



BIOTA workshop at EPBRS Meeting in  
Leipzig, Monday, 7<sup>th</sup> of May, 14.00-18.00 h  
(BIOSTRAT WP2, Task 2)



## Report

Compiled by  
Carsten Neßhöver (UFZ) and Juliette Young (CEH)

### A Background

The main aims of the BIOSTRAT project includes the support of EPBRS to further develop the EU Biodiversity Research Strategy through its recommendations and the development of the Biodiversity Research Action Plan (BRAP), adopted in its first version by EPBRS in April 2005<sup>1</sup>. This includes the evaluation of the results of finished and ongoing (EU-funded) biodiversity research projects, summarized in the BIOTA-cluster<sup>2</sup> - the main task of WP 2 of BIOSTRAT. For this task, the workshop was organised back-to-back with the Leipzig EPBRS meeting (held from the 4th to the 7th of May, 2007 at the same location<sup>3</sup>) with the following goals.

### B Goals of the workshop

EPBRS has been continuously discussing how to further develop the Biodiversity Research Action Plan (BRAP) from 2005. In order to do this, it is essential to get an overview on how EU-projects actually cover the tasks outlined in the BRAP and then develop ideas on how to prioritize topics and identify gaps within the BRAP for future work. This is done by a questionnaire and analysis and by revising the BIOTA-cluster website within WP2, Task 1 of BIOSTRAT. The results of this survey should be presented and discussed at the workshop (see C.2).

Within the EU-funded projects, the Networks of Excellence (NOEs) - ALTER-Net for Terrestrial ecosystems, MARBEF for marine ecosystems and EDIT for taxonomy, play a central role since they also have the aim to develop perspectives for the future European research in their areas. ALTER-Net, for example, as an early NOE, is at the moment developing a common research agenda for the period after ALTER-Net. The workshop should carefully discuss the link to the BRAP of such activities. In addition to this the Integrated Projects (IPs) in the area of biodiversity research also should be included

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<sup>1</sup> see: [http://www.epbrs.org/PDF/EPBRS-HU-2005-Action\\_plan\\_Release1\\_1.pdf](http://www.epbrs.org/PDF/EPBRS-HU-2005-Action_plan_Release1_1.pdf)

<sup>2</sup> see: <http://www.nbu.ac.uk/biota/default.htm>

<sup>3</sup> results see: [http://www.epbrs.org/epbrs\\_library.html](http://www.epbrs.org/epbrs_library.html)

directly into the discussion (see C.3). Originally it was planned to include leaders from other EU-projects as well, but since they tend to be rather focussed thematically, they were only included by the survey results indirectly.

Additionally, the ERA-Net BiodivERsA was invited to include their views and plans into the discussion under a funding agencies' perspective (see C.4).

The Goals of the workshop were therefore:

- Linking the BRAP with finalized and ongoing research projects
- Linking BRAP with NOE, IPs and BiodivERsA research agendas
- Develop recommendations to deliver to EPBRS for further developing the BRAP

## C Workshop presentations and discussions

### C.1 Introduction and presentation of BRAP

*Presentation by Carsten Neßhöver*

To set the frame for discussions, the history and content of the EPBRS Biodiversity Research Action Plan (BRAP) was briefly introduced, relating it to the other recommendations of EPBRS from the different meetings. The BRAP is based on a first paper by EPBRS on „research identification, monitoring and exchange of information“ prepared for the Killarney meeting in 2004<sup>4</sup>, which included a long list of potential research topics. Out of this, a broad discussion on priorities was carried out at the Killarney and Amsterdam meeting of EPBRS and in between, which led to a draft version of the BRAP for the Budapest meeting in April 2005 and its revision and adoption there.

The BRAP includes mainly research questions on the areas of status and “trends of biodiversity”, “drivers of loss”, and “what to do about it”, complemented by more concrete recommendations for the fields of the four EU biodiversity action plans, which were directly taken from the EPBRS Killarney recommendations. In an Annex, enabling outcomes are discussed shortly, including funding aspects, coordination of research, institutions and data standards. These enabling outcomes are nevertheless not directly linked to ongoing processes in the field of biodiversity research infrastructure building and to the research questions outlined in the first part.

Recommendations to the BRAP of the EPBRS meetings from 1999 onwards shows, that on the level of main topics of recommendations, they cover quite well the different aspects outlined in the BRAP (see Figure 1), although there is a tendency to concentrate on the applied aspects of “what to do about it”. On the single recommendation level (each recommendation document of EPBRS having between 10 to 25 specific recommendations), this picture gets more complex since many recommendation topics of EPBRS deal with generic issues (e.g., addressing specific ecosystems) and thus single recommendations tackle aspects of all three BRAP areas. Some recommendations after the BRAP even take up the structure of the

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<sup>4</sup> see [http://www.epbrs.org/PDF/EPBRS-IR2004-Review%20\\_Final\\_.pdf](http://www.epbrs.org/PDF/EPBRS-IR2004-Review%20_Final_.pdf)

three areas to sort their recommendations (e.g., European biodiversity research and the global perspective, Leipzig 2007<sup>5</sup>). It was said that a scheme connecting all single recommendations with the BRAP would be worthwhile.

Two years after the adoption of the first BRAP, there is now a long list of finished and ongoing projects dealing with the subjects of the BRAP (see below), as well as the developing networks of excellence with developing research agendas. Additionally, the development of research infrastructure to tackle the questions (e.g., Lifewatch proposal, LT(S)ER site network) have started to emerge, so that the linkage between an action plan and such development may have to be strengthened, so there are new needs when revising the BRAP:

- Better link to ongoing /finished research ("evaluation") >> BIOTA
- Prioritization of topics still remains a problem
- Currently no direct link to infrastructure plans and recommendations
- Relation of BRAP to other institutions, e.g. NOEs and their follow ups

## ***C.2 Overview of completed BIOTA-projects and how they fit into the BRAP***

*Presentation and report chapter by Juliette Young, CEH.*

### **1. Introduction to the BIOTA Cluster**

The BIOTA project, started in 2003, aims to group all projects, co-funded by the EC under the FP6 and FP5 Programmes, that aim to:

- Assess and predict the impact of major drivers of biodiversity
- Are developing tools, such as biodiversity indicators, to promote the conservation and sustainable use of biodiversity
- Seek to identify and resolve conflicts between society, economy and biodiversity
- Support the conservation of biodiversity by creating databases on the taxonomy, biology and ecology of Europe's plants and animals
- Strengthen scientific and technological excellence on biodiversity research through the durable integration of research capacities across Europe

Currently, the project website (<http://www.edinburgh.ceh.ac.uk/biota/>) includes information on 19 ongoing projects and 38 completed projects.

