in 2011. Furthermore, the existing plots are an excellent playground for supplementary experiments offering possibilities to analyse ecosystem processes across a broad climatic gradient. For example by introducing seeds of alien species to the experimental plots we may study the biotic resistance of these systems as well as the impact of experimental treatments on invasability. For such experiments further funding by ALTER-Net would be required.

## Acknowledgements

ALTER-Net thanks The Research Council of Norway and the Norwegian Directorate for Nature Management who financially supported the continuation of our Network of Excellence. ALTER-Net is also grateful to NINA for their extra financial contribution and for their daily support from the administration and financial department to the secretariat. ALTER-Net is also extremely grateful to the French Cultural Institute in Vienna for hosting the conference on the link between Biodiversity and Ecosystem Services, our workshop on ALTER-Net's Common Research Strategy and the side-meeting on Ecosystem Services and Long Term Social Ecological Research Sites.

# Appendices

## Appendix 1: Partner institutes and structure ALTER-Net

**Table 1.** *The ALTER-Net partnership in year seven*

1. Natural Environment Research Council, Centre for Ecology and Hydrology, (CEH at NERC), United Kingdom  
Council member and Chairman ALTER-Net: Terry Parr
2. Centre National de la Recherche Scientifique (CNRS) / (Centre Armoricain de Recherches en Environnement (CAREN), France (formally CNRS/INSU)  
Council member: Yvan Lagadeuc
3. European Centre for Nature Conservation, (ECNC), the Netherlands  
Council member: Ben Delbaere
4. Norwegian Institute for Nature Research, (NINA), Norway  
Council member: Tor Heggberget
5. Macaulay Land Use Research Institute, (Macaulay), United Kingdom  
Council member: Steve Albon
6. Helmholtz, Centre for Environmental Research - UFZ (UFZ), Germany  
Council member: Stefan Klotz
7. Alterra, the Netherlands  
Council member: Henk Siepel
8. Corpo Forestale dello Stato, Servizio (CONECOFOR), Italy  
Council member: Andrea Rapisarda
9. Department of Systems Ecology, University of Bucharest, (UNIBUC), Romania  
Council member: Angheluta Vadineanu
10. Institute of Landscape Ecology, Slovak Academy of Sciences, (ILE SAS), Slovakia  
Council member: Julius Oszlanyi
11. The Finnish Environment Institute, (SYKE), Finland  
Council member: Heikki Toivonen
12. International Institute of the Polish Academy of Sciences – European Regional Centre for Ecohydrology, u/a UNESCO (ERCE), Poland (formerly ICEPAS)  
Council member: Kinga Krauze
13. Swedish University of Agricultural Sciences, (SLU), Sweden  
Council member: Ulf Grandin
14. Consejo Superior de Investigaciones Científicas, (CSIC), Spain  
Council member: Valladares, Fernando
15. Institute of Ecology and Botany, Hungarian Academy of Sciences, (IEB HAS), Hungary  
Council member: Miklos Kertesz
16. Research Institute for Nature and Forest (INBO), Belgium (formerly IN)  
Council member: Maurice Hoffmann
17. French Institute for Agricultural and Environmental Engineering Research (CEMAGREF), France  
Council member: Phillip Roche
18. Umweltbundesamt GmbH, (UBA), Austria  
Council member: Michael Mirtl
19. The Netherlands Environmental Assessment Agency (PBL), the Netherlands (formerly RIVM)  
Council member: Keimpe Wieringa
20. Potsdam Institute for Climate Impact Research, (PIK), Germany

- Council member: Wolfgang Cramer
21. Biology Centre, Academy of Sciences of the Czech Republic Institute of Hydrobiology, (BC-ASCR-HBI), Czech Republic (formerly HBI-CAS and HBI-CAS is used in this report)  
Council member: Viera Straskrabova
22. Aarhus Universitet, (AU), Denmark (formerly NERI)  
Council member: Kurt Nielsen
23. The Institute of Social Ecology, (IFF), Austria  
Council member: Simron Singh
24. The Institute of Agricultural and Environmental Sciences (IAES-EMU), Estonia  
Council member: Mart Külvik

**Table 2. Management Board ALTER-Net**

<b>Name</b>	<b>Institute</b>	<b>Activity</b>	<b>Member/Deputy</b>
Daniel Terrasson	Cemagref, France	Chair MB / Common Research Strategy (CRS)	Deputy CRS
Geert De Blust	INBO, Belgium	Common Research Strategy	Member
Andy Sier	CEH, United Kingdom	Communication and Knowledge Transfer	Member
Marjolein Sterk	Alterra, the Netherlands	Communication and Knowledge Transfer	Deputy
Leon Braat	Alterra, the Netherlands	Common Training Programme	Member
Allan Watt	CEH, United Kingdom	Common Training Programme	Deputy
Robert Kanka	ILESAS, Slovakia	Data Sharing Policy	Member
Bert van der Werf	Alterra, the Netherlands	Data Sharing Policy	Deputy
Michael Mirtl	UBA, Austria	Long-Term Ecological Research Europe	Member
Martin Forsius	SYKE, Finland	Long-Term Ecological Research Europe	Deputy
Katalin Török	IEBHAS, Hungary	Life Watch	Member
Flemming Skov	NERI, Denmark	Life Watch	Deputy
Eeva Furman	SYKE, Finland	InterDisciplinary Research	Member
Francis Turkelboom	INBO, Belgium	InterDisciplinary Research	Deputy
Odd Terje Sandlund	NINA, Norway	InterDisciplinary Research	Deputy

## Appendix 2: Activity plan, allocated budget and financial overview April 2010 – March 2011

**Table 1.** Overview of expected income April 2010 – March 2011

INCOME	EURO
DN	62 500
NFR	62 500
NINA	40 000
EMU	3 000
IFF	3 000
SYKE	3 000
PBL	3 000
Conecofo	5 000
Alterra	20 000
UFZ	20 000
NERI	15 000
HBI-CAS	1 000
UNIBUC	3 000
CEMAGREF	15 000
CEH	25 000
SLU	10 000
ILE-SAS	1 000
INBO	10 000
UBA	5 000
<b>SUM</b>	<b>307 000</b>

**Table 2.** Working plan, April 2010 – March 2011

Activity	Priority Tasks	(Leading) partners involved
<b>1. Common Re- search Strategy</b>	Distribute and discuss the CRS amongst ALTER-Net partners in order to prepare to the CRS workshop	INBO, Cemagref, CEH and all partner institutes
	Organize the CRS workshop in Vienna	INBO, Cemagref, Secretariat and all partner institutes
	Summarize results of CRS workshop and update the CRS	INBO
<b>2. Communication and Knowledge Transfer</b>	Website management (update old information, make small changes)	secretariat NINA, CEH
	IPCB, Greenlink	INBO
	News and Views	CEH
	ECSITE Partnership: membership, meetings + conference	CEH
	Adopt the communication strategy	Council
	General input for website (announcements, content, etc.)	All
	Write and implement an annual activity plan	CEH, Alterra, NINA

