Natura 2000 Seminars

Boreal Biogeographic Region

Boreal Natura 2000 Seminar Report

(Draft: July 2012)

An initiative of the European Commission

ECNC european centre for nature conservation

ARCADIS Infrastructure · Water · Environment · Buildings

Aspen International

CEH Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL

ILE Institute of Landscape Ecology Slovak Academy of Sciences

Prepared by: ECNC-European Centre for Nature Conservation (NL) and its consortium partners Arcadis Belgium (B), Aspen International (UK), Centre for Ecology and Hydrology (UK) and ILE SAS (SK)

Authors: Lawrence Jones Walters (ECNC, Editor), Anna Lindhagen (Swedish Environmental Protection Agency), Ben Delbaere (ECNC), Marita Arvela (ETC/DB), Esko Hyvarinen (Metsähallitus, Natural Heritage Services, Finland), Johan Lammerant (Arcadis), Agu Leivits (State Nature Conservation Centre, Estonia), Katrijn Loosveldt (Arcadis), Andris Urtans (Nature Conservation Agency, North Vidzeme Biosphere reserve, Latvia).

Funding: European Commission as part of contract number 07.0307/2011/60517/SER/B.3.

Introduction to the Boreal Seminar report

The purpose of the New Biogeographical Process is to help Member States to manage Natura 2000 as a coherent ecological network, whilst exchanging experience and best practice, addressing objectives and priorities and enhancing cooperation and synergies. The process should contribute to the achievement of Favourable Conservation Status-FCS for those habitats and species of community interest that have been identified as having priority within the given biogeographic region, with a special focus on the contribution of the Natura 2000 network. The seminar cycle is summarised in the document: "Summary of the Process: an information note for Member States", which is available on CIRCA.

The Boreal Cycle has been led by Finland. The Steering Committee of the Boreal cycle is composed of representatives of the five Member States (EE, FIN, LT, LV, SE) and the EEA, ETC BD and EC. Four priority habitat groups were selected: Fresh water; Wetlands; Forest; Grasslands & Coastal. The process includes a number of Steering Committee meetings a major Workshop which precedes the Seminar itself. The objectives of the Boreal Workshop, held in Helsinki, Finland, in January 2012 and hosted by the Finnish Ministry of Environment, were to discuss the key conservation issues for each group of selected habitat types in the Boreal biogeographical region and to prepare the ground for the Pilot Natura 2000 Seminar for the Boreal biogeographical region which was subsequently held in Hotel Aulanko, Hämeenlinna, Finland on the 28 and 29 May 2012. The workshop report: "DRAFT WORKSHOP REPORT: For the Boreal Natura 2000 Workshop", is also available on CIRCA.

The objective of the Boreal Seminar was therefore to jointly agree and prioritise the key recommendations which, if acted on, could provide solutions to specific conservation issues in the form of a Seminar Report for the Boreal Biogeographic Region. This document therefore sets out the outcomes of debate from the same four working groups that had been convened for the workshop in the form of recommendations (that focus on delivering Favourable Conservation Status of habitat types and species of community interest).

The role of this document is therefore to provide the basis for taking these recommendations forwards between now and 2020. The proposal for developing a networking framework that will provide coordination of thought and action between experts and practitioners within the biogeographic region may also provide further scope for joint and individual initiatives on the part of the involved member states that may also contribute to improving the condition of Natura 2000 sites.

[Note: Further information in relation to current status, pressures and threats, recommended management, etc for the individual habitats, habitat groups and associated species can be found in the: "WORKSHOP DOCUMENT for the pilot Boreal Natura 2000 Workshop", available on CIRCA.]

1. Seminar Process

More than 80 experts and practitioners from all 5 Member States (MS) within the Boreal Biogeographic Region attended the preparatory workshop in Helsinki, in January 2012. During the workshop, the different habitats were discussed in separate working groups, and important issues were listed and prioritised. Each working group was chaired by a representative from the MS who had taken the lead on the habitats under consideration in the specific working group. These groups were retained for the seminar discussions with a similar number of experts and practitioners attending from the same Member States.

Based on the outcomes of the January workshop, the Steering Committee identified a number of issues for discussion by each habitat group at the seminar. The groups and discussion issues to be tackled over the two days of the seminar were as follows:

Habitat Group	**Discussion Issues**
Grasslands	- CAP - Land abandonment and fragmentation - Unsuitable management - Alternative management
Forests	- Management and restoration - Mimicking natural disturbances) - Non-intervention management: how much management can be accepted; sustainable use issues; etc - Connectivity issues outside N2K
Wetlands	- Modification of hydrological functions of mires - Lack of knowledge about ecological processes in minerotrophic mires - Restoration methodologies
Freshwater	- Catchment approach - Ecological functionality eg Hydropower, etc - Cross sectoral cooperation (eg synergies with WFD, etc) - Complexity of habitat

[The detailed elaboration of these issues is given in Annex 1; set out in the form of "Issues-Solutions-Proposed Actions/Improvements".]

For each issue groups were asked to:
- Agree the list of issues; then, for each one to:
- agree the problem;
- identify the optimum solution;
- map out the desired actions to achieve the solution;
- prioritise them;
- taking the top priority first, explore whether there is there a country/ organisation/ individual who could lead on these actions or on making the 'Roadmap' for their solution.

In addition to dealing with the specific issues listed above, each group was asked to address the following questions in relation to priority crosscutting issues and communication and stakeholder participation:

Priority cross cutting issues:
- Setting objectives
- Article 17 Calibration and FCS
- Management Planning process
- Stakeholders – communication and participation

In relation to the list of priority x-cutting issues provided in the Seminar Document:
- are these the right ones?
- if not, create your own list (add to this list, remove if you wish, etc)
- take the top 1-3 (depending on time) and identify the optimum solution
- map out the desired actions to achieve the solution
- explore whether there is there a country/organisation/individual who could lead on these actions or on making the 'Roadmap' for their solution?

1. Communication and participation: In relation to the key stakeholders/communities of interest/target audience for your habitat group:
   - Who are they
   - How to address them
   - Barriers and solutions

2. In relation to the list of priority x-cutting issues provided in the Seminar Document,

All of the issues identified by the working groups were collated and presented to the morning plenary on the second day. Furthermore, there was a presentation and discussion session in the afternoon to debate the setting up of a platform that could provide the basis for the active networking between experts, practitioners and policy makers.

2. Seminar Results

The results of the working groups and the plenary sessions are set out below. The outputs are based on the PowerPoint presentations prepared by the groups and their moderators and delivered in plenary by their chairs; (all presentations are available on CIRCA). It should be noted that each group took a slightly different approach and this is reflected in the subsections below; rather than force them into a common format they are set out as they were presented in order to illustrate their diversity. However, the agreed areas for action have been extracted and are given in tables at the end of each sub-section in a similar format.