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<sup>5</sup> see <http://www.epbrs.org/PDF/EPBRS-DE2007-Global%20perspective%20final.pdf>

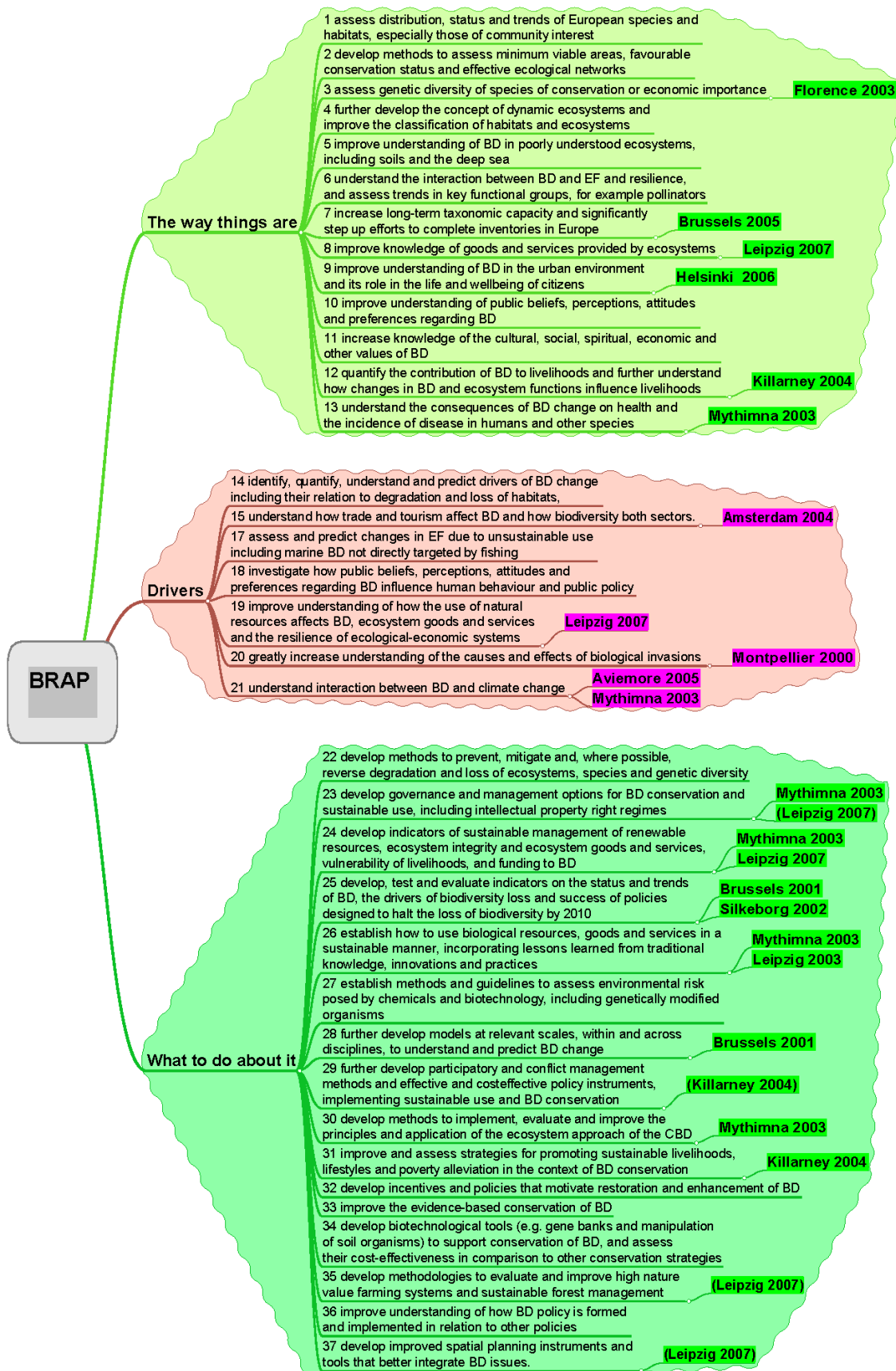


Figure 1. Mindmap of all research recommendations of BRAP and how they relate to recommendations of EPBRS in general.

## 2. Methods

All BIOTA project coordinators were contacted in December 2006 and asked to map their primary and secondary project aims and outcomes (or projected outcomes for ongoing projects) against the 36 research priorities in the BRAP document.

Fourteen out of the 57 coordinators contacted (approximately 25%) took part in the exercise. Information on the aims and objectives of all other projects were gathered by myself through project information on individual project websites and mapped against the BRAP. The mapping in this case was therefore subjective, based on my personal interpretation of the projects and their aims.

The information collected from coordinators, and from my personal assessment was then collated in an Excel worksheet (see Annex 2).

## 3. Results and conclusions

Figure 2 shows the overall results of the mapping exercise for the completed projects. The two different shades of blue on the figure relate to whether the priority was a primary aim of the project or a secondary priority. The priorities are arranged on the x-axis according to the number of projects where the priority is considered to be a primary aim. This arrangement gives us a better overall picture of those priorities that are well addressed (i.e. those that are addressed by a high number of projects, outlined by a green circle on figure 1) and those that are less well addressed (outlined by a red circle on figure 1).

BRAP priorities that were found to be well addressed by BIOTA Cluster projects included<sup>6</sup>:

- The assessment of distribution and status of species and habitats (1), including genetic diversity (3), taxonomic and inventory work (7), and the development of indicators (24).
- The assessment of trends of species and habitats (1), including the drivers of biodiversity change (14, 18), models to understand and predict change (27), and the indicators of trends and drivers of change (24), and
- The development of methods to mitigate biodiversity loss (21), including governance and management options (22), methods to assess minimum viable areas, conservation status and ecological networks (2) and improve evidence-based conservation of biodiversity (32).