<b>3. Common Train- ing Program</b>	Organise Summer School 2010	CEH, Alterra, PIK, NINA and all part- ner institutes
<b>4. Data Sharing Pol- icy</b>	Study the report on ALTER-Net1 and its data policies. Define the scope of (potential) data sharing policy – copy-rights/standards etc	ILESAS
	Enquire designated specialists at the institutes about existing data policies and analyse the results	All
	Present results and suggestions to the Council	ILESAS
<b>5. LTER</b>	Support the maintenance and further development of the LTER network	UBA, ERCE
	Promote the significance of the LTER network	
<b>6. Life Watch</b>	Develop regional cases to demonstrate LTER site information integration, or successful data integration	IEBHAS, ILESAS
<b>7. Interdisciplinary Research</b>	Organise the Vienna conference “Biodiversity and Ecosystem Services – what is the link between the two?”	Secretariat, SYKE, Cemagref, CEH, and all partner insti- tutions
	Organise the Workshop in Paris “Ecosystem services and gov-ernance”	SYKE



**Table 3. Budget used versus budget allocated, April 2010 – March 2011**

<b>SALARIES SECRETARIAT</b>		<b>Allocated</b>	
Hours secretariat and coordinator	145 460		
<b>SUM</b>	<b>145 460</b>	<b>139 000</b>	
<b>RUNNING SECRETARIAT</b>			
Printing, post, teleconf	318		
ICSU meeting travel costs Geert	240		
Travel costs secretariat and coordinator	18 500		
<b>SUM</b>	<b>19 058</b>	<b>22 000</b>	
<b>SUMMER SCHOOL</b>			
<b>INCOME</b>			
3 students à 400,- Euro	1 200		
27 students à 800,- Euro	21 600	20 000	
Budget allocation ALTER-Net	50 000	50 000	
<b>SUM</b>	<b>72 800</b>		
<b>COSTS</b>			
Travel reimb, Peyresq, Misc etc	70 685		
<b>SUM</b>	<b>70 685</b>	<b>70 000</b>	
<b>MULTI-SITE EXP II</b>		<b>Allocated</b>	
Travel reimb	2 500		
Experiment	19 400		
<b>SUM</b>	<b>21 900</b>	<b>20 000</b>	
<b>IDR (SYKE)</b>			
3rd payment	9 000		
4th payment	2 000		
<b>SUM</b>	<b>11 000</b>	<b>11 000</b>	
<b>LTER-secretariat: ERCE</b>			
according to contract NINA-ERCE	8 500		
<b>SUM</b>	<b>8 500</b>	<b>8 500</b>	
<b>INBO (IPCB &amp; Greenlink)</b>			
according to contract NINA-INBO '09-'10	10 000		
according to contract NINA-INBO '10-'11	5 000		
<b>SUM</b>	<b>15 000</b>	<b>5 000</b>	
<b>VIENNA CONFERENCE + CRS WORKSHOP</b>			
ECNC (incl travel costs)	2 643		
Travel costs Invited Speakers	2 854		
Catering	6 833		
Misc (printing, extra luggage etc)	1 407		
<b>SUM</b>	<b>13 737</b>	<b>15 000</b>	
<b>LTER-Europe: UBA</b>			
Info base management	13 000		
<b>SUM</b>	<b>13 000</b>	<b>13 000</b>	
<b>C&amp;K trans</b>			
Ecsite conference fee	575		
Ecsite travel costs Andy Sier	417		
Developm database Expertise for Netw of Knowl			
<b>SUM</b>	<b>992</b>	<b>5 000</b>	
<b>Mobility fund</b>			
Travel costs for Vienna Conference (4 pers)	1 000		
IFF participation/organisation ALTER-Net LTSE workshop at SYKE	1 600		
<b>SUM</b>	<b>2 600</b>	<b>5 000</b>	
<b>New Research Initiative Fund</b>			
IFF (LTER publication)	5 000		
<b>SUM</b>	<b>5 000</b>	<b>5 000</b>	
<b>DSP/LW</b>			
travel money Robert			
<b>SUM</b>	<b>0</b>	<b>1 000</b>	
<b>SUM COSTS</b>	<b>306 247</b>		

## Appendix 3: The added value exercise

**Table 1.** *The added value of ALTER-Net for the institute*

ADDED VALUE OF ALTER-NET FOR THE INSTITUTE	CEH	SYKE	NINA	ILE-SAS	IEB-HAS	Alterra	UBA	INBO	
Providing scientific knowledge to IPBES		*	*	*		*		*	
<b>Value of expertise</b>		*	*	*		*		*	5
Strengthen the internationalization of nature research		*	*	*		*		*	
Joint proposals	*	*	*	*	*	*	*	*	
Joint projects & publications	*	*	*	*	*	*	*	*	
International networking	*	*	*	*					
<b>Value of internalization</b>	*	*	*	*	*	*	*	*	8
Staying in touch with the "European scene"	*	*	*	*	*	*			
Science & Policy: joint lobbying/dialog with DG-Env/DG-Research	*	*	*	*	*	*		*	
Science & Policy: EPBRS		*			*				
<b>Value of Science-Policy</b>	*	*	*	*	*	*			7
Communication and PR	*								1
Training & development	*	*	*	*		*		*	6
Mobility schemes and funds		*		*	*	*		*	5
<b>Value of intern processes</b>	*	*	*	*	*	*		*	7
LTER-Europe	*	*		*	*		*		
LTER-national	*	*		*	*		*		
ILTER							*		
<b>Value of LTER</b>	*	*		*	*		*		5
LifeWatch-Europe	*	*	*		*	*	*	*	
LW-national/ESFRI road map	*	*	*	*	*	*	*	*	
<b>Value of LW</b>	*	*	*	*	*	*	*	*	8
Supporting national science policy with messages from ALTER-Net		*			*	*			
<b>Value at national level</b>		*			*	*			3

**Table 2.** *The added value of the institute for ALTER-Net*

ADDED VALUE OF THE INSTITUTE FOR ALTER-NET		CEH	SYKE	NINA	ILE-SAS	IEB-HAS	Alterra	UBA	INBO	
External funding				*						
Cash contribution		*		*			*		*	
In-kind contribution		*		*			*		*	
Member of MB					*	*	*		*	
Direct contribution to activities (pilot projects, MSE I&II, conferences)					*	*	*		*	
<b>Keeping ALTER-Net alive</b>		*		*	*	*	*		*	6
Expertise		*	*	*	*					
Demonstrable success leading major EU projects		*					*			
Expert institution of the EC for biodiversity					*					
Expert institution for DG-Env for LIFE+					*					
<b>Expertise</b>		*	*	*	*		*			5
Partner in PEER			*				*			
Partner in CEDREN (renewable energy)				*						
Strong connection to European programmes		*								
Strong connection to global LTER programmes		*								
Supporter of key initiatives (such as LTER-Europe, GEO-BON and LW)		*			*					
Chairing the Slovak MAB UNESCO					*					
LW stakeholders Board and Data Providers Platform						*				
<b>Involvement in other Networks</b>		*	*	*	*	*	*			6
Strong connection to relevant National bodies (funding and non-funding)		*	*	*			*		*	
Dialog with Nordic Council				*						
<b>National level</b>		*	*	*			*		*	5
Access to (parts of) DG ENV							*		*	
<b>Science-Policy</b>							*			2
Europe's longest border with Russia			*							
<b>Others</b>			*							1

## Appendix 4: Report of LTER-Europe site representative's workshop on Ecosystem Services

By Jan Dick

### Executive summary

A total of 19 representatives from 11 countries met following the ALTER-Net conference at the French Cultural Institute Vienna Austria. The meeting was sponsored by ALTER-Net and the French Cultural Institute, Vienna. The aim of the workshop was to agree the strategy for compiling a matrix of site specific parameters to describe the ecosystem services of the LTER sites in European counties. This report details the workshop strategy, the agreed methodology, the list of ecosystem service parameters and the future time table along with responsible team members.

