BRIEFING

Response to consultation on *Green Paper on Forest Protection and Information in the EU: Preparing forests for climate change*

General introduction about the Green Paper

The European Commission (EC) has opened a public consultation on a series of questions relevant to developing options for future forest protection and information under a changing climate. The *Green Paper on Forest Protection and Information in the EU: Preparing forests for climate change* is divided into several sections, concerning:

- Description of state of Europe's forests, history of use and current status, socio-economic and environmental functions
- Impact of climate change on forests, large scale disturbances such as storms and forest fires: mitigation and prevention
- Review of existing legal measures for forest protection
- Review of SFM (sustainable forest management) practices
- Review of most important information sources of information on forests
- Suggested next steps

Each section is followed by specific questions, related to its content. The original questions are listed below; followed by draft responses suggested by the BirdLife FTF. Please note that all questions are optional and you may choose not to respond to all of them.

BirdLife Partners are invited to use this document briefing when responding to the online questionnaire and as a background document in relation to this Green Paper.

QUESTION 1

Do you think maintaining, balancing and enhancing forest functions should be given more attention?

According to the Section 2 of the Green Paper, most of European forests are between 60-80 yrs old and mainly composed of one or two tree species, only occasionally reaching more than 10. This gives an overall picture of condition of European forests, being quite poor and homogeneous habitats. The paper states, however, that overall biodiversity depends not only on tree species but on stand structure and resulting light conditions – this is true, but it is also true that structure and light conditions are directly related to age structure and species composition within the stand, and therefore cannot be too diverse in relatively young stands consisting only of one or two species.

The paper refers to the trends of forest bird populations which have mostly stabilized, considering this fact as an indicator of 'favourable conservation status' of forests. It should be noted, however, that the majority of bird species classified as forest dwelling (according to Pan-European Common Bird Monitoring Scheme[1], are habitat generalists, not dependent on presence of natural forest characteristics, such as significant share of old growth, considerable amount of dead wood, well-developed structure or occurrence of natural disturbances. Major factor influencing their habitat selection is the general presence of forest cover (more or less unfragmented forest patches). Considering the above, the general good population status and stability can be explained by the fact that the forest cover in Europe has been 1) maintained, 2) and at least until recently, increasing[2]. Nevertheless, the presence of forest cover does not implicate the presence of natural forests and general trends of common forest dwelling species do not reflect the status of 'forest biodiversity' in general, and of forest habitat specialists in particular in countries where they occur. The same conclusions are reached also in the report of the European Environmental Agency regarding the forests status of Europe[3].

To conclude, the stable or increasing trends in common forest birds' population themselves do not indicate favourable status of forest biodiversity in Europe. Other indicators should urgently be included in the Green Paper in order to assess the real 'conservation status' of forests in Europe e.g. the population trends of protected or threatened forest species or the average amount of old-growth forest and dead wood per hectare and country. When these species show positive population trends, a 'favourable conservation status' of European forests could be attested. Such indicators have been developed and tested by BirdLife in the process of identification of Biologically Important Forest of Europe from Scandinavia to the Balkans[4]

Conclusuion: Maintaining, balancing and enhancing forest functions should definitely be given more attention. Besides biodiversity, other important forest functions should also be given more attention in the EU. There is currently a strong scientific and political debate on the role of 'ecosystem services' for human well-being.[5] Forests produce oxygen, purify water, sequestrate carbon, deliver fiber and have a positive impact on the health, psychological and spiritual well-being of citizens all over Europe. They protect citizens against avalanches in

1 http://www.ebcc.info/pecbm.html

2 MCPFE 2007: State of Europe's forests 2007. The MCPFE Report on Sustainable Forest Management in Europe. 5th MCPFE. MCPFE Liaison Unit Warsaw, UNECE and FAO.

3 EEA 2010. 10 messages for 2010 - Forest ecosystems – Forest ecosystems. www.eea.europa.eu

4 www.forestmapping.net

5 Manifested in the recently published reports on 'The Economic of Ecosystems and Biodiversity (TEEB)'. TEEB is an international initiative of various governments to assess the economic value of ecosystems and biodiversity. http://www.teebweb.org.

mountainous areas and against floods along rivers. So far, this immense additional value that forests produce has not been sufficiently recognized and appreciated by policy. That is why it is very important that each forest policy paper that may be produced on EU-level should clearly state the relevance of these functions and their economic implications.