Priorities that were found to be poorly addressed by completed projects in the BIOTA Cluster included:

- Threats and risks: climate change (20), unsustainable use (16), chemicals and biotechnology (26), risks to humans (13)
- Developing tools: spatial planning instruments (36), biotechnological tools (33)
- Sustainability: indicators (23), promoting sustainable livelihoods and lifestyles (30), sustainable land use (34)
- Understanding biodiversity policy and links with other policies (35) and,
- Understanding of biodiversity in the urban environment (9)

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<sup>6</sup> The numbers in brackets relate to the corresponding BRAP priority

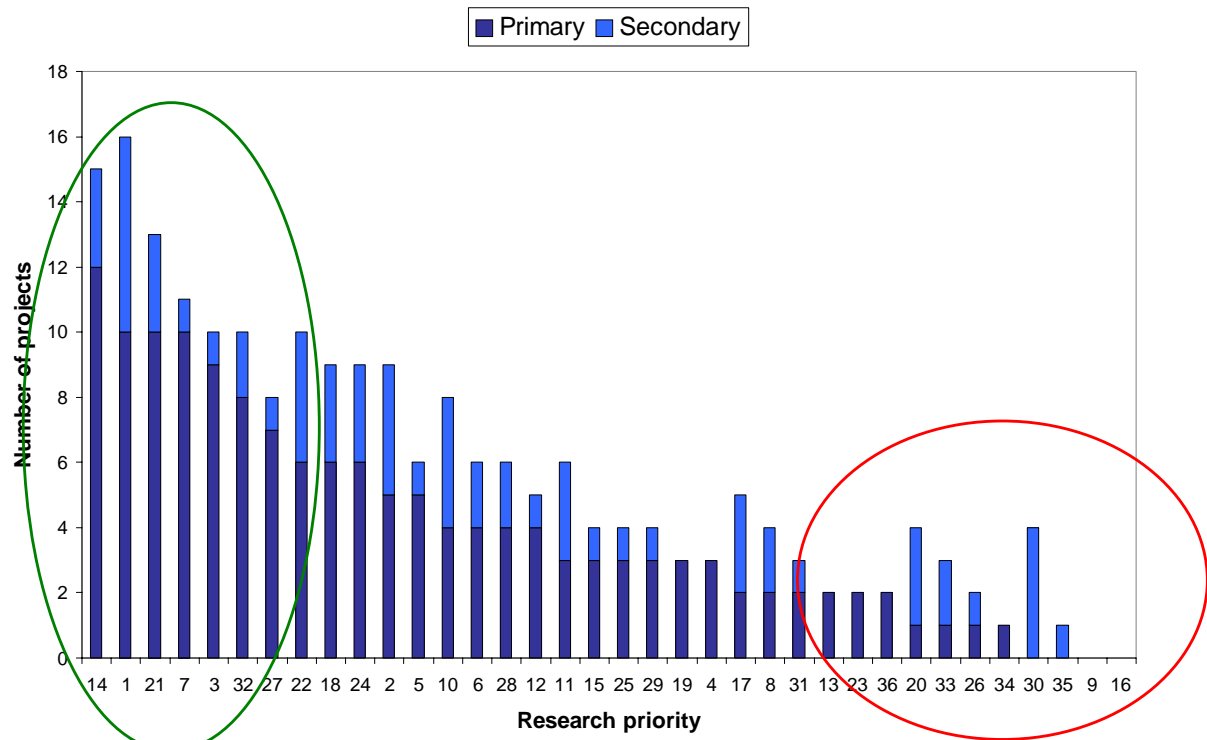


Figure 2. Mapping BIOTA project aims and outcomes against the BRAP: Overall picture for completed projects (dark blue - primary aims in projects, light blue - secondary aims in projects)

Comparing now between completed and ongoing projects (figure 3), it becomes apparent that some ongoing projects address priorities poorly addressed by the completed projects. For example, research relating to understanding public attitudes towards biodiversity (10), the effects of trade and tourism on biodiversity and how biodiversity is used in both sectors (15), and the consequences of biodiversity change on health and the incidence of disease in humans and other species (13) that were poorly addressed by completed projects are better addressed by ongoing projects. Despite some priorities being now better addressed by ongoing projects, a number of priorities remain poorly covered overall by BIOTA projects, including:

- Understanding of biodiversity in the urban environment and its role in the life and well being of citizens (9)
- Assessment and prediction of changes in ecosystem functioning due to unsustainable use (16)
- Interaction between biodiversity and climate change (20)
- Assessment of environmental risk posed by chemicals and biotechnology (26)
- Development of strategies for promoting sustainable livelihoods, lifestyles and poverty alleviation (30)
- Development of biotechnological tools to support conservation and assess their cost-effectiveness (33)
- Development of spatial planning instruments and tools that better integrate biodiversity issues (36)