### Workshop structure

The meeting was purposely arranged to follow the Alter-Net conference "Ecosystem services and Biodiversity: what is the link between the two?" as many of the LTER community was already attending this meeting. Some participants did however travel especially for the meeting. In total 19 participants attended the ecosystem service workshop.

Prior to the meeting a list of ecosystem service parameters which had been used for a similar study in the UK (Dick et al 2010) had been circulated and many of the country representatives had returned the probability of being able to find data for each of the services listed in table 1. This preliminary exercise meant that most of the people present had a good idea which parameters could be contributed and ideas on additional parameters which were considered important for their sites.

**Table 1** Broad ecosystem service type and number of LTER sites represented at the workshop

Country	Total no. of sites	forestry (natural)	mountain forest	forest floodplain	planted forest	multi-functional forest	mountain grasslands	moorland	lowland agricultural	freshwater river	wetland	lake	urban	semi-arid
UK	11	1			1		2	1	6					
Israel	5	1			1				1					2
Slovakia	4		1				2		1					
Portugal	2					1				1				
Romania	2			1							1			
Czech	2										1	1		
Poland	2								1				1	
Italy	1		1											
Serbia	1		1											
Finland														
Total	30	2	3	1	2	1	4	1	9	1	2	1	1	2

### Agreed methodology

The exact boundary which should be used in this study was discussed at length. It was agreed that a 'Site' should be an area for which information can be recorded (this will not necessarily be the same as the whole research study area i.e. LTSEr platform) but should be one main ecosystem/habitat type.

It was agreed that it would be necessary to have both the total amount of a service in the site area (e.g. kg/year) as well as the amount of service per unit area (e.g. kg/ha/yr). It was also considered desirable to record areas of each habitat within each site which supplied the ecosystem service e.g. meat production on only 5% of study total area.

It was agreed that parameters should be expressed on an annual time scale (typically 2009) but that the period for which the parameter was calculated may be an average of several years if this was considered to give a more realistic value for the site i.e. tonnes of live weight meat ha<sup>-1</sup> yr<sup>-1</sup> recorded as the average of the last 5 years.

It was agreed that the value of the ecosystem service parameter should be site-based e.g. litres milk ha<sup>-1</sup> yr<sup>-1</sup> even although it was known that some concentrated protein feed or fodder was bought in from another site. A more complete analysis may follow later (i.e. estimating input of fodder to cattle from outside the ecosystem, or food used to sustain tourists housed on the site will be ignored in this initial analysis).

It was agreed that in this initial study we would consider only actual realised activities not the potential services which the sites may produced e.g. if the site included grassy meadows on a mountain which could support livestock but no agriculture was currently practised i.e. no meat production occurred because the land was abandoned then no meat would be recorded. It was agreed that a second study may consider potential ecosystem services but it was realised that this was not a simple task as for example ecosystem may support a windmill but local law might not allow.

The list of variables circulated prior to the meeting was the starting point for discussion of specific ecosystem service parameters. The majority of the services were discussed at the workshop but due to time limitation this task was not completed. The list of variables was finished in a later stage and circulated among the participants and other persons interested to join the study to fill in if the service occurred on their sites.

## Future work

It was agreed that the initial analysis of the occurrence of ecosystem services for each ecosystem service parameter would be analysed by multivariate techniques and a paper led by the CEH Edinburgh team written and submitted to the LTER Europe book edited by Kinga Krauze. In general it was agreed to keep the author list to a maximum of two authors per country per paper.

A range of ideas for future papers using the quantitative data were suggested including:

- Testing Bratt-Brink model (lead by Elli Goner, Miklos Kertesz, Kinga Krauze)
- Consider flows of ecosystem services across LTER site boundaries
- Explore different gradients across sites to compare with Bratt-Brink model (Ron Smith)
- Use of this approach at the platforms level (i.e. how to combine site info to platform information and disaggregate regional information)

## Appendix 5: Overview in-kind person days spent per institute, April 2010 – March 2011

Institutes	Activity	Comm Research Str	Commun & Knowl Trans	Comm Training Progr	Data Sharing Pol	LTER	LW	IDR	SUM
<b>Alterra*</b>	Originally pledged			10	30			5-10	
	used April '10 - March '11			15	30			10	
	still left								
<b>CEH*</b>	Originally pledged		15	15					30
	used April '10 - March '11	2	15	15		2	1	4	39
	still left								
<b>CEMAGREF*</b>	Originally pledged								?
	used April '10 - March '11								
	still left								
<b>CNRS</b>	Originally pledged								0
	used April '10 - March '11								
	still left								
<b>CONECOFOR</b>	Originally pledged					60			60
	used April '10 - March '11								
	still left								
<b>CSIC</b>	Originally pledged								0
	used April '10 - March '11								
	still left								
<b>ECNC</b>	Originally pledged	1	2+2				2+2	2	11
	used April '10 - March '11	0,5	6				0,5		7
	still left								4
<b>ERCE</b>	Originally pledged	10	2	3		50		10	75
	used April '10 - March '11	12	3	0		80	2	15	112
	still left								
<b>HBI CAS</b>	Originally pledged	40	40	40	60	60	intern	intern	240
	used April '10 - March '11	10	25		20	190			245
	still left								
<b>IEB-HAS</b>	Originally pledged	10	10	10	10	20	20	20	100
	used April '10 - March '11								
	still left		0						
<b>ILE-SAS*</b>	Originally pledged								0
	used April '10 - March '11	2	0,5	0	40	3	10	2,5	57,5
	still left								
<b>INBO*</b>	Originally pledged		10					4,5	14,5
	used April '10 - March '11	3		10				34	47
	still left								
<b>Macaulay</b>	Originally pledged								0
	used April '10 - March '11								
	still left								
<b>NERI*</b>	Originally pledged					7	7	6	20
	used April '10 - March '11					3	10	0	13
	still left								7
<b>NINA*</b>	Originally pledged								0
	used April '10 - March '11								
	still left								
<b>PBL</b>	Originally pledged					10		10	20
	used April '10 - March '11					0		0	0
	still left								
<b>PIK</b>	Originally pledged								0
	used April '10 - March '11			18					18
	still left								
<b>SLU</b>	Originally pledged					0		0	0
	used April '10 - March '11					40		18	58
	still left								0
<b>SYKE*</b>	Originally pledged							60	60
	used April '10 - March '11	2				31	15	52	104
	still left								
<b>UBA*</b>	Originally pledged					40			40
	used April '10 - March '11								
	still left								
<b>UFZ</b>	Originally pledged				40	15	15	10	80
	used April '10 - March '11				20	40	20	0	80
	still left								
<b>UNIBUC</b>	Originally pledged	5			10	5	5	5	30
	used April '10 - March '11	3			10	7	8	5	33
	still left								
<b>UNI-KLU / IFF</b>	Originally pledged	10	15	10		15		20	70
	used April '10 - March '11	10	15	10		15		15	65
	still left	0	0	0		0		5	5
<b>EMU</b>	Originally pledged	15	10	10	10	10	10	15	80
	used April '10 - March '11	15	5	10	5	1	5	10	51
	still left								29

In yellow are those institute listed which provided an update

\* indicates that the institute has a seat in the Management Board

Alterra

On the Common training program we had Eric Arets as a tutor in Peyresq (as year before), but additionally a presentation of Leon Braat; all other as sheduled

CEH

1. Research strategy – organisation and participation in research strategy meeting.
2. Training – organisation and participation in Summer School
3. Communications – management of web-site and participation on management group
4. IDR – organisation and participation in ecosystem services workshop in Viena
5. LifeWatch – representation of ALTER-Net in LW meetings.
6. LTER – discussions with LTER-Europe over links to ALTER-Net.