2.1 Grasslands

The **discussion issues** identified for this working group were:

Grasslands	- CAP - Land abandonment and fragmentation - Unsuitable management - Alternative management

1. Common Agricultural Policy

ACTIONS:

- Seminar about MS implementation.
  - Joint invitation with Agriculture Ministry
  - Pre-scoping document
  - Sweden to lead

- Message to Commission
  - Grassland definition link to directive habitats
  - Level of payment
  - National legislation vs possibility for payment
  - Active farmer definition
  - Avoid 'perverse' payments (that lead to negative effects for biodiversity) EXAMPLES?
  - Costs of isolated/small sites
  - Landscape perspective (at site level)
  - Frame it as 'expert input' from the workshop – [NOTE: THIS IS A CRITICAL ISSUE FOR THE NBP]
  - Sweden to lead
- Experience sharing good practices about current CAP, + national integration of biodiversity objectives

2. Other Issues

ACTIONS

- Seminar – about setting national objectives (x-cutting). Late 2012 about common issues. Sweden.
- Seminar – about setting local objectives (habitat specific)/ management planning process seminar (can it be done within a life project?)
- Workshop/training about good practices. FCS field trips for calibration; discussion in Life projects; definition; information exchange. Estonia – Life project on meadow management/ Finland can provide presentation on coastal meadows.
- Document sharing (x-cutting)- translation of good guidelines. Reference made to the guidance document on Restoration and management of boreal forest as best practice. Management plans. Summaries of habitat definitions. Make existing/ past Life projects available (reference Atlantic process). Use this to stimulate thinking in relation to developing new projects. Finland has project documents in English (e.g. grazing in coastal meadows)
- Seminar on Alternative Management/Branding. Finland to organise in 2013

SUMMARY OF TANGIBLE ACTIONS: GRASSLANDS

Issues	Actions/actors	Timescales
GRASSLANDS		
CAP	Seminar about MS implementation SWEDEN Message SWEDEN Experience sharing	None Now None
Conservation objectives	Seminar common issues SWEDEN Seminar local objectives+ management planning process SWEDEN	Late 2012 None
FCS	Workshops on good practice x2 ESTONIA/FINLAND (via LIFE+ projects)	None
Alternative management	Seminar + branding FINLAND	2013

2.2 Forests

The **discussion issues** identified for this working group were:

Forestry	- Management and restoration - Mimicking natural disturbances - Non-intervention management: how much management can be accepted; sustainable use issues; etc - Connectivity issues outside N2K

Following debate within the group the above issues were modified into the following three key areas for discussion:

- Restoration and management vs. Non-intervention management
- Connectivity outside N2K
- Mimicking natural disturbances

Key **problems** were summarised generically in the group in relation to the issues, as follows:

- Can be country-specific and scale-dependent (e.g. Fire management)
- Definitions needed (restoration, non-intervention)
- Conservation management vs commercial management/use
- Management to be based on agreed and appropriate objectives
- Art 17 reporting: agreement on what is meant with FCS

Solutions to the problems were identified, also on a generic basis:

- Need habitat mapping, quality assessment and integration into landscape level planning with extension of the areas of sites for more effective conservation management
- Agree conservation objectives for sites (including increased restoration)
- Improve management practices in commercial forests
- Active participation of stakeholders to cover the diversity in approaches -> improved connectivity
- Share best practice examples
- Active discussion between scientists, policymakers and practitioners
- With appropriate objectives it is easier to choose practices

The following **actions** were agreed by the group:

- Networking between Member States and stakeholders (e.g. Based on example of Finnish steering group and habitat based subgroups for restoration) (Kaisa Junninen to lead)
- Grand tour on restoration (Jussi Päivinen)

- Exchange information on good practices and demonstration (Life+ projects, demonstration sites)
- Communication (by all actors)

A number of generic issues were also identified:

- Conservation objectives at different levels
- Document needs more specific formulation to cover issues included in background document and final review by MS
- Communication about N2K benefits with (local) public and stakeholders

SUMMARY OF TANGIBLE ACTIONS: FORESTS

Issues	Actions/actors	Timescales
FORESTS		
Exchange of good practice/ knowledge	Networking between MS and stakeholders (using the Finnish model as a platform). Nominate focal points – to Kaisa Junninen (FINLAND - at workshop and as soon as possible afterwards) Restoration grand tour (Jussi Päivinen) FINLAND	To begin now Autumn 2012-2013
Communication	Communicate - ALL	To begin now

2.3 Wetlands

The **discussion issues** identified for this working group were:

Wetlands	- Modification of hydrological functions of mires - Lack of knowledge about ecological processes in minerotrophic mires - Restoration methodologies

Key **problems** were summarised in more detail by the group in relation to the issues, as follows:

- Ecohydrological approach at catchment level
- Lack of scientific knowledge (also related to defining FCS)
- Buffer zone management (in catchment area) ◊ stakeholder management
- Fragmentation of mires
- Lack of information on cost effectiveness of restoration measures
- Role of climate change not always clear (carbon sink or carbon source) (how can peatland management contribute to CC adaptation?)

Solutions to the problems were identified as follows:

- Develop strategies and apply management planning
- Restoration hydrological regime and natural nutrient balance
- Start dialogue and develop instruments regarding buffer zone management
- Scientific knowledge (1°/ understanding the processes 2°/applying this knowledge by collecting site specific data – always case specific)
- Site specific approach; adaptive management to reach the FCS of habitat types;
- Collect and disseminate information on cost-effectiveness of measures
- Right communication with the public (cross-cutting)
- Peatland conservation as part of robust strategies to deal with Climate Change (working with nature)
- Learning from existing experiences and develop; be careful with trial and error; evidence based approach, i.e. monitoring
- Availability of large scale data, high spatial resolution maps on hydrological data ◊ is critical for conservation planning (now only fragmentary data), and for delineating

catchment areas; also necessary for WFD; both is needed ◊ you always need proper local data too
- More cooperation with scientific institutions on restoration ecology; research should be better linked to conservation management (in relation to FCS)
- However monitoring requires longer time periods and often a lack of funding (eg no budget after LIFE+ projects);

SUMMARY OF TANGIBLE ACTIONS: WETLANDS

Issues	Actions/actors	Timescales
WETLANDS		
MS Strategies on wetland restoration	Sharing experience between MS NO LEAD INDENTIFIED Workshop ESTONIA Workshop for LIFE+ project proposal EST?FIN?SWE + explore communications opportunities Use existing WS to begin experience sharing LATVIA/ SWEDEN Circ publications ALL	From now on May-June 2012 Autumn 2012 Submit 2013 July 22-25 2012 August 2012 Now
Buffer zones	Seminar ESS + PES WS FINLAND	2013 2014

2.4 Freshwater

The **discussion issues** identified for this working group were:

Freshwater	- Catchment approach - Ecological functionality eg Hydropower, etc - Cross sectoral cooperation (eg synergies with WFD, etc) - Complexity of habitat

1. Catchment approach to conservation and management

SOLUTION 1: Appropriate planning of activities within the catchment area

ACTIONS:
- Provide guidelines for planners on aquatic issues and ecosystem services : MS level
- Broader involvement of river basin management bodies and all relevant stakeholders in management planning for Natura 2000 sites: Boreal level
- Improvements of data quality and availability (resource availability): MS level
- Sharing experience on practical level: Boreal level

SOLUTION 2: Scale of the catchment area influences the choice of activities

ACTION:
- Guidelines on communicating the issue (related to catchment areas on large and small scale)

SOLUTION 3: The Common Agricultural Policy (CAP) should include the Water Framework Directive and Natura 2000 issues

ACTIONS:
- Co-operation with WFD to find win-win solutions for agricultural-environmental measures

- Ensure better environmental performance of CAP supported measures

SOLUTION 4: Remove national, but harmful incentives to forestry / peat mining

ACTIONS:
- Analysis these 'perverse' subsidies to find the right balance + look for mitigation: scientific institutions / NGOs
- Apply EU biodiversity proofing methodology for national subsidies analysis: EU study+ MS

NOTE: the solutions / actions related to the catchment approach are not necessarily specific for the Boreal region. They can also be seen as general policy recommendations whose realization could have benefits for a range of other habitats.