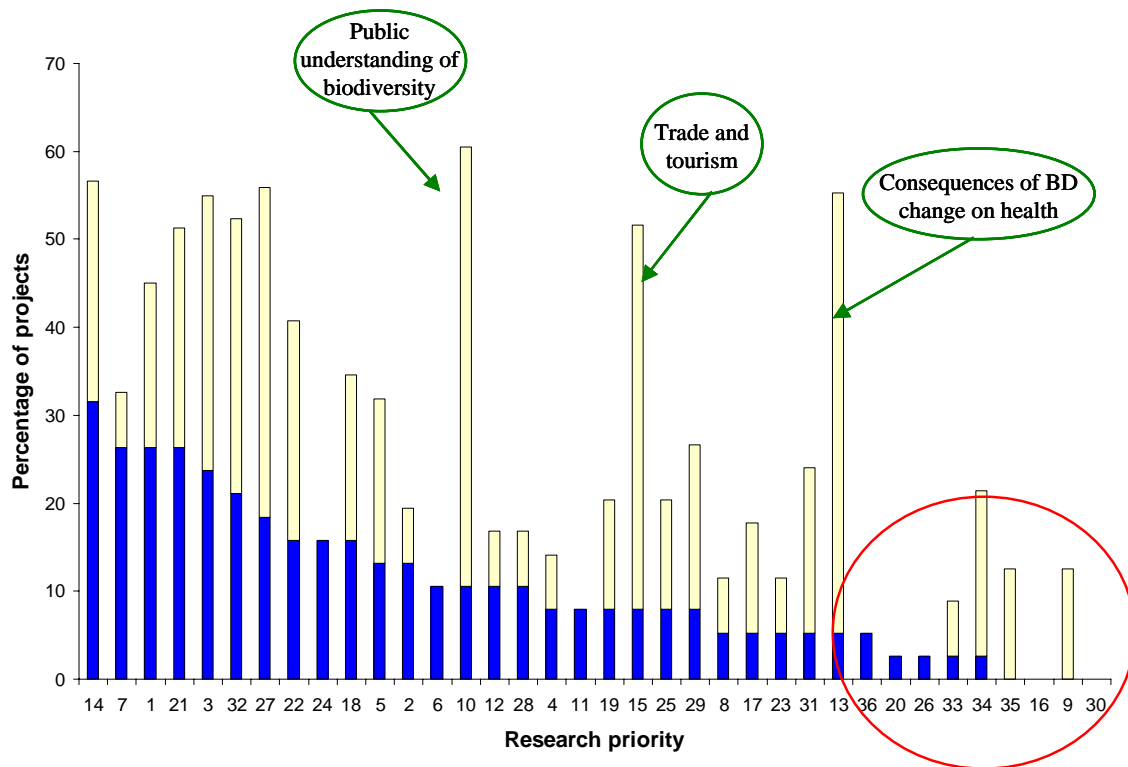


Figure 3. Mapping BIOTA project primary (?) aims and outcomes against the BRAP: Comparing results from completed and ongoing projects. (blue - completed; yellow - ongoing projects)

### C.3 Presentation and statements of NOEs and IPs

#### ALTER-Net (Presentation by Allan Watt)

Allan Watt gave a broad presentation on the status on ALTER-Net<sup>7</sup> perspectives for future research priorities and their relationship to the Biodiversity Research Action Plan. ALTER-Nets aim is to create from existing centres a distributed, multi-disciplinary institute whose aim is to improve our understanding of biodiversity and to help to assess and develop relevant EU policy. It is running now for 3 years (one of the very first NOEs) and is now already preparing for the finalisation (in two years) and the integration issues afterwards, including the setting up of a common research agenda by the involved institutes.

For this, a review in the institutes was carried out asking for their recent and future research priorities based on the BRAP and on the Hanasaari EPBRS recommendations from November 2006. Not surprisingly, the topics poorly covered by the institutions where (for status and trends) taxonomy and health issues, (for drivers) trade and tourism, (for what to do about it) biotechnology and sustainable livelihoods - so to some extent paralleling the results from the BIOTA survey.

Relating EPBRS priorities to the research areas in ALTER-Net (Table 1) it is shown that the research areas cover the field in general more broadly, while the number

<sup>7</sup> see <http://www.alter-net.info>

of EPBRS priorities in these field vary strongly (between 2 and 13), with a special emphasis on conservation aspects. The priorities of institutes vary strongly as well.

Table 1. Action Plan priorities (No) by ALTER-Net research area

Research area	EPBRS priorities	Priority importance
Socio-economic drivers of biodiversity	2	44% (35-53)
Biodiversity assessment and change	8	58% (18-76)
Impacts of the main drivers of biodiversity	5	67% (47-82)
Biodiversity conservation options	13	52% (17-82)
Public attitudes to biodiversity	3	63% (53-71)
Forecasting change in biodiversity	3	76% (53-88)

Based on the partner views on the BRAP and the Hanasaari Declaration, ALTER-Net is now drafting a research strategy structured around the EC communication on Biodiversity (COM 2006/216final) and the three overarching ALTER-Net research goals. The draft structure follows the BRAP, adding an additional category on ecosystem services:

1. The way things are:
  - ↳ To assess the status, trends and distribution of Europe's biodiversity and public attitudes to biodiversity.
2. Why it matters:
  - ↳ To understand and assess the role of biodiversity in supplying ecosystem goods and services.
3. How it got like this:
  - ↳ To quantify the impact of the most significant drivers and pressures on biodiversity.
4. What to do about it:
  - ↳ To develop practical options for the conservation and sustainable use of biodiversity and develop and apply tools to measure, anticipate and improve the effectiveness of relevant policy instruments.

Thus the EPBRS BRAP and recommendations are one main basis for the ALTER-Net research agenda, including additionally other flows of information in ALTER-Net, from policy and stakeholders, and from additional links to other bodies and institutions (Figure 4).