ECNC

0.5 day for reviewing the draft CRS and responding to the questionnaire

0.5 day for drafting a document on the connection between Lifewatch and SEBI2010 for Wouter los

6 days for communication (regular items in the ECNC newsletter and the ECNC website, input to the draft communication strategy), attending the Council meeting in Potsdam and general activities (reviewing minutes, internal discussion on ALTER-Net topics, contributing to the FP7 joint attempts, ...)

HBI-CAS

\* prep.for Council, particip. In Biofresh kick-off meerting (CRS, Communication, Datasharing)

\*CZ LTER committee, conference for CZ end users on LTER research, data sharing policy, sites description and publications on LTER (Datasharing, LTER)

ILE-SAS

CRS: 1 day used for studying, comments of CRS; 1 day used for attendance at ALTER-Net Common Research Strategy workshop – Vienna, 05.11.2010

Communication: Used for preparation of information for ALTER-Net website and e-mail communication with Andy

Datasharing: Preparation of the questionnaire, analysis and synthesis of filled-in questionnaires, writing of the draft of DSP

LTER: Attendance at the Slovak LTER Committee meeting, preparation of data for the Slovak LTER website

LW: Participation at the LIFEWATCH pilot project

IDR: E-mail communication with Eeva 0,5; attendance at the meeting in Paris (7-8 Dec) Governance of Ecosystem Services - 2

LW: participation in Danish meetings, LifeWatch Europe meetings and in a new Nordic initiative

INBO

In addition: 23 hours spent on miscellaneous activities.

Total hours spent = 70

PIK

15 days Wolfgang Cramer: Preparation, implementation, lecturing at the summer school and 3 days

Gitta Krukenberg: Preparation of the summer school

SLU

10 hours of IDR for MSEII

## Appendix 6: Publication list and list of publications in which ALTER-Net is acknowledged

### ALTER-Net publication list 2009, 2010, March 2011

Adams, C., Brannas, E., Dempson, B., Knudsen, R., McCarthy, I., Power, M., Winfield, I., 2010. A perspective on Salvelinus research. *Hydrobiologia* 650, 1-2.

*Institute first author:* Other

*Institutes co-authors:* SLU, CEH, others

Akerstedt, J., Lillehaug, A., Larsen, I.L., Eide, N.E., Arnemo, J.M., Handeland, K., 2010. SEROSURVEY FOR CANINE DISTEMPOR VIRUS, CANINE ADENOVIRUS, LEPTOSPIRA INTERROGANS, AND TOXOPLASMA GONDII IN FREE-RANGING CANIDS IN SCANDINAVIA AND SVALBARD. *Journal of Wildlife Diseases* 46, 474-480.

*Institute first author:* Other

*Institutes co-authors:* SLU, NINA, others

Alkemade, R., van Oorschot, M., Miles, L., Nellemann, C., Bakkenes, M., ten Brink, B., 2009. GLOBIO3: A Framework to Investigate Options for Reducing Global Terrestrial Biodiversity Loss. *Ecosystems* 12, 374-390.

*Institute first author:* PBL

*Institutes co-authors:* NINA, others

Allen, M.R., Frame, D.J., Huntingford, C., Jones, C.D., Lowe, J.A., Meinshausen, M., Meinshausen, N., 2009. Warming caused by cumulative carbon emissions towards the trillionth tonne. *Nature* 458, 1163-1166.

*Institute first author:* Other

*Institutes co-authors:* CEH, PIK, others

Ammer, C., Balandier, P., Bentsen, N.S., Coll, L., Lof, M., 2011. Forest vegetation management under debate: an introduction. *European Journal of Forest Research* 130, 1-5.

*Institute first author:* Other

*Institutes co-authors:* Cemagref, SLU, others

Andersen, R., Grasset, L., Thormann, M.N., Rochefort, L., Francez, A.J., 2010. Changes in microbial community structure and function following Sphagnum peatland restoration. *Soil Biology & Biochemistry* 42, 291-301.

*Institute first author:* Macaulay

*Institutes co-authors:* CNRS

Andrist-Rangel, Y., Hillier, S., Oborn, I., Lilly, A., Towers, W., Edwards, A.C., Paterson, E., 2010. Assessing potassium reserves in northern temperate grassland soils: A perspective based on quantitative mineralogical analysis and aqua-regia extractable potassium. *Geoderma* 158, 303-314.

*Institute first author:* Macaulay

*Institutes co-authors:* SLU

Badea, S.L., Vogt, C., Weber, S., Danet, A.F., Richnow, H.H., 2009. Stable Isotope Fractionation of gamma-Hexachlorocyclohexane (Lindane) during Reductive Dechlorination by Two Strains of Sulfate-Reducing Bacteria. *Environmental Science & Technology* 43, 3155-3161.

*Institute first author:* UFZ

*Institutes co-authors:* Unibuc, others



Baker, K.L., Langenheder, S., Nicol, G.W., Ricketts, D., Killham, K., Campbell, C.D., Prosser, J.I., 2009. Environmental and spatial characterisation of bacterial community composition in soil to inform sampling strategies. *Soil Biology & Biochemistry* 41, 2292-2298.

*Institute first author:* Other

*Institutes co-authors:* Macaulay, SLU

Baker, K.L., Marshall, S., Nicol, G.W., Campbell, C.D., Nicollier, G., Ricketts, D., Killham, K., Prosser, J.I., 2010. Degradation of metalaxyl-M in contrasting soils is influenced more by differences in physico-chemical characteristics than in microbial community composition after re-inoculation of sterilised soils. *Soil Biology & Biochemistry* 42, 1123-1131.

*Institute first author:* Other

*Institutes co-authors:* Macaulay, others

Barlund, I., Tattari, S., Puustinen, M., Koskiahio, J., Yli-Halla, M., Posch, M., 2009. Soil parameter variability affecting simulated field-scale water balance, erosion and phosphorus losses. *Agricultural and Food Science* 18, 402-416.

*Institute first author:* Other

*Institutes co-authors:* SYKE, PBL, others

Berg, B., Davey, M.P., De Marco, A., Emmett, B., Faituri, M., Hobbie, S.E., Johansson, M.B., Liu, C., McClaugherty, C., Norell, L., Rutigliano, F.A., Vesterdal, L., De Santo, A.V., 2010. Factors influencing limit values for pine needle litter decomposition: a synthesis for boreal and temperate pine forest systems. *Biogeochemistry* 100, 57-73.