2. Ecological functionality related to hydropower

SOLUTION 1: Analysis of fish migration routes to set priorities for restoration (fish as 'umbrella' species)

ACTIONS:
- Species specific design of migration routes / passages
- Seminar on Finnish experience on fish migration routes (at least translate the strategy in English): Finland
- Seminar on sharing best practices and experience from the latest projects on freshwater animals (incl. field excursions): within the Boreal region and between Boreal and Atlantic region
- Sharing the national list of relevant projects (database with short review, contacts information, website,…)
- Sharing to the criteria and methodology for priority setting for restoration / showing how people make decisions

SOLUTION 2: Taking into account hydro-morphological functionality of the watercourse when dealing with the effects of hydropower (focus on existing HPS)

ACTIONS:
- Sweden is investigating the changes of permits to include biodiversity considerations: Sweden will share its experiences / results in spring 2013
- In spatial plans include buffer zones to minimize effects of climate changes caused water fluctuations
- Share experience on river restoration: effects on terrestrial/water species

SOLUTION 3: Ensure from biodiversity point of view proper functioning of the hydropower installations (focus on existing HPS)

ACTIONS:
- Organize a seminar on eco-energy labelling: NGO Finnish Association for Nature Conservation: within the Boreal region and between Boreal and Atlantic region
- Increase minimum flow requirements

SOLUTION 4: Management of buffer zones and water storage areas (e.g. agricultural areas)

ACTIONS:
- Buffer zones to be included within Natura 2000 for achievement of FCS
- Co-operation with stakeholders influencing the quality of habitat

SUMMARY OF TANGIBLE ACTIONS: FRESHWATER

Issues	Actions/actors	Timescales
FRESHWATER		
Catchment approach to conservation and management	None	None
Ecological functionality related to hydropower	English translation of fish migration strategy FINLAND Exchange results of permit study SWEDEN Seminar of eco-energy labelling FANC FINLAND Share national list of relevant projects ALL	None Spring 2013 None None

3. A Framework for Networking and Communication

3.1 Context: the need for a networking framework

The need for better networking has been a recurring theme throughout the process. It emerged strongly from the discussions in both the working groups and the plenary in the Workshop; in particular a desire was expressed that a framework should be set up for dealing with the cross cutting issues.

3.2 Issues to be covered

As well as individual themes, recurring networking and cross-cutting issues that might be covered within a network could include (based on Workshop and Seminar outputs and grouped around loose themes):

FINANCIAL ISSUES • Lack of staff and resources • National financing mechanisms • How to apply for integrated projects under LIFE+?	**MANAGEMENT ISSUES** • Practical management and associated handbooks • Large mammal management • Invasive alien species control • Non-intervention areas • Hydrological management • Eutrophication management • Unsuitable management
STAKEHOLDER APPROACH • Stakeholder engagement methods • Ecosystem service valuation methods • Communication-stakeholders • Added values, ecosystem approach • Need to reduce/handle bureaucracy	**CONNECTIVITY** • Connectivity quantification methods • Green infrastructure/ Lack of green infrastructure • Fragmentation/isolation/insufficient size of sites
MANAGEMENT PLANNING • Management planning process • Setting objectives • Article 17 calibration & FCS • Monitoring & reporting • 'Sustainable use' thresholds • Maintenance of a calendar of events	**KNOWLEDGE MANAGEMENT** • Training • Data sharing ▪ Practical management and associated handbooks ▪ Transference of ideas (e.g. ESS +PES) and synergies to other working groups ▪ Making links to other NBP's e.g. Atlantic, Alpine, in order to encourage two way communication ▪ Translation of national habitat definitions into English (Grasslands). Could go into the Background Document as part of updating – also continue to keep the document alive ▪ Help in explaining funding opportunities and sources

Remaining issues that cannot be obviously grouped in the above are:

- Habitat-specific ecological processes (the latter cannot be a cross-cutting theme)
- Climate change adaptation: will be 'habitat specific', so maybe to be integrated in a habitat expert group if habitat is identified as vulnerable towards CC
- Outside Natura 2000- abandonment/deterioration of habitats: what is meant here? External influence?
- Priority Action Frameworks (PAFs) are a perfect basis for the application of the new integrated LIFE+ projects, so from that point of view to be placed under 'Financial issues'; otherwise to be placed under 'Management planning'; can be dealt with in both cross-cutting themes.
- Land abandonment can probably be integrated in a specific habitat expert group if land abandonment is identified as a typical problem for this habitat?

3.3 How it could work

Generally the framework could consist of the Communication Platform that will be established under the new biogeographic process, some sort of contact nodes (which could be environmental NGOs such as Eurosite, suitable institutions/organisations or individuals - see the options outlined below) and a proposed set of actions (seminars, networking, sharing of good examples, training, specific actions) that could be performed by different actors, but would be "marketed" via the platform/nodes, and for which the respective "node organisations/individuals" could act as a support in planning and implementation.

The presence of the Communication Platform, and the identification of organisations or individuals that would take on a "node" function, would be essential for achieving continuity in the networking. Even if nothing happens in a habitat-specific discussion for 1 or 2 years, there could still be activity concerning other habitats, or cross-cutting issues, and the platform and nodes would make it possible keep updated mailing-lists, etc.

Based on the above and the discussion and agreed outcomes of the Seminar, the implementation of 3 potential models in combination was envisaged:

1. **National habitat node approach**.
   Which could be issue driven and based on a clearly identified need to network around a specific problem or opportunity; once the issue/ problem had been resolved, the group could disband. Alternatively, where there is a willingness to maintain the secretariat or where the national node is willing to maintain the network in a long-term (or the chairmanship of such a group can be rotated) then this approach need not be simply issue driven and can continue linked to a range of issues and over a significant period of time. Examples already exist within the region and, for example, a forest network is presently in development.

2. **Maximise present and future use of Life + projects**.
   A number of Life+ projects are already being delivered within the biogeographic region; these provide "temporary networking and knowledge exchange nodes" because they are usually organised around an investigation into a particular management related issue for habitat and/or species and require the production of reports and the organisation of workshops to which stakeholders, experts and others are invited. However, they have a limited life because they are driven by project funding and when they come to an end the networking they generate often also ceases to function. The reports remain but may not be circulated as widely as they could in order to maximise the benefits of sharing the knowledge. The issue here is to ensure that the networking benefits in current projects are maximised and that future projects have boreal biogeographic process related networking built into them.

3. **Node organisations**
   One great advantage of utilising node organisations is that they can retain a level of institutional knowledge (that is not restricted to a small number of individuals) that can always be available to those people who participate in projects, programmes and networking with them. As for the national habitat node approach in 1 above, node organisations could also operate networking on an issue driven basis linked to a specific problem or opportunity. However they can provide a level of continuity that is not available to individuals.

The Communication Platform has the potential to support the communication between all partners and experts involved. It could lead on (for example): the publication of guidance documents; national financing mechanisms; methodologies/strategic thinking on monitoring; "promotion" of joint actions training.