If so, on what level should action be taken, EU, national and/or other?

There is a need for action on all levels: EU, national and sub-national.

While on national and sub-national level there are already various initiatives, many EU Member States haven't set their forest priorities according their local conditions and especially in view of climate change. Actions on EU level are still very weak, if not to say 'non-existing'.

The actions through specific measures and guidance on EU level should be much stronger in order to promote multiple forest functions from biodiversity and climate mitigation to wood and non-wood goods production.

How should it be done?

Necessary actions should include:

- Increasing the area of strictly protected forests to ecologically sustainable levels, to cover all remaining natural old-growth forest in Europe, as well as providing opportunities for their enlargement through restoration and active management where necessary. The minimal amount of strictly protected forest should be 5% of forest cover within country/region. This level is realizable and corresponds with requirements of most certification schemes, such as FSC[6]. It is recommended that the amount of strictly protected forest is increasing from this level, up to 10% and more[7]

The Green Paper states: *"Active forest management can create more diverse habitat structures by mimicking natural disturbances which in turn can favour higher species diversity, in comparison to no management."*

This statement is incorrect. In fact, just the oppsite is true. Here the Green Paper clearly denies the knowledge of state-of-the-art forest ecological science. Forest management, even if it is meant to 'mimic natural processes', will never lead to higher level of biological diversity than natural processes themselves. Moreover, it must be remembered that management practices cannot substitute for natural processes[8]. It is true that some practices, such as continuous cover forestry, support the development of more diverse structures in managed stands. But this is only true while considering typical single-age monocultures that are still very common in many regions of Europe. It is not true when natural forest ecosystems are considered. For example, while in managed forest some trees are permanently removed from the forest, this is not the case in natural ecosystems, leading to completely different developments in terms of age structure, amount of dead wood and biodiversity.

In conclusion, forest management aimed at creating more diverse habitats is highly recommended. In many cases large-scale restoration programmes are needed. However, the implementation of biodiversity-oriented forestry must not be used as an excuse to avoid establishing sufficiently large strictly protected forest areas.

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6 http://www.fsc.org/pc.html

7 Hanski, I., Walsh, M., 2004. How Much, How To–Practical Tools for Forest Conservation. BirdLife European Forest Task Force, p. 50.

8 Lõhmus, A. et al. 2004. Loss of old-growth, and the minimum need for strictly protected forests in Estonia. Ecol. Bull. 51: 401–411.

Angelstam, P. 1998. Maintaining and restoring biodiversity in European boreal forests by developing natural disturbance regimes. – J. Veg. Sci. 9: 593–602.

Our position is that the best way to harmonize biodiversity protection needs, forest production and social services in forest ecosystems is through a combination of:

- strictly protected areas,
- managed forests of special category, serving as buffer zones around them and subjected to ecosystem services,
- multiple use areas managed by local people,
- seminatural forests extensively managed for sustainable yield of logs and other products and services by securing a minimum level of biodiversity conservation in productive forests. This could be ensured by the prescription of minimum standards for Sustainable Forest Management (SFM) on EU-level which should be in agreement with FSC standards.
- a small amount of forest areas will be mere commercial forests (and plantations) intensively managed for the production of wood.[9]

QUESTION 2

To what extent are EU forests and the forest sector ready to address the nature and magnitude of the challenges posed by climate change?

Compared to other biogeographical regions forests of temperate and boreal zone that dominate in Europe, have relatively high potential to adapt to climate change[10]. According to numerous scenarios, the response of European forest ecosystems to changing climate conditions might include increasing vulnerability to extreme events and biotic factors causing disturbances, shifting of current geographical ranges of species and associated impact on forest biodiversity, competitive disadvantage, and decline of some species as well as expansion of other, and finally increased biomass productivity in northern regions[11]. There is still a high level of uncertainty regarding the overall effect of combination of these factors. However, the inner capacity of forests to adapt to climate change largely depends on their actual level of ecological functionality, complexity, and naturalness. Highly altered communities, with poor species diversity and simplified structure are less capable to adapt to climatic instabilities[12], as it is the case for the majority of Western and Central European forests.