*Institute first author:* Other

*Institutes co-authors:* CEH, SLU, others

Bergfur, J., Johnson, R.K., Sandin, L., Goedkoop, W., 2009. Effects of nutrient enrichment on C and N stable isotope ratios of invertebrates, fish and their food resources in boreal streams. *Hydrobiologia* 628, 67-79.

*Institute first author:* Macaulay

*Institutes co-authors:* SLU

Biemans, H., Hutjes, R.W.A., Kabat, P., Strengers, B.J., Gerten, D., Rost, S., 2009. Effects of Precipitation Uncertainty on Discharge Calculations for Main River Basins. *Journal of Hydrometeorology* 10, 1011-1025.

*Institute first author:* Other

*Institutes co-authors:* PBL, PIK

Biesbroek, G.R., Swart, R.J., Carter, T.R., Cowan, C., Henrichs, T., Mela, H., Morecroft, M.D., Rey, D., 2010. Europe adapts to climate change: Comparing National Adaptation Strategies. *Global Environmental Change-Human and Policy Dimensions* 20, 440-450.

*Institute first author:* Other

*Institutes co-authors:* SYKE, NERI, CEH

Bishop, K., Allan, C., Bringmark, L., Garcia, E., Hellsten, S., Høgbom, L., Johansson, K., Lomander, A., Meili, M., Munthe, J., Nilsson, M., Porvari, P., Skjellberg, U., Sørensen, R., Zetterberg, T., Åkerblom, S., 2009. The Effects of Forestry on Hg Bioaccumulation in Nemoral/Boreal Waters and Recommendations for Good Silvicultural Practice. *Ambio* 38, 373-380.

*Institute first author:* SLU

*Institutes co-authors:* SYKE, others

Bobbink, R., Hicks, K., Galloway, J., Spranger, T., Alkemade, R., Ashmore, M., Bustamante, M., Cicerby, S., Davidson, E., Dentener, F., Emmett, B., Erisman, J.W., Fenn, M., Gilliam, F., Nordin, A., Pardo, L., De Vries, W., 2010. Global assessment of nitrogen deposition effects on terrestrial plant diversity: a synthesis. *Ecological Applications* 20, 30-59.

*Institute first author:* Other

*Institutes co-authors:* UBA, PBL, CEH, SLU, others

Bodeker, I.T.M., Nygren, C.M.R., Taylor, A.F.S., Olson, A., Lindahl, B.D., 2009. ClassII peroxidase-encoding genes are present in a phylogenetically wide range of ectomycorrhizal fungi. *Isme Journal* 3, 1387-1395.

*Institute first author:* SLU

*Institutes co-authors:* Macaulay

Bommarco, R., Biesmeijer, J.C., Meyer, B., Potts, S.G., Poyry, J., Roberts, S.P.M., Steffan-Dewenter, I., Ockinger, E., 2010. Dispersal capacity and diet breadth modify the response of wild bees to habitat loss. *Proceedings of the Royal Society B-Biological Sciences* 277, 2075-2082.

*Institute first author:* SLU

*Institutes co-authors:* SYKE, others

Bouraoui, F., Grizzetti, B., Adelskold, G., Behrendt, H., de Miguel, I., Silgram, M., Gomez, S., Granlund, K., Hoffmann, L., Kronvang, B., Kvaerno, S., Lazar, A., Mimikou, M., Passarella, G., Panagos, P., Reisser, H., Schwarzl, B., Siderius, C., Sileika, A.S., Smit, A., Sugrue, R., VanLiedekerke, M., Zaloudik, J., 2009. Basin characteristics and nutrient losses: the EUROHARP catchment network perspective. *Journal of Environmental Monitoring* 11, 515-525.

*Institute first author:* Other

*Institutes co-authors:* SLU, SYKE, NERI, UMB, Alterra, others

Brittain, C., Bommarco, R., Vighi, M., Barmaz, S., Settele, J., Potts, S.G., 2010. The impact of an insecticide on insect flower visitation and pollination in an agricultural landscape. *Agricultural and Forest Entomology* 12, 259-266.

*Institute first author:* Other

*Institutes co-authors:* SLU, UFZ, others

Brittain, C., Bommarco, R., Vighi, M., Settele, J., Potts, S.G., 2010. Organic farming in isolated landscapes does not benefit flower-visiting insects and pollination. *Biological Conservation* 143, 1860-1867.

*Institute first author:* Other

*Institutes co-authors:* SLU, UFZ, others

Brittain, C.A., Vighi, M., Bommarco, R., Settele, J., Potts, S.G., 2010. Impacts of a pesticide on pollinator species richness at different spatial scales. *Basic and Applied Ecology* 11, 106-115.

*Institute first author:* Other

*Institutes co-authors:* SLU, UFZ

Brooker, R.W., Callaway, R.M., Cavieres, L.A., Kikvidze, Z., Lortie, C.J., Michalet, R., Pugnaire, F.I., Valiente-Banuet, A., Whitham, T.G., 2009. Don't Diss Integration: A Comment on Ricklefs's Disintegrating Communities. *American Naturalist* 174, 919-927.

*Institute first author:* Macaulay

*Institutes co-authors:* CSIC, others

Brucet S, Boix D, Gascon S, et al. 2009. Species richness of crustacean zooplankton and trophic structure of brackish lagoons in contrasting climate zones: north temperate Denmark and Mediterranean Catalonia (Spain). *Ecography*, 32(4), 692-702

*Institute first author:* NERI

*Institutes co-authors:* CSIC, others

Carré, G., Roche, P., Chifflet, R., Morison, N., Bommarco, R., Harrison-Cripps, J., Krewenka, K., Potts, S.G., Roberts, S.P.M., Rodet, G., Settele, J., Steffan-Dewenter, I., Szentgyörgyi, H., Tscheulin, T., Westphal, C., Woyciechowski, M., Vaissière, B.E. 2009. Landscape context and habitat type as drivers of bee diversity in European annual crops. *Agriculture, Ecosystems and Environment*, 133(1-2), 40-47.

*Institute first author:* other

*Institutes co-authors:* CEMAGREF, SLU, UFZ, others

Copeland, J.P., McKelvey, K.S., Aubry, K.B., Landa, A., Persson, J., Inman, R.M., Krebs, J., Lofroth, E., Golden, H., Squires, J.R., Magoun, A., Schwartz, M.K., Wilmot, J., Copeland, C.L., Yates, R.E., Kojola, I., May, R., 2010. The bioclimatic envelope of the wolverine (*Gulo gulo*): do climatic constraints limit its geographic distribution? *Canadian Journal of Zoology-Revue Canadienne De Zoologie* 88, 233-246.

*Institute first author:* Other

*Institutes co-authors:* SLU, NINA, others

Creamer, R.E., Bellamy, P., Black, H.I.J., Cameron, C.M., Campbell, C.D., Chamberlain, P., Harris, J., Parekh, N., Pawlett, M., Poskitt, J., Stone, D., Ritz, K., 2009. An inter-laboratory comparison of multi-enzyme and multiple substrate-induced respiration assays to assess method consistency in soil monitoring. *Biology and Fertility of Soils* 45, 623-633.