Depending on which option is chosen, '**rules of the game**' for engaging in this network framework could be that:

- Each 'expert' network is chaired (and supported with a secretariat) by a MS, an NGO or another organization
- The duration of this 'presidency/chairmanship/lead position' is well defined and agreed amongst partners; a rotating chair might be a possibility

- Roles and responsibilities of chair and members are well defined
- Networks should work on well-defined objectives and should generate S.M.A.R.T. (Simple, Measurable, Achievable, Realistic and Time Related) actions
- Each network shall use the Communication Platform (or link to it) to communicate on activities and results and this should be the basis of providing a level of overall coordination of the different initiatives.

The existence of a networking framework would also make it easier to pick up ideas and exchange them with relevant stakeholders, to see if it would be a good idea to perform some activity in the framework context, etc.

3.4 SUMMARY OF TANGIBLE ACTIONS: Networking Framework

Issues	Actions/actors	Timescales
NETWORKING FRAMEWORK		
Communication platform	Build prototype platform, operationalise and promote use within the biogeographic region. CONTRACTOR	End 2012
Initiating/building the networking framework	▪ Gather lists of country experts (cf Atlantic) ▪ Request details of their current interests, network membership, etc ▪ Establish willingness to 'engage' ▪ Provide 'Expert Directory' (Which could become an Annex to Background Document) ▪ Link to ad-hoc expert meeting(s) ▪ (Subject to the above) Establish Country habitat nodes?	And 2012 (Process to commence on adoption of the seminar report by the steering committee members.)
Life + projects: Maximise present and future use of Life + projects	▪ Existing Life+ projects: ensure all reports and documentation produced by the project the reports are circulated as widely as they could in order to maximise the benefits of sharing the knowledge. PROJECT MANAGERS ▪ Existing/future Life+ projects: Ensure that the networking benefits in current projects are maximised and that future projects have boreal biogeographic process related networking built into them during the project development process. PROJECT MANAGERS	On-going

3.5 Additional Comments from the Working Groups

In terms of **communication** and the identification of **key stakeholders** the groups added:
• Make actions for sake of biodiversity beneficial / personal to stakeholders • Explain / show biodiversity values of particular land plot • Use trained mediators or local opinion leaders • Use activities with quick results to attract long term attention • There are many **stakeholders**: landowners, hunters, industry, NGOs, hunters, birdwatchers, local community, etc. Specific target audiences: - Agricultural Departments - Practitioners - Agricultural organisations (advising organisations) - NGOs - Hunters on the coastal meadows - Private land owners - Agricultural women - WWF - Teachers – colleges (especially agricultural and forestry colleges)

- Public-private partnerships (e.g. transport sector)
- Municipalities

In relation to these stakeholders and target groups, the following were proposed:

General approaches:
- Need to communicate about the benefits of N2K to key actors in customized way (that is particularly relevant to those key actors)
- Involve all actors in communicating about conservation objectives to their peers
- Recognize what is important to local people
- Communicate about sustainable use instead of biodiversity

Specific actions:
1. Scientific community (to agree on most appropriate management measure, set objectives);
2. Farmers (could be farmer's associations) to say if management is realistic or not;
3. Managers (PA managers, ministry, regional level) to organise how to bring 1 and 2 together.
4. Translation of national habitat definitions into English (Grasslands). These could go into the Background Document as part of updating.
5. Continue to keep the background document alive.

Related to the **network** the groups made a number of points:
- Build on existing networks (e.g. RENO, PREFOR)
- Field visits preferred
- 'Light' reporting of outcomes
- All countries to nominate focal point and provide to Kaisa Junninen
- Ensure open and inclusive networks
- Share the burden
- Share results/communication platform

4. Conclusions

Each working group came up with a clear list of "**TANGIBLE ACTIONS**". This represents a major success story for the pilot biogeographic process and, potentially, has provided the first steps along a journey that can begin to make progress towards favourable conservation status within the selected habitat types.

Indeed, a number of these have already been taken forwards since the Seminar. During the presentations of the results of the working groups, the Wetlands Working Group showed the plenary table that they had designed in order to better set out and elaborate their agreed actions. In subsequent discussion in the plenary it was agreed that this table should be developed and used as the basis for taking forward the agreed actions.

An example of the table, used by the Wetlands Working Group to elaborate the action: 'Develop MS strategies as well as projects for restoration', is shown below.

ACTION	**Develop MS strategies as well as projects for restoration**	
Description	• strategies (with priority for Natura 2000) as a first basis for PAF (also to be used as a basis for later LIFE+ integrated projects from 2014 on) • on short term project proposals to be developed (at a catchment area level, with the aim to restore ecohydrological functions) • workshop on short term of LIFE+ experts on wetland restoration	
Stakeholders	MS institutions, landowners, NGOs	
How to address?	Involving landowners: Voluntary approach! Awareness raising by demonstrating economic benefits of buffer areas (ecosystem services approach)	
Barriers?	• Resistance by landowners (more in Baltic countries, as more fragmented wetlands) • Gaps in scientific knowledge (on some issues eg minerotrophic mires) and planning documents • Lack of insights in cost-effectiveness of techniques • Funding / lack of finance • Lack of capacity in government? • Lack of organizational structure (like in WFD)	
Solutions	• Develop management plan in cooperation with stakeholders • Involving stakeholders: compensation payments, awareness raising (longer projects more suitable for changing attitudes → long period projects to be favoured!) • Long-term monitoring	
Message		
Commitments	LEAD: • EST creates mailinglist /takes initiative for workshop • EST or FIN or SW will organize the autumn preparation meeting on joint LIFE+ proposal	PARTNERS: all MS • Invitations to workshops by organizing countries •

First steps	• Sharing experiences between MS on strategies
	  ○ By starting up communication (now!)
	  ○ by means of workshop (May-June 2013)
	• Int. workshop Latvia July 22-25 , 2012, on raised bog restoration → this event can be used to start sharing experiences (on strategies, practical	

	implementation)! • LIFE to AdMIRE (LIFE+) workshop in week 35 in 2012 in Sweden (invitation will be circulated) • Publications from LIFE to AdMIRE will be sent around • Sharing guidances (translation, etc.) → central storage • Using CBD Clearinghouse and other communication platforms (Biogeographic Seminar Communication Platform, Europarcs, NorBalWet, …) to disseminate information → calendar of meetings, publications, …. • Meeting in autumn to brainstorm on new transnational LIFE+ project (eg on minerotrophic mires) to be submitted in next round (2013)

The contractors will make a new template, based on the above and circulate this to chairs of the working groups (having populated it already with information generated in the Seminar, by each working group, and the background information on issues, solutions and proposed actions/improvements). The tables should then be completed and will be bound together in the form of a very brief action plan to guide the next steps in taking forward the work of the experts, practitioners and policymakers involved within the pilot Boreal Seminar.

ANNEX 1: Contextual Information: Issues-Solutions-Proposed Actions/Improvements

1. Grasslands

1.1 Grassland and Coastal Habitats: Common Agricultural Policy

Problems

- The *situation for biodiversity-rich grassland habitats in the EU is very severe* – only 7% are reported as having FCS and abandonment/encroachment is a large and increasing problem in many regions. In semi-natural grasslands traditional use actually produces significant environmental and biodiversity benefits as well as the ecosystems maintained or enhanced this way provide valuable services for economy and society; benefits that are lost if the management ceases. These benefits are also of the "non-exclusive" kind (like clean air) that cannot be compensated by the market.