Most of the rare and threatened plant, fungi and animal species depend on forests, particularly on their late successional stages. Such old-growth characteristics can fully develop and perpetuate only in forests that are subjected to the long lasting natural regime with a decisive influence of natural disturbances. Obviously, neither increasing forest acreage nor the steadily growing biomass can be used as indicators of the success in old-growth conservation which is a necessary condition for sustaining forest biodiversity.

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9 McNeely, J. 1994. Lessons from the past: forest and biodiversity. Biodiv. Conserv. 3: 2–20.

10,11 Impacts of Climate Change on European Forests and Options for Adaptation. Report to the European Commission Directorate-General for Agriculture and Rural Development, November 2008.

12 Thompson I., Mackey B., Mc Mosseler A. 2009. Forest resilience, biodiversity and climate change. A synthesis of the biodiversity/ resilience/ stability relantionship in forest ecisystems. Secretariat pf the Convention on Biological Diversity. Montreal. Technical series no. 43, 67 p.

There are several tools for forest conservation available at national and EU levels. However, usage of these measures in practice is inefficient and often inappropriate. The most important gap in existing policies is the lack of legal basis for protection of natural processes.[13]
For many EU Member States the Natura 2000 network constitutes a foundation upon which to develop a specific approach to the protection of biodiversity. However, conservation of natural processes is not a clear and explicit objective of the EU nature conservation legislation, the Birds and Habitats Directives. There is a need for specific policy development to fill this gap.

Do you consider particular regions, certain countries more exposed/vulnerable to the effects of climate change? What sources of information would you base your answer on?

While boreal and temperate forests have quite large potential to adapt to warming climate, it might be expected that forests in the South (Mediterranean) region will be more affected by increasing temperature.
Other probable results could be the decrease of tree growth rate and more frequent fires. However the Mediterranean region is naturally adapted to withstand extreme and unpredictable dry climatic conditions[14]. Frequent droughts and forest fires have always been occurring there and are part of the natural disturbance regime in this region. As a result Mediterranean forests have developed a capacity to regenerate naturally.
Therefore, what is needed is not 'preventing fire' in general but specific management in a way to avoid frequent burning in the same area. In lowland pine forest for example, since fire is very likely to occur sooner or later, post-fire management, focused at promoting natural regeneration with addition of simple, low-cost works and educational campaign is equally important as prevention[15]. On the contrary, upland and mountain coniferous forests with fir, being habitats not adapted to fires, are therefore highly vulnerable and fire prevention and control is desired.

Would you see a need for EU-level early action to ensure all forest functions are maintained?

Analyzing the threats to European forests and the current structure and deficits in forest and forest related policies, arguments for a more coherent approach for forest protection at the Community level are strong and can be derived from ecological, economic and socio-political perspectives. Among the main ecological arguments in favour of a Community approach is the fact that several challenges are of a trans-boundary nature or are significant across whole Europe, as it was presented on the Biologically Important Forest Mapping from the Artic to the Balkans project of BirdLife. This is why the loss of biodiversity in forests can be regarded as a general European problem and not as something local. Invasive plant, insect and fungal species are increasingly crossing national state borders and are simultaneously affecting forest ecosystems in many European regions[16]. Forest fires and storms are also increasingly becoming transnational phenomena. All these problems will very likely increase with the projected changes in climate.
From the economic perspective, a common approach would have positive effects on the European Common Market by preventing distortion caused by different forest

13 Wesołowski T. 2005. Virtual Conservation: How the European Union is Turning a Blind Eye to Its Vanishing Primeval Forests. Conservation Biology 19: 1349–1358.

14 Impacts of Climate Change on European Forests and Options for Adaptation. Report to the European Commission Directorate-General for Agriculture and Rural Development, November 2008.

15 Stachura- Skierczynska K. and Walsh M. 2010. Against the grain: Improving the management of NATURA2000 sites and other forests in the EU. BirdLife European Forest Task Force. BirdLife International 2010.