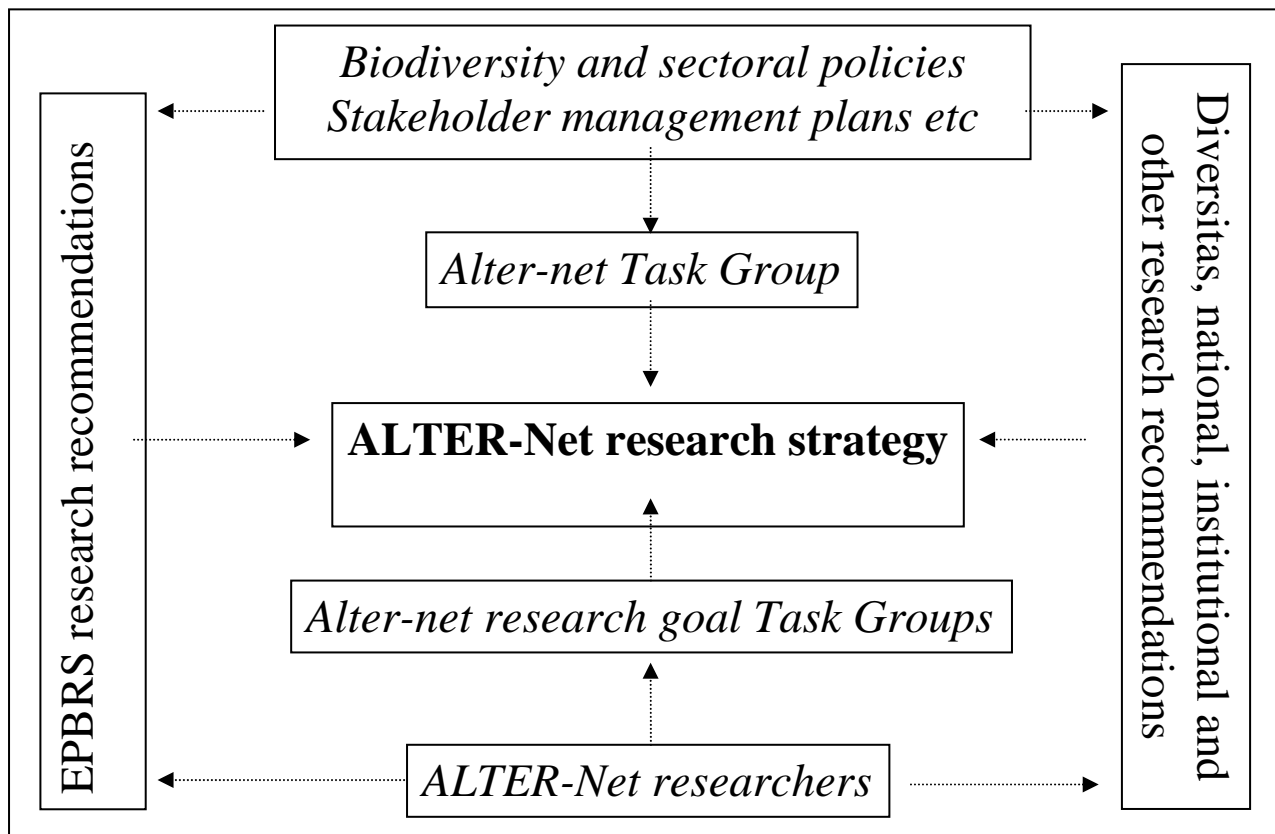


Figure 4: Framework for the development of the ALTER-Net research strategy

#### EDIT (presented by Christoph Häuser)

Christoph Häuser shortly introduced EDIT<sup>8</sup>, the NOE on taxonomy of biodiversity, which started its work in 2006 and brings together in its institutions about 30% of taxonomic collections in the world (counted in specimen) and about 10-15% of world's taxonomic personnel. Since it is just running for one year, EDIT has not yet developed comparable ideas like ALTER-Net regarding research agenda, but Christoph Häuser outlined, that the main goals of EDIT are focused on the Status and trends area, especially on assessing distributions of species (1) and genetic diversity (3), improve the understanding of biodiversity in poorly know systems (5) and increase the long-term taxonomic capacity and inventories (7, one topic not properly included in the BIOTA projects in general, see above). Additionally, EDIT tackles topics in the "what to do"-area: developing indicators (23), establish sustainable use options (25) and developing biotechnological tools (33, again on rarely tackled in BIOTA projects).

Furthermore, EDIT also aims at improving institutional arrangements, common data standards and works towards integration of institutions, e.g. by including a board of directors from the institutions into its development. Christoph Häuser stressed that it would be important to further develop the link of EPBRS towards the taxonomic community in general and especially EDIT.

<sup>8</sup> see <http://www.e-taxonomy.eu>

**MARBEF** (*presented by Isabel Sousa Pinto*)

MARBEF (Marine Biodiversity and Ecosystem Functioning)<sup>9</sup> is the NOE of marine biodiversity, running since 2004. Besides different strategic core programmes, it also works with “responsive mode” projects based on bottom up proposals. Generally the main topics are structured along broad lines and the discussion on a common research plan is just starting within the NOE.

With regard to the BRAP, marine issues are only covered partly in it, but in more generic priorities, MARBEF tackles the marine aspects of them

**ALARM** (*presented by Josef Settele*)

ALARM (Assessing Large-scale environmental Risks for biodiversity with tested Methods)<sup>10</sup> is the largest Integrated Project in the field of biodiversity research with currently more than 65 partners, not only in Europe but across the globe. Due to its focus, it mainly tackles aspects of the drivers of loss.

In its integration scheme, it tries to bring together working groups from different risk areas of biodiversity (climate change, pollinator loss, chemicals and land use change) into a common framework. From his experience, Josef Settele stressed that in such complex frameworks, it is hardly possible to predict how integration goes but that good experience is needed to identify topics that can be integrated and combined. Since the project is in its final phase, no direct research gaps have been identified yet, but Josef Settele stressed that theoretical knowledge gaps become apparent when linking the different fields in the framework.

**HERMES** (*short notice from Sybille van der Hove*)

HERMES (Hotspot European Research on the Margins of the European Seas)<sup>11</sup> is an Integrated Project on deep sea ecosystems and Sybille van den Hove noted, that research priorities from the project are upcoming in the next months.

**C.4 Outlook from BiodivERsA**

Isabel Sousa Pinto shortly introduced the current status of the work of BiodivERsA<sup>12</sup>, the ERA-Net on biodiversity research. Concerning a potential input of EPBRS and its recommendations (and the BRAP) into its processes, she noted that currently a common call is under development, but due to the different types of funding agencies involved in BiodivERsA, the rules of participation are still under development- as are the potential topics of the call.

The originally planned call on the global perspective of biodiversity research, where EPBRS was supposed to contribute by its Leipzig recommendations, has been delayed for similar reasons.

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<sup>9</sup> see <http://www.marbef.org/>

<sup>10</sup> see <http://www.alarmproject.net>

<sup>11</sup> see <http://www.eu-hermes.net/>

<sup>12</sup> see <http://www.eurobiodiversa.net/>

## **C.5 Discussion**

Several aspects of the further development of the BRAP, tightly linked with discussions on how to improve the EPBRS-process in general, were taken up by the participants in three discussion rounds: one after the BIOTA results presentation, a second after the ALTER-Net presentation, and a third as general discussion in the end. Since many topics were interrelated, the discussions have been sorted here to some main points and are thus not in chronological order.

### **C.5.1 Analysis & incorporation of research carried out (BIOTA-link)**

The results of the survey were generally seen as very interesting and positive. Nevertheless, Allan Watt and several others pointed out, that the scope was limited and that a general process to evaluate ongoing and finished research projects with respects to their results and their potential influence on research priorities. For example, Jurgen tack proposed to approach finished projects to ask them what new research (or priorities) had resulted from their EU work.