- *CAP has a fundamental importance for the economy of* farmers/managers of traditional pastures/semi-natural grasslands; many agri-environmental payments for grassland areas are already made for positive actions and for continuing 'traditional use'. However, in the Boreal biogeographic region it is clear that CAP is focusing too much on competitiveness and production (food and fodder). As a result the payments here are more focused on discouraging/preventing farmers from taking certain actions (fertilising, grazing too heavily or too early) rather than on compensating them for costs associated with positive management *and for promoting environmental benefits*.

- *Current experience of CAP payments in the Boreal region has shown that the rules* focusing on "fodder" value *often have perverse effect for biodiversity*. They lead to abandonment or intensification of land that is valuable for biodiversity. They also give incentives (due for example the demand for a maximum coverage/number of trees) for actions that may cause direct harm to biodiversity and to habitats in annex 1 of the habitats directive (like wooded pastures, 9070, or wet meadows 6410, some valuable grasslands rich in bushes, and temporarily flooded areas where the management is important for many bird and plant species) though rewarding clearings of trees or bushes, or drainage, that often reduces the ecological value of a pasture. In other cases the rules (lack of payment) lead to abandonment of biologically rich grassland, and that grazing is concentrated on cultivated fields (which fit well into the CAP grassland definition). The Swedish experience of *Pillar 1 payments* has shown that they are a very *blunt tool for financing management of semi-natural grasslands*. In many areas, the controls for the payment has led to a "cheese-hole effect", where the manager is only paid for managing open areas in a complex pasture, and not for patches with trees, bushes, wet grassland etc - even though the fact that it's in these "cheese-holes" that most of the grassland's biodiversity values are found, and that these values are dependent on continuous management, even though their fodder production might be low. The problems (e.g. a demand for the 'dominance of grass' at the expense of variation in the habitat structure) have not been caused by a strict national application, but are due to regulations set at EU level, that a single MS has little influence on.

- The new proposal for direct payments and RDP has yet to address these problems and there is a perceived risk that the future CAP is not sufficiently functional for promoting biodiversity; however, one of the 6 EU priorities explicitly mentions Natura 2000 and the Member States will have to integrate within their RDPs their approach to address specific needs of Natura 2000 areas.

- The *CAP rules appear to "punish" farmers in countries with an ambitious environmental legislation*, since they cannot be compensated for environmental considerations that are required by the national regulations.

- In the proposal for future CAP, support will be directed to "active farmers". This has many benefits, but there is a risk that leads to negative effects for the management economy in many protected areas and other valuable sites, if environmental NGOs as well as authorities responsible for management of protected areas are not eligible for funding. This point needs to be made by the MS in Council.

Solutions

- The *definition of grasslands/permanent pastures* according to pillar 1 or pillar 2 *should*, at it's core/as a bottom-line, *always include all areas that comply with the definitions of grassland habitats according to annex 1 in the Habitats Directive and other valuable grassland ecosystems dependent on management*. Relevant national authorities in each MS should suggest which of these habits are dependent on management.

- It should be *up to national authorities to define which landscape elements can be considered eligible for payment, within semi-natural grassland*. This has to be done with regard to the habitats directive, and it should be possible to include habitats depending on extensive management (like some wooded pastures, limestone grasslands etc) – sometimes with a reduced payment level. (Ensuring that if MS have to decide this, the risk that they may not all decide in favour of the environment is avoided).

- Pillar 1 and 2 payments should be possible to use for semi-natural grasslands; and it should be made clear that it is possible to use Pillar 2 payments in compensating extra costs for their management, compared to management of cultivated grasslands/sown grasslands[1].

- Pillar 1 payment for semi-natural grasslands equivalent to annex 1 habitats should be given a higher general payment level, since the maintenance of these grasslands is essential for reaching the EU biodiversity targets (and the objectives of the Habitats directive) – and the need for improved economy and cessation of abandonment of these habitats is acute.

- The *wording in the regulations should be adjusted so that MS with ambitious national legislation regarding biodiversity, are not "punished" for this* (by less compensation to farmers for taking environmental considerations).

- The regulations need to be adjusted so that *environmental NGOs as well as authorities responsible for management of protected areas* are *eligible for funding* of actions like grazing, mowing, restoration etc.

Proposed actions/improvements

- Approach key players with proposal for adjusting definition for permanent grasslands, so that all habitats according to annex 1 of the Habitats directive are included in the definition, if a MS considers them management-dependent (the level of payment can of course vary).

- Propose a definition of grasslands to key players so that areas with ecologically important structures, like trees, rocks, temporary flooding, flowering bushes etc are not excluded from areas eligible for payments. An approach where a grassland is considered as an entity should be applied, not strict measurements of tree layer etc in particular/very small patches (> 0,1 ha). In order to avoid negative encroachment the area of open grassland eligible for payments would be defined/ agreed at the moment of signature and no encroachment would be accepted if further payments were to be triggered….

- Through the provision of appropriate wording to key EU/national players ensure that the environmental/ biodiversity values "produced" by the permanent grasslands should be the central reason for the payment to farmers, rather than the fact that they are also important for their "fodder" value; i.e. that focus should not be on grass/herb content of the semi-natural grasslands, rather on management dependent ecological qualities.

- Approach key players with proposal for adjusting wording in CAP so that national legislation regarding environment is not "punished" in payments.

- Approach key players (e.g. MS in Council/ MEPs in the EP) so that the regulations foresee that environmental NGOs as well as authorities responsible for management of protected areas are eligible for funding of actions like grazing, mowing, restoration etc.

[1] The identification of the differentiation between semi natural grasslands and productive, reseeded grassland does not exist in Pillar 1 payment. However, it is possible to pay for this type of grassland *inter alia* (as long as it is not excluded under the current definitions and guidance and MS interpretations). It is indeed not possible to pay more for it than for other types of grassland.

- Approach key players with proposal for including text regarding the balance between pillar 1/pillar 2 so that pillar 1 payments do not hinder the use of pillar 2 payments.

1.2 Land abandonment and fragmentation

Problems

- When taken together, land abandonment and fragmentation provide two of the most critical threats in relation to the long-term ecological viability of boreal grasslands. The boreal region is among the regions in Europe where land abandonment has had the greatest impact, since the economies were industrialised at an early stage, at least in SE and FI.

- Land abandonment is to a large degree part a socio-economic development, which has been policy and economy driven. Traditional grazing of unfertilised grassland has been considered as inefficient, and fertilisation or active afforestation of grassland has been strongly promoted during a large part of the 19th century. Abandoned grasslands can also spontaneously develop into forest. Low income levels have also led to rural people abandoning their traditional lifestyle, and moving into cities. The depopulation process is often self-reinforcing beyond a certain level, because of a lack of rural infrastructure and services such as schools, shops, public transport, etc. The steep decline in the area of semi-natural grasslands during the 19th century has led to the isolation of sites, and changes in forestry and agriculture has also made these land-use forms less "permeable" for grassland species; thus contributing to the isolation of sites. An example is the abandoned practice of forest grazing that contributes to making the forests denser and darker.