16 European Environmental Agency 2010. Towards an early warning and information system for invasive alien species (IAS) threatening biodiversity in Europe. EEA Technical report/ No5/2010.

protection standards within the EU Member States. Further, it would help to avoid a 'race to the bottom' between Member States concerning, e.g., forest management and protection standards, in case of increasing economic competition. Specifically, a more coordinated Community approach and Member States' cooperation would assist in the establishment a consistent information basis and in closure of knowledge gaps regarding the state of and impacts on EU forests in terms of the various demands of European societies.
Politically, a Community approach could help to overcome potential regulatory failures and discrepancies between the fundamental goals of the EU and the currently applied policy measures. Forest protection measures are spread across different EU policy fields often leading to contradictions between pursued objectives because of unset priorities in policy implementation on EU and National level.

How could the EU contribute to add value to the respective efforts of Member States?
BirdLife International considers that the EC shoud initiate the drafting of a Forest Framework Directive, following the model of the Water Framework Directive. Framework directives are a suitable tool for policy issues in situations where common European objectives and standardisation are seen as beneficial, but where high flexibility regarding implementation is required due to the different natural, socio-economic, cultural and institutional conditions of the Member States. Such broad bu legally binding objectives should provide for better coordination across Member States in the mid term. Rules and instruments of the Directive can be further specified and adjusted during the implementation process.
The general goal of the Forest Framework Directive (FFD) would be to maintain and restore a 'good status' of all forests in the EU, in light of their social, ecological, and economic importance, and make them resilient against harmful impacts by 2030.
From a financial perspective, BirdLife would welcome the allocation of community and MS funds to support land purchase for strict protection. Moreover, the Member States regional collaboration and experience exchange on forest issues should be promoted since it is neglected; the establishment of long-term research programmes could be a tool for this gap.

QUESTION 3

Do you consider that EU and Member States policies are sufficient to ensure that the EU contributes to forest protection, including preparing forests for climate change and conserving biodiversity in forests?
Forests and forest management face a variety of challenges due to ecological and socio-economic developments, such as climate change and an increasing demand for wood from the bioenergy sector. Albeit these challenges affect forests all over Europe, no common forest policy exists on the EU level today. Instead, forest and forestry issues are addressed by several EU policies in the environmental, agricultural and energy fields. The "EU Forestry Strategy" (1998) and the "EU Forest Action Plan" (2006), both of which follow a voluntary approach, aim to improve the coordination of those policies by proposing forest related actions to be carried out by the Commission and by Member States. These instruments do not, however, provide a coherent and binding policy framework. In a response to this fact, the European Commission therefore assigned a study in 2009 on "EU policy options for the protection of European forests against harmful impacts" which examined in detail the future challenges for European forests and the forestry sector.
From biodiversity perspective, forests included in Natura 2000 sites, as numerous cases show, are managed, largely depending on the wishful interpretation of what the desirable state of an ecosystem is, just as the application of sustainable forest management relies on the beliefs of

local forest authorities. The dominant views often contradict the natural ecosystem dynamics which results in loss of natural characteristics, processes and biodiversity. This has further consequences: the long-term survival of specialized forest species dependent on these natural characteristics – "old-growth specialists", many of them included in both Birds and Habitats Directives – is also under threat[17]. Therefore (1) there is gap from theory to practice and (2) is there are are no real tools to control and provide incentives to achieve biodiversity conservation objectives in the forests.

The study concludes, and BirdLife agrees, that the challenges ahead ask for more coherent policy approach to European forest protection and forest management. Existing instruments should be developed further; a Forest Framework Directive could be the answer. BirdLife International asks the European Commission to take initiative in this field and to raise awareness among the Member States for the need of a coherent European forest policy.

A major contradiction exists between EU forest conservation and climate objectives and the EU bioenergy policy

The 2009 Renewable Energy Directive[18] clearly incentivises the use of biomass towards achieving the EU's target of 20 per cent renewable energy by 2020. The projection in the Renewable Energy Roadmap suggest that the use of biomass will more than double, to contribute to about half of the 20 per cent renewable energy target by 2020[19] .