*Institute first author:* Other

*Institutes co-authors:* Macaulay, CEH, SLU

Currey, P.M., Johnson, D., Sheppard, L.J., Leith, I.D., Toberman, H., van der Wal, R., Dawson, L.A., Artz, R.R.E., 2010. Turnover of labile and recalcitrant soil carbon differ in response to nitrate and ammonium deposition in an ombrotrophic peatland. *Global Change Biology* 16, 2307-2321.

*Institute first author:* Macaulay

*Institutes co-authors:* CEH, others

de Bello, F., Lavorel, S., Diaz, S., Harrington, R., Cornelissen, J.H.C., Bardgett, R.D., Berg, M.P., Cipriotti, P., Feld, C.K., Hering, D., da Silva, P.M., Potts, S.G., Sandin, L., Sousa, J.P., Storkey, J., Wardle, D.A., Harrison, P.A., 2010. Towards an assessment of multiple ecosystem processes and services via functional traits. *Biodiversity and Conservation* 19, 2873-2893.

*Institute first author:* CNRS

*Institutes co-authors:* SLU, others

De Frenne, P., Kolb, A., Verheyen, K., Brunet, J., Chabrierie, O., Decocq, G., Diekmann, M., Eriksson, O., Heinken, T., Hermy, M., Jogar, U., Stanton, S., Quataert, P., Zindel, R., Zobel, M., Graae, B.J., 2009. Unravelling the effects of temperature, latitude and local environment on the reproduction of forest herbs. *Global Ecology and Biogeography* 18, 641-651.

*Institute first author:* Other

*Institutes co-authors:* SLU, INBO, others

Deelstra, J., Kvaerno, S.H., Granlund, K., Sileika, A.S., Gaigalis, K., Kyllmar, K., Vagstad, N., 2009. Runoff and nutrient losses during winter periods in cold climates requirements to nutrient simulation models. *Journal of Environmental Monitoring* 11, 602-609.

*Institute first author:* Other

*Institutes co-authors:* SYKE, SLU, others

Dervo, B., Skei, J.K., Berg, O.K., Kraabol, M., Arnemo, J.M., Dolmen, D., 2010. A comparison of external and internal attachments of radio transmitters on adult crested newts *Triturus cristatus*. *Amphibia-Reptilia* 31, 229-237.

*Institute first author:* Other

*Institutes co-authors:* NINA, SLU, others

Doktor, D., Bondeau, A., Koslowski, D., Badeck, F.W., 2009. Influence of heterogeneous landscapes on computed green-up dates based on daily AVHRR NDVI observations. *Remote Sensing of Environment* 113, 2618-2632.

*Institute first author:* UFZ

*Institutes co-authors:* PIK, others

Drobyshev, I., Simard, M., Bergeron, Y., Hofgaard, A., 2010. Does Soil Organic Layer Thickness Affect Climate-Growth Relationships in the Black Spruce Boreal Ecosystem? *Ecosystems* 13, 556-574.

*Institute first author:* Other

*Institutes co-authors:* NINA, SLU, others

Eggers, J., Troltzsch, K., Falcucci, A., Maiorano, L., Verburg, P.H., Framstad, E., Louette, G., Maes, D., Nagy, S., Ozinga, W., Delbaere, B., 2009. Is biofuel policy harming biodiversity in Europe? *Global Change Biology Bioenergy* 1, 18-34.

*Institute first author:* Other

*Institutes co-authors:* NINA, INBO, Alterra, CEH, others

Erb, K.H., Krausmann, F., Gaube, V., Gingrich, S., Bondeau, A., Fischer-Kowalski, M., Haberl, H., 2009. Analyzing the global human appropriation of net primary production - processes, trajectories, implications. An introduction. *Ecological Economics* 69, 250-259.

*Institute first author:* IFF

*Institutes co-authors:* PIK, others

Erb, K.H., Krausmann, F., Lucht, W., Haberl, H., 2009. Embodied HANPP: Mapping the spatial disconnect between global biomass production and consumption. *Ecological Economics* 69, 328-334.

*Institute first author:* IFF

*Institutes co-authors:* PIK

Eriksen, A., Wabakken, P., Zimmermann, B., Andreassen, H.P., Arnemo, J.M., Gundersen, H., Milner, J.M., Liberg, O., Linnell, J., Pedersen, H.C., Sand, H., Solberg, E.J., Storaas, T., 2009. Encounter frequencies between GPS-collared wolves (*Canis lupus*) and moose (*Alces alces*) in a Scandinavian wolf territory. *Ecological Research* 24, 547-557.

*Institute first author:* Other

*Institutes co-authors:* SLU, NINA, others

Evette, A., Labonne, S., Rey, F., Liebault, F., Jancke, O., Girel, J., 2009. History of Bioengineering Techniques for Erosion Control in Rivers in Western Europe. *Environmental Management* 43, 972-984.

*Institute first author:* Cemagref

*Institutes co-authors:* CNRS

Fahlman, A., Pringle, J., Arnemo, J.M., Swenson, J.E., Brunberg, S., Nyman, G., 2010. TREATMENT OF HYPOXEMIA DURING ANESTHESIA OF BROWN BEARS (*URSUS ARCTOS*). *Journal of Zoo and Wildlife Medicine* 41, 161-164.

*Institute first author:* SLU

*Institutes co-authors:* NINA, others

Feld, C.K., da Silva, P.M., Sousa, J.P., de Bello, F., Bugter, R., Grandin, U., Hering, D., Lavorel, S., Mountford, O., Pardo, I., Partel, M., Rombke, J., Sandin, L., Jones, K.B., Harrison, P., 2009. Indicators of biodiversity and ecosystem services: a synthesis across ecosystems and spatial scales. *Oikos* 118, 1862-1871.

*Institute first author:* Other

*Institutes co-authors:* CNRS, Alterra, SLU, CEH, others

Ferrer M., Newton I., Pandolfi M. 2009. Small populations and offspring sex-ratio deviations in Eagles. *Conservation Biology*, 23(4), 1017-1025.

*Institute first author:* CSIC

*Institutes co-authors:* CEH

Fenn, K.M., Malhi, Y., Morecroft, M.D., 2010. Soil CO<sub>2</sub> efflux in a temperate deciduous forest: Environmental drivers and component contributions. *Soil Biology & Biochemistry* 42, 1685-1693.

*Institute first author:* CEH

*Institutes co-authors:* SLU

Fisher, J., Deflandre-Vlandas, A., Coste, M., Delmas, F., Jarvie, H.P., 2010. Assemblage grouping of European benthic diatoms as indicators of trophic status of rivers. *Fundamental and Applied Limnology* 176, 89-100.

*Institute first author:* CEH

*Institutes co-authors:* Cemagref

Forseth, T., Larsson, S., Jensen, A.J., Jonsson, B., Naslund, I., Berglund, I., 2009. Thermal growth performance of juvenile brown trout *Salmo trutta*: no support for thermal adaptation hypotheses. *Journal of Fish Biology* 74, 133-149.

*Institute first author:* NINA

*Institutes co-authors:* SLU, others

Forsius, M., Posch, M., Aherne, J., Reinds, G.J., Christensen, J., Hole, L., 2010. Assessing the Impacts of Long-Range Sulfur and Nitrogen Deposition on Arctic and Sub-Arctic Ecosystems. *Ambio* 39, 136-147.