- Fragmentation of natural and semi-natural habitat has also been created by transport and energy infrastructure, modification to watercourses and the development of urban sprawl with its associated business and industry.

- The resulting isolation of habitats makes them less viable ecologically both for the habitats themselves and for their associated species. One critical factor is the reduced size of habitat and another is their lack of connectivity which prevents the migration of species from one habitat island to another, thereby reducing the genetic viability of populations.

Solutions

- Habitat restoration provides one of the key solutions to this problem. It can take the form of: reintroducing appropriate management such as grazing on abandoned sites, following the clearance of scrub and woodland; creating ecological networks - that provide ecological connectivity between isolated sites; realised in the form of habitat 'stepping stones', landscape features such as hedges, small woods and shelterbelts or full-blown habitat corridors that provide permanent connections between habitat islands.

- In addition, the restoration of degraded and abandoned habitats can provide both connectivity and the potential for recolonisation by species. Furthermore, the creation of buffer zones or the extension of existing areas of habitat through restoration activities on their margins, can increase their viability for the habitats and species that they contain and provide them with protection from the effects of external impacts (such as pesticide run-off, hydro geological change, etc).

- Spatial planning, involving the identification of potential areas for reversing the effects of fragmentation and implementing restoration is potentially one of the most effective means of providing a strategic approach to the landscape change that is required in order to reverse the effects of fragmentation and land abandonment.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of abandonment and fragmentation.

- The development of a 'boreal ecological network' in which key areas for restoration, corridors, stepping stones and other important features and actions can be identified.

- The adoption and implementation of the network amongst the boreal member states.

1.3 Unsuitable management

Problems

- In many cases grasslands can be seen to be subject to unsuitable management. Thus, grazing pressures may be too high or too low, fertiliser may be used inappropriately, one or other management option may be incorrectly applied (e.g. grazing, cutting, burning, etc), timing of application of the management intervention may be too early, too late, etc. Unsuitable management can lead to more direct negative effects on the biodiversity of a site than those caused by abandonment (in the short term).

Solutions

- A key solution is to clarify the correct management that should be applied to the specific grassland type in question within the country, region or locality that in which it occurs. Different MS have experience and expertise about different grassland types and management forms. Experience-sharing can therefore make important contributions to "good" management.

- The development of generic and specific grassland management guidelines could be valuable. It is likely that such guidelines have or will be prepared in each MS; it is likely to be highly valuable if already existing guidance documents are translated and shared.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of suitable and unsuitable grassland management.

- Translation of national guidance documents and relevant research

- Arrangement of workshop or training for practitioners, where good, and not so good management practices can be shown and discussed.

1.4 Alternative management

Problems

- In the context of land abandonment and the issue of demographic change (movement of populations away from rural areas) and in relation to the overall intensification of agriculture, semi-natural grassland has suffered a decline in quality. Such declines have impacted on annex 1 habitats both within and outside Natura 2000 sites.

- The currently applied forms of management are generally based on traditional knowledge and/or the application of similar techniques in the modern idiom. However, in the context of a changing environment (e.g. for example in relation to climate change, economic and social change) then maybe the potential to explore alternatives that are more effective means for managing our special grasslands.

Solutions

- Given the technological advances that have taken place in agriculture (and in relation to our understanding of ecological processes) in recent years, there is potential to explore the possibility of alternative forms of management based on our new understanding and innovation.

- It is equally possible that new ways of applying traditional and modern techniques, individually and/or in combination may provide further solutions to our problems of maintaining grass and habitats.

- The development, testing and implementation of innovative grassland management techniques potentially represents the ultimate solution to this problem.

- There are also "new" kinds of managed grasslands, which can be important for preservation of species and for preserving semi-natural grassland in the landscape. Examples are managed grass areas under power-lines, along roads and in recreation areas around golf courses. With a proper management, that may, or may not be similar to traditional grassland management in agriculture, these extensive areas can have important values for biodiversity.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the potential for alternative grassland management.
- Sharing of current experience on development, testing and implementation of innovative grassland management techniques.
- The adoption and implementation of the techniques where appropriate amongst the boreal member states.

2. Forest Habitats

3.1 Management and restoration

Problems

- The (re) establishment of appropriate management and the restoration of degraded habitats is one of the key issues for forests in the boreal biogeographic region. Reasons for this include intensification of the management of forest ecosystems, the loss of traditional management (partly due to socio-economic factors and demographic change within the boreal countries) and other external factors such as climate change and general changes in land use management.

Solutions

- A key solution is to clarify the correct management that should be applied to the specific forest type in question within the country, region or locality that in which it occurs.
- Following the identification of the correct management, the reintroduction of the appropriate forest management is the next obvious step.
- Habitat restoration in the form of the restoration of degraded and poor quality areas of forest habitat provides a further solution to this problem. Furthermore, the creation of buffer zones or the extension of existing areas of habitat through restoration activities on their margins, can increase their viability for the habitats and species that they contain and provide them with protection from the effects of external impacts (such as pesticide run-off, hydro geological change, etc).

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of forest management and fragmentation.
- The adoption and implementation of the network amongst the boreal member states.
- The development of generic and specific forest restoration and management guidelines.

3.2 Mimicking natural processes through duplicating natural disturbances in boreal forests

Problems

- Boreal forests, particularly western taiga, are disturbance driven ecosystems. Natural disturbances of varying origin, size, intensity and frequency create heterogeneity at the landscape and stand levels. They vary from small-scale (e.g. gap dynamics, flooding) to large scale disturbances (e.g. fires, wind-storms, insect outbreaks). Natural large-scale disturbances have largely been replaced by disturbances of human origin, such as intensive forestry, resulting in degradation of area and quality of forest habitats.
- Due to fragmentation of the Forest landscape, settlements, commercial forestry and other land use it has become clear that there are no suitable conditions for large-scale natural disturbance regimes. However, various disturbances and natural succession are prerequisites for the long-term persistence of boreal forest habitats and species.

- Although disturbance dynamics and their effects on habitats and species are well studied, there are information gaps on how to apply this knowledge in management of Natura 2000 areas. Even if natural disturbances cannot be restored on a large-scale, their effects may be duplicated at a smaller scale by means of restoration and management. Some of the large-scale disturbances, such as forest fires, have been brought into smaller scale and several studies have shown the positive effects of these prescribed burnings. However, questions remain on the effectiveness of many other issues; for example in which habitats different methods should be used, which is the optimal intensity and frequency of management, where active management is necessary, and where non-intervention conservation is preferable. In some member states national legislation may also limit the use of different methods, in particular burning. Problems also remain about how to deal with management of the five selected forest types outside Natura 2000 areas.

- Some differences of opinion exist between Boreal member states considering the importance of duplicating natural disturbances as a conservation measure for Natura 2000 forest habitats. Forest cover in Baltic States is not as high and continuous as in Sweden and Finland and at landscape scale homogeneity of forest stands is not seen as a major problem. Thus, lack of large-scale disturbances has not been such an important conservation issue in Baltic States. Lack of old-growth forests and good quality habitat, but also lack of connectivity and large forest areas, are more important factors affecting the status of Baltic forest habitats and species.

Solutions

- Restoration and proper conservational management are obviously needed in order to improve and maintain the quality of Natura 2000 network and to achieve favourable conservation status of habitats and species.