Despite of the calls of the European Parliament, some member states and NGOs, the Commission has not yet proposed binding sustainability criteria for biomass, but only recommended that Member States integrate *voluntary* biomass sustainability criteria into their own national schemes.
Increased biomass mobilisation from forests can bring significant damages to European forests and to forests globally. Even though studies are increasingly showing that demand will exceed supply in Europe, the idea that wood biomass is inexhaustible still seems to underpin the European Commission's approach to biomass for energy production. By only publishing voluntary recommendations, the European Commission is ignoring and potentially also undermining some of its own policies. Bioenergy strategies based on increasing harvesting levels for bioenergy might lead to a depletion of the forest carbon storage capacity and so counteract climate change objectives. A recent study[20] commissioned by BirdLife and other NGOs highlighted the flaws in current carbon accounting and the risk that much of the foreseen woody biomass energy will actually result in emission increase, *contributing* to climate change rather than to its mitigation. Such results are consistent with several other recent studies[21].
Beside the question marks over the GHG balance of biomass extraction, it is clear that the effects on forest biodiversity can be dramatic, as the link between forest biodiversity and deadwood has been well known. The forseen dramatic rumpup in "wood mobilisation" will

17 Stachura- Skierczynska K. and Walsh M. 2010. Against the grain: Improving the management of NATURA2000 sites and other forests in the EU. BirdLife European Forest Task Force. BirdLife International 2010.

18 Directive 2009/28/EC on the promotion of the use of energy from renewable sources.

19 COM(2006)848

20 http://www.birdlife.org/eu/pdfs/Bioenergy_a_carbon_accounting_time_bomb_FINAL.pdf

21 Manomet Center for Conservation Sciences. 2010. Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy Resources. Walker, T. (Ed.). Contributors: Cardellichio, P., Colnes, A., Gunn, J., Kittler, B., Perschel, R., Recchia, C., Saah, D., and Walker, T. Natural Capital Initiative Report NCI-2010-03. Brunswick, Maine.
http://www.manomet.org/sites/manomet.org/files/Manomet_Biomass_Report_Full_LoRez.pdf

inevitably slow down or halt the recovery of European forests that have been mostly regaining maturity over recent decades after centuries of over exploitation. Therefore the current bioenergy policy also increases the risk of unsustainable forestry practices, thereby undermining EU policies on reducing deforestation[22] and on halting biodiversity loss.[23] The Green Paper pays very little attention to this policy contradictions.

In what areas, if any, do you think further action may be necessary? How might this be organized, under the given policy framework or beyond?

There is a need for a European legal tool for forest conservation

A proposed Forest Framework Directive should cover at least the following six objectives:

1. Identify and monitor the state of the forests and the threats affecting them;
2. Ensure the sustainable management of all EU forests in view of their social, ecological, and economic importance
3. Stop and reverse the loss of forest biodiversity
4. Enhance forest adaptation towards climate change and the mitigation of climate change
5. Provide a sustainable financial fundament for multifunctional forest management
6. Encourage broad societal participation and appreciation of forest conservation and management

These objectives would be accompanied by four common forest protection and financial instruments:

- Common Sustainable Forest Management Framework
- European Forest Protected Area Network
- European Payment for Forest Ecosystem Services System
- European Forest Monitoring System

In order to reach the objectives and implement the required structure in a coordinated way, a series of five National Requirements would be necessary. As a general rule, the requirements should be broad enough so that they can be adapted to diverse regional and ecological contexts and then can be further specified during the national implementation process.

- National binding SFM minimum standards
- National SFM best practices strategies
- National forest adaptation and mitigation strategies against climate change
- National forest programmes
- Participatory forest planning in public forests

As a complement to this system of Common Instruments and National Requirements, a Common Catalogue of Measures should be developed to facilitate and support on-the-ground implementation of the Directive's objectives and instruments in the Member States. Measures of the catalogue would be selected by the Member States according to national preferences.
Various national and regional forest actors would be able to apply for funding when implementing the proposed measures (similar to the forest measures offered in the current EU rural development policy).

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[22] Communication on addressing the challenges of deforestation and forest degradation to tackle climate change and biodiversity loss. COM(2008)645

[23] Communication on options for an EU vision and target for biodiversity beyond 2020. COM(2010)4

EU should assure sufficient funding for forest protection (land purchase and restoration). New funds should be made available through i.e. enlarging budget of LIFE+ or by ringfencing structural funds and CAP resources.