It was also stated, that there is hardly an ideal way between research and its evaluation and the setting of research priorities. Eric Framstad stated that such approaches will always have to be to some extent iterative.

### **C.5.2 Thematic gaps in the BRAP**

**Taxonomy:** Following the introduction of EDIT by Christoph Häuser and his statement that the taxonomic community needed to be more involved, several people confirmed that there is a gap in the BRAP (and the EPBRS process, see below) at including taxonomic aspects properly, although they are normally included in recommendations, but on a very general level (see e.g. BRAP points 1, 3, 7). As first step, EPBRS and its work (including the e-conferences) will be made more known in the taxonomic community via EDIT.

Petr Petrik proposed as one option, that taxonomy could become the main topic of the forthcoming Czech EPBRS-meeting in 2009.

**Marine issues:** Isabel Sousa Pinto stated that marine issues might not be well included in the BIOTA analysis, since older projects may be missing, although the newer ones are included. Generally, marine issues are involved in the BRAP (e.g., also in the special section on the BAPs) but need be stressed more. The next EPBRS-meeting might be a major step for this.

**Missing issues in general:** Following the BIOTA-analysis the topic was raised, whether some issues, due to the EPBRS process and the persons involved, might generally fall out of focus when developing the BRAP. Martin Sharman raised the question, if a mechanism could be installed that ensures that certain important issues (the examples of freshwater systems and soil biodiversity were mentioned)

are not in danger of getting less attention. Some participants pointed out that this risk is always there and that there are hardly approaches to avoid this.

Jurgen Tack stated that EPBRS should also rely to some extent on other bodies or groups that might take these up as well. Also, as Stefan Klotz mentioned, there will be always biases by the people involved and due to the fact that science is to some extent erratic. To improve it, more accurate (meta-)analyses and reviews are needed. Klaus Henle and Allan Watt pointed out that the National Reviews carried out in BIOSTRAT might be an important help in this respect (see below). Nevertheless, EPBRS should try to collect deleted issues to come back to them (see below). Anne-Hélène Prieur-Richard pointed out, that there should be a point of reflection in each meeting.

Stefan Klotz also raised the question, that for many general issues, continuity is needed - in prioritization as well as funding. Such issues should include scenario development and basic ideas on future issues of land use change.

### **C.5.3 National perspectives**

In addition to the gap analysis in the BIOTA-cluster and the discussion above, it should also be kept in mind that the analysis ignores national funding programmes which may be complementary to the ones on EU level and very different between countries. The data base on national programmes by BiodivERsA might help in this. [Additionally a lot of work on the international level might be complementary as well.] For the fields of the national reviews, these might fill this knowledge gaps since they summarize national research priorities. Allan Watt stated that this might show, that some gaps are filled nationally, but nevertheless European approaches and projects might be needed.

### **C.5.4 EPBRS process in general**

From the discussion on the BRAP topics and the thematic gaps, the point was also raised, how the comprehensiveness of the EPBRS process could be ensured. One point, raised by Christoph Häuser, Anne-Hélène Prieur-Richard and others was to think about how to include a better external review mechanism, e.g. by sending the draft recommendations after an e-conference to specific experts (e.g., from DIVERSITAS or the NOEs). Additionally, existing consensus documents (DIVERSITAS documents, Research priorities from Millennium Ecosystem Assessment and others) could be used as references. Petr Petrik stressed that also a stronger link to the Society of Conservation Biology (SCB) could be developed. Allan Watt added that draft recommendations should also be sent out to the national platforms beforehand and stressed in this context that it should be continued to invite EU-projects to the EPBRS meetings.

Josef Settele acknowledged the positive development of EPBRS but he also supposed to broaden the scope and think about an involvement also of more general oriented agencies and bodies for environmental policies ("blue sky agencies"). Christoph Häuser mentioned in this context that also national funding bodies could be better involved, although that there might be the problem that

they define themselves as national and are less interested in European projects. Here, Jurgen Tack outlined that BiodivERsA might play a good role in better communicating the EPBRS process to national funding bodies and that EPBRS might help as a think tank to better connect national and European perspectives. Martin Sharman added to some of these points by arguing that the representation of national funding bodies in EPBRS is quite well and blue sky agencies might be of less importance. But it might become more and more important for EPBRS to find time (within meeting or otherwise) to include "emerging issues" in its work. This would also counteract the tendency of over-generalization when developing the recommendations - a fact apparent in the EPBRS process at the meeting most times (see above).

Allan Watt added on the general issue of science-policy interfaces in biodiversity research that since larger projects, EPBRS, and other bodies have such interfaces now, a need for more coordinated efforts in this area might be appropriate and to make sure that networks of projects are also important.

## **D Recommendations for the further development of the BRAP**

In conclusion, the workshop showed that there are still major issues to be tackled in the EPBRS process, with the BRAP as one main point of discussion and focus. Nevertheless some main points can be concluded for BIOSTRAT and EPBRS:

### **1. Evaluation of existing work**

The evaluation of BIOTA projects is an important step to evaluate and prioritize the BRAP research recommendations. This tool could be used to *further strengthen the link between work in progress, planned projects and future research priorities.*

### **2. Including the national level**

The *national reports of BIOSTRAT might play an important role* in adding insights from ongoing research to the European level within the BIOTA cluster. The national reviews should thus be strengthened and analysed according to the BRAP and help to identify complementing research compared to the European level.

### **3. Including different communities and areas currently underrepresented**

Due to the generic structure of the BRAP and its history of development, *some areas (e.g., taxonomic aspects, marine issues, freshwater aspects) are currently underrepresented* in the BRAP. This could be best tackled by further including the according communities, e.g. by further involving the communities of MARBEF and EDIT in the processes, and by focussing future EPBRS meetings on these topics (e.g.: Portugal: Marine issues - already planned, Czech Republic: Taxonomy).

### **4. Better developing the links towards the larger projects**

Directly linked to the preceding point, the EPBRS BRAP should help - in a dialogue process - the NOEs and BiodivERsA in developing their research

agendas. ALTER-Net- with the most direct links to the topics of the BRAP is already trying to do this.