*Institute first author:* SYKE

*Institutes co-authors:* PBL, NERI, Others

Fortunel, C., Garnier, E., Joffre, R., Kazakou, E., Quested, H., Grigulis, K., Lavorel, S., Ansquer, P., Castro, H., Cruz, P., Dolezal, J., Eriksson, O., Freitas, H., Golodets, C., Jouany, C., Kigel, J., Kleyer, M., Lehsten, V., Leps, J., Meier, T., Pakeman, R., Papadimitriou, M., Papanastasis, V.P., Quetier, F., Robson, M., Sternberg, M., Theau, J.P., Thebault, A., Zarovali, M., 2009. Leaf traits capture the effects of land use changes and climate on litter decomposability of grasslands across Europe. *Ecology* 90, 598-611.

*Institute first author:* CNRS

*Institutes co-authors:* Macaulay, others

Fowler, D., Pilegaard, K., Sutton, M.A., Ambus, P., Raivonen, M., Duyzer, J., Simpson, D., Fagerli, H., Fuzzi, S., Schjoerring, J.K., Granier, C., Neftel, A., Isaksen, I.S.A., Laj, P., Maione, M., Monks, P.S., Burkhardt, J., Daemmgen, U., Neirynck, J., Personne, E., Wichink-Kruit, R., Butterbach-Bahl, K., Flechard, C., Tuovinen, J.P., Coyle, M., Gerosa, G., Loubet, B., Altimir, N., Gruenhage, L., Ammann, C., Cieslik, S., Paoletti, E., Mikkelsen, T.N., Ro-Poulsen, H., Cellier, P., Cape, J.N., Horvath, L., Loreto, F., Niinemets, U., Palmer, P.I., Rinne, J., Misztal, P., Nemitz, E., Nilsson, D., Pryor, S., Gallagher, M.W., Vesala, T., Skiba, U., Brüggemann, N., Zechmeister-Boltenstern, S., Williams, J., O'Dowd, C., Facchini, M.C., de Leeuw, G., Flossman, A., Chaumerliac, N., Erisman, J.W., 2009. Atmospheric composition change: Ecosystems-Atmosphere interactions. *Atmospheric Environment* 43, 5193-5267.

*Institute first author:* CEH

*Institutes co-authors:* CNRS, INBO, IAES-EMU, others

Fox, T.A.D., Eide, N.E., Bergersen, E., Madsen, J., 2009. Resource partitioning in sympatric arctic-breeding geese: summer habitat use, spatial and dietary overlap of Barnacle and Pink-footed Geese in Svalbard. *Ibis* 151, 122-133.

*Institute first author:* NERI

*Institutes co-authors:* NINA, others

Friberg, N., Dybkjaer, J.B., Olafsson, J.S., Gislason, G.M., Larsen, S.E., Lauridsen, T.L., 2009. Relationships between structure and function in streams contrasting in temperature. *Freshwater Biology* 54, 2051-2068.

*Institute first author:* NERI

*Institutes co-authors:* Macaulay, others

Futter, M.N., Forsius, M., Holmberg, M., Starr, M., 2009. A long-term simulation of the effects of acidic deposition and climate change on surface water dissolved organic carbon concentrations in a boreal catchment. *Hydrology Research* 40, 291-305.

*Institute first author:* Macaulay

*Institutes co-authors:* SYKE, others

Futter, M.N., Helliwell, R.C., Hutchins, M., Aherne, J., 2009. Modelling the effects of changing climate and nitrogen deposition on nitrate dynamics in a Scottish mountain catchment. *Hydrology Research* 40, 153-166.

*Institute first author:* Macaulay

*Institutes co-authors:* CEH, others

Gaube, V., Kaiser, C., Wildenberg, M., Adensam, H., Fleissner, P., Kobler, J., Lutz, J., Schaumberger, A., Schaumberger, J., Smetschka, B., Wolf, A., Richter, A., Haberl, H., 2009. Combining agent-based and stock-flow modelling approaches in a participative analysis of the integrated land system in Reichraming, Austria. *Landscape Ecology* 24, 1149-1165.

*Institute first author:* IFF

*Institutes co-authors:* UMB

Gebremedhin, B., Ficetola, G.F., Naderi, S., Rezaei, H.R., Maudet, C., Rioux, D., Luikart, G., Flagstad, O., Thuiller, W., Taberlet, P., 2009. Frontiers in identifying conservation units: from neutral markers to adaptive genetic variation. *Animal Conservation* 12, 107-109.

*Institute first author:* Other

*Institutes co-authors:* CNRS, NINA, others

Gerard, F., Petit, S., Smith, G., Thomson, A., Brown, N., Manchester, S., Wadsworth, R., Bugar, G., Halada, L., Bezak, P., Boltiziar, M., De Badts, E., Halabuk, A., Mojses, M., Petrovic, F., Gregor, M., Hazeu, G., Mucher, C.A., Wachowicz, M., Huitu, H., Tuominen, S., Kohler, R., Olschofsky, K., Ziese, H., Kolar, J., Sustera, J., Luque, S., Pino, J., Pons, X., Roda, F., Roscher, M., Feranec, J., 2010. Land cover change in Europe between 1950 and 2000 determined employing aerial photography. *Progress in Physical Geography* 34, 183-205.

*Institute first author:* CEH

*Institutes co-authors:* ILE-SAS, Alterra, others

Groot, J.C.J., Rossing, W.A.H., Tichit, M., Turpin, N., Jellema, A., Baudry, J., Verburg, P.H., Doyen, L., van de Ven, G.W.J., 2009. On the contribution of modelling to multifunctional agriculture: Learning from comparisons. *Journal of Environmental Management* 90, S147-S160.

*Institute first author:* Other

*Institutes co-authors:* Cemagref, Alterra, others

Grosbois, V., Harris, M.P., Anker-Nilssen, T., McCleery, R.H., Shaw, D.N., Morgan, B.J.T., Gimenez, O., 2009. Modeling survival at multi-population scales using mark-recapture data. *Ecology* 90, 2922-2932.

*Institute first author:* Other

*Institutes co-authors:* CEH, NINA, others

Gross, N., Kunstler, G., Liancourt, P., de Bello, F., Suding, K.N., Lavorel, S., 2009. Linking individual response to biotic interactions with community structure: a trait-based framework. *Functional Ecology* 23, 1167-1178.

*Institute first author:* CNRS

*Institutes co-authors:* Cemagref, others

Gustafsson, L., Kouki, J., Sverdrup-Thygeson, A., 2010. Tree retention as a conservation measure in clear-cut forests of northern Europe: a review of ecological consequences. *Scandinavian Journal of Forest Research* 25, 295-308.

*Institute first author:* SLU

*Institutes co-authors:* NINA, others

Haberl, H., Gaube, V., Diaz-Delgado, R., Krauze, K., Neuner, A., Peterseil, J., Plutzer, C., Singh, S.J., Vadi-  
neanu, A., 2009. Towards an integrated model of socioeconomic biodiversity drivers, pressures and  
impacts. A feasibility study based on three European long-term socio-ecological research platforms.  
*Ecological Economics* 68, 1797-1812.