Contradictory policy objectives should be eliminated urgently

The EU Bioenergy policy must be urgently revised in order to ensure coherence with forest conservation, biodiversity and climate objectives.

It is vital that the European Commission reverses its decision and puts in place robust mandatory sustainability standards including minimum thresholds for greenhouse gas savings. Given the urgent need to reduce GHG emissions in the short-term i.e. the next 10 to 40 years, only biomass that delivers positive GHG gains compared to fossil fuels over a 20-year period should be allowed to qualify for meeting the 20% renewables target. In practical terms, this means limiting bioenergy to certain feedstocks, such as certain waste streams where this does not compete with other uses, new plantations on abandoned land with little biodiversity value, or carefully managed systems in which proven increased growth is stimulated by forest management.

Getting the carbon accounting right is absolutely crucial. However, it is far not the only need. Bioenergy production can have very severe impacts on biodiversity, water and other natural resources and on vulnerable human populations. Therefore, the following steps should be taken:

- The Commission should adopt a set of comprehensive, watertight, legally binding and well implemented sustainability standards for biomass. They are absolutely vital in order to ensure that bio-energy can truly live up to its promise of being "green energy".

- In its dialogue with Member States the Commission should demand proper naional level planning that is matching energy demand to sustainably available raw material.

- Working mechanisms for incentivising wise use of scarce biomass - first material use, than recycling, then energy – should be developed.

- Member States should ensure that efficiency of energy installations and reducing overall energy demand is in the basis of each national renewable energy plan.

QUESTION 4

How could the practical implementation of Sustainable Forest Management be updated in order to upkeep the productive and protective functions of forests and overall viability of forestry, as well as enhance the resilience of EU forests in view of climate change and biodiversity loss?

Considering the above, forestry should address the challenge of climate change and biodiversity loss by implementing forest management practices aimed at restoration and improvement of the natural (intrinsic) capacity of forest ecosystems to adapt to climate change.

Such practices include among others: applying continuous cover forestry techniques, avoiding clearcuts, promoting natural regeneration, applying thinning aimed at transforming vulnerable monocultures of fir and pine into less vulnerable, multi-layered mixed-forests, selective cutting and stand remodeling in order to restore natural species composition typical for the site.
One of key threats related to climate change is posed on rare species living in isolated habitats that have little or no capacity to migrate due to loss of natural ecological linkages and past migration routes. Remnants of natural old-growth forests provide refugia for many species. However, small and isolated patches of such habitats cannot guarantee long-term survival of viable populations of specialized species. Concluding, there is a need to protect of all remaining natural old-growth forests in Europe as 'biodiversity pools' as well as to restore and maintain connectivity between them.

For forests in the Natura 2000 Network

According to the Message from Prague[24], it is recommended to further develop the existing policy in order to better protect remaining wild areas and therefore ensure the long-term persistence of rich spectrum of forest biodiversity. Key recommendations include:

- providing guidance on how wilderness qualities could receive legal protection under the Natura 2000 regime,
- taking account of the need to protect ecological processes as well as habitats and species under Birds and Habitats Directives,
- promoting connectivity of existing protected areas, restoration of degraded areas, and the setting up of corridors and ecological networks (the Biologically Important Forests project of BirdLife is quite a good example on this issue)
- identifying and promoting opportunities within the 2012 Common Agricultural Policy review that can benefit protection and restoration of wilderness and wildlands, especially in relation to abandon agricultural land and ecosystem-based adaptation to climate change.

In summary, this means:
- increase the adaptive capacity and ecosystem resilience of European productive forests by implementing consistently close-to-nature-forestry and continuous-cover-foresty.
- strengthening the forest matrix by integrating a high level of biodiversity conservation measures in productive forest and by restoring the connectivity between isolated patches of old-growth forests and protected areas;
- improve the effective protection of existing protected areas, such as Natura 2000 sites;
- and strictly protect Europe's last old-growth forests as refugia and pools for biodiversity.