#### 5. Ensuring feedback mechanisms in EPBRS processes

Feedback processes are needed in two respects in EPBRS processes:

- a) it was proposed that at the stage of draft recommendations, *additional experts and the national platforms should be involved* to comment and bring in additional expertise.
- b) *Feedback on "drop-off topics"* (before and during meetings): Topics that fall out of consideration in the recommendations (mostly more specific topics with few experts in the EPBRS) due to the tendency of generalisation in the EPBRS-process, should be collected during the process and brought in for reconsideration within the process at a meeting.

#### 6. Future structure of the BRAP

Although the structure of a BRAP, version 2 was not explicitly discussed some conclusions can be drawn from the points above:

- *Taxonomic and marine issues should be more explicitly included*- this could be done on future EPBRS meetings by identifying major relevant topics in these areas
- *Revise specific recommendations on BAPs with new reference to COM 2006/216final* [This point was not discussed in depth, but was a general aim for the Leipzig and following EPBRS meetings]
- Develop mechanism in EPBRS to react on *emerging issues*
- Following the first set of national reviews, try to *identify topics with primary European vs. national relevance and "responsibility"* (in cooperation with BiodivERSa)

#### Topics not tackled

The meeting focused on how to improve the thematic part of the BRAP and did not include explicitly the "enabling outcomes", besides the short discussion on the general need to better coordinate also science-policy activities.

## Annex 1 Participants to the workshop

1. Balian, Estelle (INBO, Belgium)
2. Budrys, Eduardas (Biostrat, Lithuania)
3. Framstad, Erik (Biostrat, Norway)
4. Gasso, Viktor (Biostrat, Ukraine)
5. Häuser, Christoph (EDIT, Germany)
6. Henle, Klaus (Biostrat, Germany)
7. Korn, Horst (EPBRS, Germany) (arrived late)
8. Klotz, Stefan (ALARM, Germany)
9. Neßhöver, Carsten (Biostrat, Germany)
10. Oszlanyi, Julius (Biostrat, Slovakia)
11. Papastavrou, Marilena (Biostrat, Cyprus)
12. Petrik, Petr (Biostrat, Czech Republic)
13. Prieur-Richard, Anne-Hélène (DIVERSITAS)
14. Settele, Josef (ALARM, Germany)
15. Sharman, Martin (EC)
16. Sousa Pinto, Isabel (Marbef & BiodivERsA, Biostrat, Portugal)
17. Tack, Jurgen (Biostrat, Belgium)
18. Torda, Gergely (Biostrat, Hungary)
19. Török, Katalin (Biostrat, Hungary)
20. van den Hove, Sybille (EPBRS, Spain)
21. Vershinin, Vladimir (Biostrat, Russia)
22. Watt, Allen (Biostrat, Great Britain)
23. Young, Juliette (Biostrat, Great Britain)
24. Zaunberger, Karin (EC)

# Annex 2: Worksheet overview of Mapping BIOTA projects against the BRAP (see, C.2, Juliette Young)

Research Priority The way things are: status and trends of biodiversity and ecosystems and why they matter	Completed projects primary aim	Completed projects secondary aim	Ongoing projects primary	Ongoing projects secondary
1 assess distribution, status and trends of European species and habitats, especially those of Community interest	LACOPE, PGR Forum, CRAYNET, FRAP, Giant Alien, MacMan, BioAssess, coast bird diversity, IntraBioDiv, Pascalis	BoHAB, ENBI, Fauna Europaea, Euro+Med Plantbase, Metabird, MIDI-CHIP	HERMES, Marine Genomics Europe, SESAME, Euro-L Impacts, Alter-Net	BioScore, DAISIE, Ecoexchange
2 develop methods to assess minimum viable areas, favourable conservation status and effective ecological networks	PGR Forum, CRAYNET, MacMan, Meta bird, Tinks	LACOPE, FRAP, Plant Dispersal, TRANSPLANT	BioScore, Alter-Net	Ecoexchange
3 assess genetic diversity of species of conservation or economic importance	BABE, PGR Forum, CRAYNET, MacMan, RECIPE, CASCADE, Fraixgen, IntraBioDiv, MIDI-CHIP	Fossilva	EVOLTREE, Marine Genomics Europe	HERMES
4 further develop the concept of dynamic ecosystems and improve the classification of habitats and ecosystems	MacMan, RECIPE, BioHab		RUBICODE, EVOLTREE, HERMES, Euro-L Impacts, Alter-Net	SESAME
5 improve understanding of biodiversity in poorly understood ecosystems, including soils and the deep sea	MacMan, RECIPE, BIOMAN, CONSIDER, Pascalis	BioAssess	EUR-OCEANS, HERMES, Marine Genomics Europe, SESAME, Euro-L Impacts	DAISIE, MODELKEY,
6 understand the interaction between biological diversity and ecosystem function and resilience, and assess trends in key functional groups, for example pollinators	MacMan, RECIPE, MIDI-CHIP, Tinks	BIOSTRESS, CONSIDER	ALARM, EUR-OCEANS, HERMES, SESAME, Euro-L Impacts	Marine Genomics Europe, RUBICODE
7 increase long-term taxonomic capacity and significantly step up efforts to complete inventories in Europe	CRAYNET, BioCASE, ENBI, EuroCat, Fauna Europaea, Euro+Med Plantbase, LEDA Traitbase, IntraBioDiv, MIDI-CHIP, Pascalis	PGR Forum	DAISIE, EDIT, EUMon, HERMES, Marine Genomics Europe, Euro-L Impacts	
8 improve knowledge of goods and services provided by ecosystems	LACOPE, RECIPE	PGR Forum, CONSIDER	RUBICODE, SESAME, Euro-L Impacts, Alter-Net	Ecoexchange, HERMES
9 improve understanding of biodiversity in the urban environment and its role in the life and well being of citizens				ALTER-Net
10 improve understanding of public beliefs, perceptions, attitudes and preferences regarding biodiversity	BioScene, CASCADE, IMEW, REGHAB	LACOPE, FRAP, Glochamora, Tinks	ALTER-Net, Euro-L Impacts, RUBICODE	
11 increase knowledge of the cultural, social, spiritual, economic and other values of biodiversity	LACOPE, PGR Forum, CRAYNET	PGR Forum, FRAP, REGHAB	RUBICODE, SESAME, Euro-L Impacts	BioScore
12 quantify the contribution of biodiversity to livelihoods and further understand how changes in biodiversity and ecosystem functions influence livelihoods	LACOPE, PGR Forum, RECIPE, IMEW	REGHAB	SESAME	
13 understand the consequences of biodiversity change on health and the incidence of disease in humans and other species	PGR Forum, MIDI-CHIP			DAISIE
<b>How it got like this: the drivers of biodiversity loss</b>				
14 identify, quantify, understand and predict drivers of biodiversity change including their relation to degradation and loss of habitats	Bioforum, BASE, LACOPE, BIOSTRESS, CRAYNET, Giant Alien, BioAssess, BIOECON, coast Bird Diversity, CONSIDER, Plant Dispersal, TRANSPLANT	Metabird, Pascalis, REGHAB	ALARM, BioScore, DAISIE, Ecoexchange, HERMES, MODELKEY, SESAME, RUBICODE, Alter-Net	EUR-OCEANS
15 understand how trade and tourism affect biodiversity and how biodiversity is used in both sectors	LACOPE, RECIPE, IMEW	Bioforum	BioScore	DAISIE
16 assess and predict changes in ecosystem functioning due to unsustainable use including marine biodiversity not directly targeted by fishing			EUR-OCEANS	HERMES
17 investigate how public beliefs, perceptions, attitudes and preferences regarding biodiversity influence human behaviour and public policy	IMEW, REGHAB	LACOPE, Tinks, SoBio	ALTER-Net	
18 improve understanding of how the use of natural resources affects biodiversity, ecosystem goods and services and the resilience of ecological-economic systems	CRAYNET, FRAP, RECIPE, BioAssess, Pascalis, REGHAB	LACOPE, Plant Dispersal, TRANSPLANT		Alter-Net
19 greatly increase understanding of the causes and effects of biological invasions	CRAYNET, FRAP, Giant Alien		ALARM, DAISIE	RUBICODE