- Applying naturally large-scale disturbance factors at a smaller scale requires landscape level planning taking into account temporal and spatial aspects.

- Sufficient knowledge of forest habitat types and their area, location and quality is needed to carry out landscape level planning.

- Exchange of experiences and knowledge between member states concerning planning, restoration and management would facilitate achieving Natura 2000 conservation objectives at boreal biogeographic level.

- Active discussion between scientists and practitioners is also required.

Proposed actions/improvements

- Within the context of an active Boreal network, to promote discussion, research and exchange of information and strengthening of cooperation; including a programme of activities, e.g.:
  - The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of forest management links to the re-establishment/mimicking natural processes.
  - Exchange of knowledge about forest habitat types and their area, location and quality in order to support landscape level planning.
  - Exchange of experiences and knowledge between member states concerning planning, restoration and management specifically targeted at achieving Natura 2000 conservation objectives at boreal biogeographic level.
  - Active discussion between scientists and practitioners.

- Develop a project proposal (e.g. LIFE+) for implementing the desired restoration and proper conservational 'disturbance' management in selected Natura 2000 sites in order to achieve favourable conservation status of habitats and species.

- Develop a project proposal (e.g. LIFE+) for applying naturally large-scale disturbance factors at a smaller scale through a landscape level planning approach that takes into account temporal and spatial aspects.

3.3 Connectivity issues outside Natura 2000

Problems

- The forest landscape has become fragmented and in many areas natural forests only remain as small isolated fragments where populations of many species are prone to local extinctions. Due to settlements, forestry and other land use it has become clear that there are no suitable/reduced conditions for the movement of animals and plants between isolated habitats.

- The resulting isolation of forest habitats makes them less viable ecologically both for the habitats themselves and for their associated species. One critical factor is the reduced size of habitat and another is their lack of connectivity which prevents the migration of species from one habitat island to another, thereby reducing the genetic viability of populations.

Solutions

- Habitat restoration provides one of the key solutions to this problem. It can take the form of: reintroducing appropriate management for wildlife within commercial Forest management techniques; the creation of ecological networks - that provide ecological connectivity between isolated sites; realised in the form of forest habitat 'stepping stones', small woods and shelterbelts or full-blown habitat corridors that provide permanent connections between habitat islands. Such activities can be combined with commercial forestry.

- In addition, the restoration of degraded and abandoned habitats can provide both connectivity and the potential for recolonisation by species. Furthermore, the creation of buffer zones or the extension of existing areas of habitat through restoration activities on their margins, can increase their viability for the habitats and species that they contain and provide them with protection from the effects of external impacts (such as pesticide run-off, hydro geological change, etc).

- Spatial planning, involving the identification of potential areas for reversing the effects of fragmentation and implementing restoration is potentially one of the most effective means of providing a strategic approach to the landscape change that is required in order to reverse the effects of fragmentation and land abandonment. Such activities should involve key stakeholders within the commercial forestry sector.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of forest fragmentation.

- The development of a 'boreal ecological network' in which key areas for restoration, corridors, stepping stones and other important features and actions can be identified.

- Stakeholder-based approach culminating in the adoption and implementation of the network amongst the boreal member states.

3. Wetland Habitats

3.1 Modification of hydrological functions of mires

Problems

- Modification of hydrological functions and direct or indirect influence of drainage are the most important reasons for the unfavourable conservation status of these habitats. Hydrological changes, mostly former drainage of mires and lowering of water table in their surroundings (drainage for forestry, agriculture and peat extraction) cause consequent (long-term) changes in the vegetation structure of these habitats (loss of open areas due to encroachment with bushes and trees) which affect conservation status of many specialized or typical species with high conservation value.

- Although passive (non-intervention) management is the most common approach in mire conservation in boreal region, also active restoration approach will be unavoidable for improving conservation status of mire habitats and species. Minerotrophic peatlands (e.g.

habitat types 7160 & 7230) are not isolated from the surrounding watershed and are strongly influenced by forestry and agricultural activities (e.g. renovation of drainage ditches supported by EU funds) in their surroundings.

Solutions

- The most common need is to maintain or restore the optimal hydrological regime of mire complexes and the connected areas in their surroundings. The general goal of the restoration is to raise the water table level in the mires and to achieve a natural hydrology in the mire dominated landscapes.

- Creating buffer zones for maintenance and restoring natural or near-natural hydrological functions of mires are important prerequisite for improving conservation status of these habitats with help of passive or active management.

Proposed actions/improvements

- Develop a project proposal (e.g. LIFE+) for the large-scale restoration of the natural hydrology of mire complexes - taking it as an investment in the improvement of green infrastructure and associated ecosystem services (e.g. reducing influx of greenhouse gases) as well as for reducing future management costs of the valuable habitats and species (support wilderness approach).

- Within the context of an active Boreal network, to promote discussion and exchange of information and strengthening of cooperation; including a programme of activities, e.g.: translation of existing guidelines from national languages to English concerning restoration of various types of wetland habitats management methods and their efficiency in boreal region; expert meetings to take forward specific issues; etc.

- Approach key players with a written proposal to support designation of buffer zones for the maintenance and restoration of the natural or near-natural hydrology of mire complexes (e.g. compensation payments to the private landowners in buffer zone).

3.2 Lack of knowledge about ecological processes in minerotrophic mires

Problems

- Lack of knowledge about landscape scale hydro-ecological processes of minerotrophic mires and lack of successful large-scale restoration experience as well as guidelines for restoration of alkaline fens in Boreal region are also important aspect for improving their conservation status.

Solutions

- Previous experience (including cost-effective measures) in restoration of mires should be used in the further planning and implementation of restoration measures.

- New knowledge about hydro-ecological processes in minerotrophic mire habitats will also be needed and (cost) effective solutions for restoring these habitat types must be elaborated and implemented in the Boreal region.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of mire management and fragmentation.

- In the context of the working group (mentioned above) to provide active support for research and elaboration of effective restoration methods for wetland habitats.

- The development of generic and specific mire restoration and management guidelines.

- The development and subsequent implementation of the results of the research in relation to the practical management of sites by the boreal member states.

3.3 Restoration methodologies

Problems

- The (re) establishment of appropriate management and the restoration of degraded peatland habitats is one of the key issues for mire ecology in the boreal biogeographic region. Reasons for this include intensification of the management of peatland ecosystems in modern times through the development of sophisticated harvesting machinery, the loss of traditional management (partly due to socio-economic factors and demographic change within the boreal countries) and other external factors such as climate change and general changes in land use management in particular the drainage activities associated with modern agriculture and forestry.

Solutions

- A key solution is to clarify the correct management that should be applied to the specific peatland type in question within the country, region or locality that in which it occurs.

- Following the identification of the correct management, the reintroduction of the appropriate peatland management is the next obvious step.

- Habitat restoration in the form of the restoration of degraded and poor quality areas of peatland habitat provides is a further solution to this problem. Furthermore, the creation of buffer zones or the extension of existing areas of habitat through restoration activities on their margins, can increase their viability for the habitats and species that they contain and provide them with protection from the effects of external impacts (such as pesticide run-off, drainage activities associated with modern agriculture and forestry, climate change, etc).

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the issues of peatland management and restoration.

- The adoption and implementation of the network amongst the boreal member states.

- The development of generic and specific peatland restoration and management guidelines.