What steps are required to ensure that the gene pool in forest reproductive material can be successfully conserved in its diversity and adapted to climate change?
Also in this case, protection of natural old-growth forests should be an important component of successful preservation of forest genetic resources. It has been evidenced that old-growth forests can serve as potential reservoirs of genetic diversity for the dominant tree species[25].

24 Poselství From Prague. An Agenda for Europe's Wild Areas. Summary of the Conference on Wilderness and Large Natural Habitat Areas, Prague, Czech Republic, 27-28 May 2009.

25 Mosseler, A., Major, J., E., Rajora, O., P. 2003. Old-growth red spruce forests as reservoirs of genetic diversity and reproductive fitness. Theoretical and Applied Genetics 106: 931-937

Moreover, complex, genetically diversed old-growth forests themselves provide high-value carbon sinks and may continue to do so for centuries in all forest biomes, unless disturbed[26]. Therefore protection of old-growths is a necessary condition of long-term strategy aimed at conservation of forest genetic resources under changing climatic conditions.

QUESTION 5

Taking into account the various relevant policy levels, is available forest information today sufficient to assess with sufficient accuracy and consistency:

The health and condition of EU forests?

Despite efforts to harmonize the evaluation methods on forest health and condition in the EU, the methods still differ from country to country, leading to a limited comparison of the results. A cohesive dynamic monitoring schemes on forests and their condition on EU level are crucial so to deal with climate changes on time.

Their productive potential?

Here, the need for harmonization and improvement is less dominant, as Member States have rather well developed inventory methods for assessing the productive potential. However, there is a gap concerning the sustainable supplies of non-woods goods and services.

Their carbon balance?

Harmonization is in process through reporting standards developed under the framework of the UNFCCC. However, overall data on the carbon balance of managing forests is patchy and of insufficient quality. All EU Member States should be investing resources in land and forest management data so that Tier 3 level data, under the IPCC reporting guidelines is used.

Their protective functions (soils, water, weather regulation, biodiversity)?

Here, we see the greatest need for improvements and harmonization. None of the Member States has sufficient monitoring methods for the protective functions. A set of biodiversity indicators (indicators such as amount and quality of dead wood, amount and quality of habitat trees, forest structure, special biotopes, etc.) should be included into regular forest inventories. Nevertheless, with the existing data from national forest inventories (NFI) a rough assessment of so called 'biological important forests' is possible.

The FTF initiative of mapping Biologically Important Forests (http://www.birdlife.org/action/change/europe/forest_task_force/index.html) is based to a large extent on national forest inventories, resulting in a coherent dataset covering several Eastern-European countries from Scandinavia to the Balkans. This is also a good example of how data collected mainly for economic purposes can be used to obtain information on ecological and biodiversity-related aspects of forests. It is recommended that a similar approach is undertaken by all Member States in order to obtain harmonized information on location of old-growth natural forest remnants as well as other forests of high conservation value as 'hot-spots of biodiversity' or 'biodiversity pools'.

The provision of services to society and their social function?

In most countries, these aspects are merely covered by single studies in form of scientific publications. These often fail to give an overall overview on the country level. They also very

26 Luyssaert, S., E.-D. Schulze, A. Börner, A. Knohl, D. Hessenmöller, B.E. Law, P. Ciais and J. Grace. 2008. Old-growth forests as global carbon sinks. Nature 455: 213-215.

often focus merely on the economic effects of forestry, such as labor and contribution to gross national product. They do not cover the economic benefits of water purification, carbon sequestration and soil protection etc.

Overall viability of forestry?
So far, there exists no overall indicator that would indicate how viable (or sustainable) the forestry of one member state is compared to another one. It would be useful to have such an indicator. However, an independent organization would need to be assigned with developing this indicator and measuring it. A harmonized forest information policy would be crucial for the development of such an indicator.

If it is insufficient, how should forest information be improved?
See answers to the points above.

Are efforts towards harmonised data collection on forests sufficient?
See answers to the points above.

What can the EU do to further develop and / or enhance forest information systems?
The harmonization of forest information should be a central pillar of any coherent EU forest policy.
National experts and correspondents should be more involved institutional and practical in order EU to be prepared to deal with the urgent future conditions at any time.

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