Research Priority	Completed projects primary aim	Completed projects secondary aim	Ongoing projects primary	Ongoing projects secondary
20	understand interaction between biodiversity and climate change	Fossilva	CONSIDER, Glochamoro, Fraxigen	BioScore, ALARM, Ecochange, EUR-OCEANS, SESAME, Euro-Limpacs, RUBICODE, Alter-Net
What to do about it: governance, policy and tools to address biodiversity loss and its impacts				
21	develop methods to prevent, mitigate and, where possible, reverse degradation and loss of ecosystems, species and genetic diversity	BABE, LACOPE, PGR Forum, Giant Alien, MacMan, RECIPE, CASCADE, Tinks, REGHAB, TRANSPLANT	Bioforum, Fraxigen, Melbird	MODELKEY, Euro-Limpacs
22	develop governance and management options for biodiversity conservation and sustainable use, including intellectual property, right regimes	LACOPE, Giant Alien, MacMan, BIOECON, REGHAB, TRANSPLANT	Bioforum, PGR Forum, BioAssess, Metabird	GEM-CON-BIO, Euro-Limpacs, RUBICODE, Alter-Net
23	develop indicators of sustainable management of renewable resources, ecosystem integrity and ecosystem goods and services, vulnerability of livelihoods, and funding to biodiversity	LACOPE, FRAP		RUBICODE
24	develop, test and evaluate indicators on the status and trends of biodiversity, the drivers of biodiversity change and the success of policies designed to halt the loss of biodiversity by 2010 and beyond	PGR Forum, BIOTRESS, MacMan, BioAssess, Glochamoro, IntraBioDiv	LACOPE, Pascalls, TRANSPLANT	Euro-Limpacs, RUBICODE
25	establish how to use biological resources, goods and services in a sustainable manner, incorporating lessons learned from traditional knowledge, innovations and practices	RECIPE, IMEW, REGHAB	PGR Forum	RUBICODE
26	establish methods and guidelines to assess environmental risk posed by chemicals and biotechnology, including genetically modified organisms	FRAP	PGR Forum	ALARM, BioScore, MODELKEY
27	further develop models at relevant scales, within and across disciplines, to understand and predict biodiversity change	LACOPE, BIOTRESS, MacMan, BioScene, coast Bird Diversity, Glochamoro, Metabird	PGR Forum	BioScore, Ecochange, EUR-OCEANS, EVOLTREE, HERMES, MODELKEY, SESAME, Euro-Limpacs, Alter-Net
28	further develop participatory and conflict management methods and effective and cost-effective policy instruments, implementing sustainable use and biodiversity conservation	Bioforum, PGR Forum, MacMan, REGHAB	IMEW, SoBio	Alter-Net
29	develop methods to implement, evaluate and improve the principles and application of the ecosystem approach of the CBD	Bioforum, PGR Forum, FRAP	LACOPE	Alter-Net
30	improve and assess strategies for promoting sustainable livelihoods, lifestyles and poverty alleviation in the context of biodiversity conservation		LACOPE, PGR Forum, IMEW, REGHAB	
31	develop incentives and policies that motivate restoration and enhancement of biodiversity	LACOPE, BIOECON	Tinks	ALARM
32	improve the evidence-based conservation of biodiversity (conservation based on scientifically proven cause-and-effect relationships)	LACOPE, BIOTRESS, CRAYNET, RECIPE, Glochamoro, Metabird, Pascalls, Tinks	BioAssess, Plant Dispersal	HERMES, MODELKEY, RUBICODE
33	develop biotechnological tools (e.g. gene banks and manipulation of soil organisms) to support conservation of biodiversity, and assess their cost-effectiveness in comparison to other conservation strategies	MIDI-CHIP	PGR Forum, Fossilva	Ecochange, EVOLTREE
34	develop methodologies to evaluate and improve high nature value farming systems and sustainable forest management	LACOPE		EVOLTREE
35	improve understanding of how biodiversity policy is formed and implemented in relation to other policies		LACOPE	BioScore, ALARM
36	develop improved spatial planning instruments and tools that better integrate biodiversity issues.	LACOPE, MacMan		RUBICODE, Alter-Net