4. Freshwater Habitats

4.1 Catchment approach to conservation and management

Problems

- All of the habitat types in the Boreal process are presently at unfavourable-bad conservation status. Key reasons for this include drainage associated with both forestry (more FI and SE) and agriculture (LV, EE); whilst this was more in the past and is now decreasing, the damage was done and needs reversing. Associated impacts include eutrophication (linked in FI, SE to forestry, LV and in EE to agriculture).

- Linked to the above, further and more general land use change (e.g. cease of extensive use/management for cattle, the canalisation and tunnelling of rivers and other alterations to watercourses, etc) has resulted in damage to biodiversity interest. These changes have also led to increased erosion – linked to storm flow (rainfall in a short period of time – an effect linked to Climate change) and sedimentation (that is also connected to the issue of beavers damming the rivers (LV, EE) and peat extraction (FI)). Human impacts have also resulted in an increase in Invasive Alien Species (Heracleum sp., *Elodea* sp., fish, crayfish)

- In addition many wetlands are complex sites: management for one habitat can cause damage to another. (e.g. there can be too much deadwood in watercourses (EE, LV); too little in FI).

- Problems are compounded by governance issues. These include:
  - Overlapping jurisdiction in buffer zones (forestry act and nature conservation) which causes confusion/conflict between responsible institutions and a conflict of priorities.

- Poor cross-sectoral cooperation (Agriculture, Forestry, Water, Nature Conservation): perhaps more important in freshwater than in other habitats.
- Rigid interpretation of overlapping laws (e.g. in buffers) which provides legal barriers to active management.
- Conflict between legal regulations and management requirements (linked to the above).

- Lack of communication and exchange of best practice in the region (e.g. access to publications available in different languages).

Solutions

- Restoration and proper conservation management are obviously needed in order to improve and maintain the quality of Natura 2000 network and to achieve favourable conservation status of habitats and species. However, for rivers (and wetlands) a consideration of the issues solely within Natura 2000 is not enough; **a catchment approach** is much more likely to result in actions that will move towards favourable conservation status.

- Exchange of experiences and knowledge between member states concerning planning, restoration and management that would facilitate achieving Natura 2000 conservation objectives at boreal biogeographic level.

- Active discussion between scientists and practitioners is also required.

Proposed actions/improvements

- Prepare a written framework for how to develop an integrated, catchment based approach that will achieve FCS for the selected Annex 1 habitats. This should involve consideration of how to integrate with (e.g.) the Water Framework Directive and other legislation; how to initiatiate stakeholder dialogue and partnership (to resolve conflict, agree joint objectives, etc). This could be delivered in the form of a project proposal (in its own right or to support the next action).

- Develop a project proposal (e.g. LIFE+) for implementing the catchment based approach in selected Annex 1 habitats within and between MS.

- Workshop involving key stakeholders working in both directives to discuss and agree on cooperation between WFD and Natura 2000 at the Biogeographical level. (Consider ivolvement of key sectors such as tourism who could contribute to the delivery of solutions).

- Cross boundary cooperation LT and EE on a River (to be selected).

- Within the context of an active Boreal network, to promote discussion, research and exchange of information and strengthening of cooperation; including a programme of activities, e.g.:
  - Exchange of experiences and knowledge between member states concerning planning, restoration and management speciifcally targetted at achieving Natura 2000 conservation objectives at boreal biogeographic level for the selected Annex 1 habitats.
  - Active discussion between policy-makers, scientists and practitioners.
  - Cooperation on defining national FCS objectives and site objectives

4.2 Ecological functionality related to hydropower

Problems

- Hydroelectric power generation is a significant issue within those boreal countries that have a landscape topography that suits the creation of dams for the generation of hydroelectricity. Such installations are often small but create a significant impact on watercourses (rivers and streams) and the animals that rely on them for habitat or as migration routes. Further impacts are created for linked freshwater habitats such as lakes and ponds or ecological systems and habitats that rely on the provision of water (e.g. flooded Meadows, wet woodlands, etc).

- Harmful subsidies and a failure to include biodiversity/Natura 2000 in the design, location and management of power plants.

- There is a failure of/lack of dialogue between key stakeholders.

Solutions
- The appropriate design, location and management of hydropower installations is key to limiting their impact.

- Restoration and specific conservation management of the features (e.g. the construction of fish ladders and other means for the migration of species, special management of water courses in order to maintain or recreate lost features, etc) are needed in order to improve and maintain the quality of key habitats and species.

- In order to achieve the above it is necessary to establish a dialogue with key stakeholders in order that measures can be included in new projects and proposals or retrofitted into existing installations.

Proposed actions/improvements
- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the impact of Hydroelectric power generation on the ecological functionality and restoration of wetlands.

- The development of generic and specific guidelines for the design, location and management of new hydroelectric power installations and the mitigation of the impacts of existing installations.

- The engagement of key stakeholders in a positive dialogue towards the acceptance of the issues, objectives and actions for their solution.

4.3 Cross sectoral cooperation (eg synergies with WFD, etc)

Problems
- The nature of the key impacts on freshwater ecosystems is that they are often the result of the cumulative effects of the actions taken by a range of different sectors (e.g. transport, water management, forestry, agriculture, etc). The solution to these problems is therefore a cross sectoral approach that emphasises the need for cooperation in planning, implementation and subsequent management of the sectoral activities.

- Often the problems do not result from a lack of willingness on the part of the different sectors; rather it is a lack of communication, awareness and understanding of the issues.

Solutions
- The initiation of positive, outcome orientated stakeholder dialogue is a key part of establishing solutions to these problems.

- Associated with this approach are a range of skills in the facilitation of dialogue and cooperation. These may or may not be skills held by those who would wish to promote such actions; a level of training is therefore often desirable in relation to the development of these skills amongst key actors. Where the training involves a range of stakeholders it can take a ”learning by doing” approach that engages the participants in the early solution to the issues that they wish to pursue later.

Proposed actions/improvements
- Linked to the pursuit of a catchment based approach, the establishment of a working group to identify, contact and engage the key stakeholders is an important first step in the process.

- The initiation of training in stakeholder participation techniques would be highly valuable.

- The engagement of key stakeholders in a positive dialogue towards the acceptance of the issues, objectives and actions for their solution.

4.4 Complexity of habitat

Problems

- Key negative impacts on freshwater ecosystems are often the result of the cumulative effects of actions taken by a range of different sectors (e.g. transport, water management, forestry, agriculture, etc); The solution to these problems therefore requires and ecosystem approach that emphasises the need to address a range of causative factors.

- There is a relative lack of knowledge about landscape scale processes in relation to the impact on freshwater ecosystems and lack of successful large-scale management and restoration experience that takes into account the need to address a variety of causative factors.

Solutions

- Understanding the problem, including the interactions of different factors, is a key issue.

- Gathering existing knowledge and finding out new knowledge about the relevant ecological processes will be needed together with the elaboration of cost-effective solutions for the restoration and management of these key habitat types.

Proposed actions/improvements

- The establishment of a working group under the auspices of the networking framework (chapter 4) to address the complexities surrounding the issues of freshwater management.

- In the context of the working group (mentioned above) to provide active support for research and elaboration of effective multifaceted management methods for freshwater habitats.

- The development of generic and specific freshwater restoration and management guidelines.

- The development and subsequent implementation of the results of the research in relation to the practical management of sites by the boreal member states.