*Institute first author:* IFF

*Institutes co-authors:* CSIC, PAS-ICE, Unibuc, others

Hammen, V.C., Biesmeijer, J.C., Bommarco, R., Budrys, E., Christensen, T.R., Fronzek, S., Grabaum, R.,  
Jaksic, P., Klotz, S., Kramarz, P., Kroel-Dulay, G., Kuhn, I., Mirtl, M., Moora, M., Petanidou, T., Pino, J.,  
Potts, S.G., Rortais, A., Schulze, C.H., Steffan-Dewenter, I., Stout, J., Szentgyorgyi, H., Vighi, M., Vujic,  
A., Westphal, C., Wolf, T., Zavala, G., Zobel, M., Settele, J., Kunin, W.E., 2010. Establishment of a cross-  
European field site network in the ALARM project for assessing large-scale changes in biodiversity. *En-  
vironmental Monitoring and Assessment* 164, 337-348.

*Institute first author:* UFZ

*Institutes co-authors:* SLU, SYKE, IEB-HAS, CNRS, others

Harding, A.M.A., Egevang, C., Walkusz, W., et al. 2009. Estimating prey capture rates of a planktivorous  
seabird, the little auk (*Alle alle*), using diet, diving behaviour, and energy consumption. *Polar Biology*,  
32(5), 785-796.

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**ALTER-Net acknowledged (i.e. provided funding) in publications 2009, 2010, March 2011**

(Updated: 07.03.2011)

**Summary**

19 papers acknowledge ALTER-Net = with ALTER-Net funding

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## Appendix 7: ALTER-Net Policy Brief – Research Orientation

April 2011

### Research needs for the sustainable governance of ecosystem services and biodiversity

Biodiversity and ecosystems provide a broad range of goods and services and form the basis for the subsistence and well-being of humans and their societies. During 2010 there was a strong policy shift towards the joint protection of biodiversity and ecosystem services.

- In March the Council of Europe agreed a new *“headline target of halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020”* and in November, COP10 of Convention on Biological Diversity (CBD) developed a mission *“to take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020 ecosystems are resilient and continue to provide essential services...”*.
- A new Inter-governmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES) will also be established *“to do for biodiversity what the IPCC did for climate change”* by providing the scientific knowledge and assessments necessary to measure and manage progress towards the 4 strategic goals and 20 targets associated with the CBD mission.

Behind these policies lies the idea that biodiversity and ecosystem services can be jointly protected and managed in ways that contribute to sustainability, human well-being and poverty eradication. However, the knowledge needed to make this a reality is far from fully developed. As a contribution to the development of this knowledge, the ALTER-Net<sup>1</sup> community held two meetings<sup>2</sup> in late 2010 to consider key questions on the relationships between biodiversity and ecosystem services and on the governance systems required to ensure the delivery of both. This briefing note summarizes the main conclusions from these meetings and lists the main research priorities.

#### Ecosystem services and biodiversity: what is the link between the two?

- There are many examples of management options that deliver favorable outcomes for both ecosystem services and biodiversity but evidence that higher biodiversity leads inevitably to more ecosystem services is weak.
- There is no simple link between biodiversity and ecosystem services - managing one to deliver the other may lead to perverse outcomes.
- Sustainability could be achieved by understanding the trade-offs and synergies between ecosystem services in space and time.
- Until the link between biodiversity and ecosystem services is understood, targets for biodiversity and ecosystem services should be developed and assessed independently.

#### What kind of policies and practices are needed to support sustainability?

Maintaining and managing ecosystem services can be challenging: either because benefits are far removed from the local ecosystem or because some problems only become visible after a certain time-lag. In both cases collective action may be necessary to address management. Deliberative methods contribute to the development and institutionalization of participatory decision making processes on linking ecosystem ser-

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<sup>1</sup> ALTER-Net is a network of 24 partner institutes from 17 European countries. It integrates research capacities across Europe: assessing changes in biodiversity, analyzing the effect of those changes on ecosystem services and informing the public and policy makers about this at a European scale. Originally funded by the European Union's Framework VI program, ALTER-Net is now operating independently.

<sup>2</sup> Conference: Ecosystem services and biodiversity – what is the link between the two? ([www.alter-net.info](http://www.alter-net.info)) and Workshop: Governance of ecosystem services: What questions and research needs should the interdisciplinary community address? ([www.environment.fi/syke/ess](http://www.environment.fi/syke/ess))

vices and biodiversity. Policies can play an essential role in realizing the economic potential of managing natural resources in a way that values ecosystem services and biodiversity.

### The most crucial research needs for sustainable governance of ecosystem services

#### Looking into the future

- *Indicators for Ecosystem Services: can an indicator or a set of indicators be developed to measure ecosystem services in a changing socio-ecological context?*
- *Resilience of eco-social systems: how do we measure resilience: how much species and genetic diversity is required to “future proof” our policy and management options against unexpected consequences and tipping points? What kind of societal mechanisms and structures are needed for eco-social resilience?*

#### Whose services?

- *Power and Justice: does the concept of ecosystem services support justice and equality in EU policy? What kind of power structures are implicit in the concept of ecosystem services? What problems may arise when ecosystem services are adopted by existing institutions?*
- *Redesigning institutions: How to create cosmopolitical institutions capable of addressing ethical concerns and policy effects at different scales, and identifying emerging matters of concern and facilitating social learning?*
- *Boundaries and opportunities of monetizing the benefits of ecosystem services: which methods are needed to help us understand the monetary and non-monetary values or present and potential ecosystem services; their valuation against each other and the way this knowledge could be used in decision making*
- *Decisions on ecosystem services reflect their valuation by the users: Do people and policy-makers value certain species, and species richness, for their own sake or are they valued as important elements in providing ecosystem services for human needs and enjoyment?*

#### Dealing with scales

- *Whole system approaches: how do interactions between biodiversity and ecosystem services in complex multi-sectoral, political and socio-economic contexts affect trade-offs and synergies between different ecosystem services?*
- *Multi-scale approaches: how can we adapt governance systems to ensure that the costs and benefits of biodiversity and ecosystem services are fairly distributed across space and time and make sure that decisions or policies on ecosystem services are taken at appropriate institutional scales?*
- *Context specificity of an ecosystem service: can ecosystem services be assessed independently of the biodiversity from which they derive or the stakeholders who benefit from them?*

### Next steps

To develop approaches to answering these research questions ALTER-Net will now:

- disseminate information to interested parties in the EC, DG Environment, DG Research and national agencies through briefing notes and seminars;
- develop action plans for each of the 8 research and development areas;
- work with the convenors of the ALTER-Net Summer School to encourage young researchers to think about these and related questions;
- develop the use of the LTER-Europe network of long-term social –ecological research sites as research platforms to investigate these issues;
- plan for an ALTER-Net seminar in early 2012 to deliver progress for the EC and the IPBES; and
- explore the research and development requirements needed to deliver the European contribution to IPBES in the terrestrial and freshwater domains.

**Alter-Net invites partners and other stakeholders to participate to these activities by contacting Jiska van Dijk (ALTER-Net Co-ordinator [jiska.van.dijk@nina.no](mailto:jiska.van.dijk@nina.no)) or visiting the ALTER-Net Web-site at [www.alter-net.info](http://www.alter-net.info).**



# NINA Report 685

ISSN: 1504-3312

ISBN: 978-82-426-2269-3



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