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Annexes to the IMPACT ASSESSMENT

Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS**

Our life insurance, our natural capital: an EU biodiversity strategy to 2020

{COM(2011) 244 final}
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ANNEXES

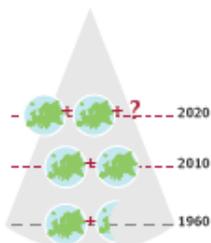
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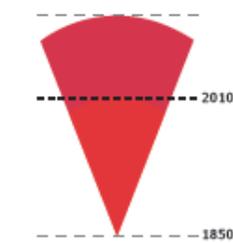
ANNEX 1 – EU 2010 BIODIVERSITY BASELINE

Global dimension

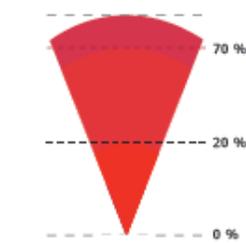
Between 12 % and 55 % of selected vertebrate, invertebrate and plant groups are threatened with extinction at the global level; the decline of wild vertebrate species between 1970 and 2006 is especially severe in the tropics (59 %) and in freshwater ecosystems (41 %) (GBO3, 2010). Currently, only 0.7 % of oceans are protected (WDPA, 2010). The rate of tropical deforestation decreased nearly 20 % between 2000 and 2010 (FAO), but is still very high: 13 million hectares lost each year (equivalent to the area of Greece). In this context Europe's demand for natural resources goes well beyond its boundaries.



Europe's ecological footprint – global impact increasing
Europe is currently consuming twice what its land and seas can produce. Global Footprint Network estimates that over the last 40 years, Europe's Ecological Footprint increased by 33 %. Europe needs to address the global dimension of its consumption.



Ocean acidification – first signs of impacts on the food chain
Globally, ocean acidity has increased by 30 % in the last 150 years mainly due to increased CO₂ emissions (UNEP). Increased acidity in marine environments affects the survival of numerous marine organisms, which in turn may affect many species that feed on them.



Coral reefs – an underestimated EU responsibility
20 % of the world's tropical coral reefs are already lost, an additional 50 % is at risk. More than 10 % of global coral reefs are located in the overseas territories of EU Member States (IUCN).

'Over the past few hundred years, humans have increased species extinction rates by as much as 1 000 times background rates that were typical over Earth's history' (MA, 2005).



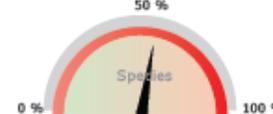
European biodiversity baseline Where does Europe stand in 2010?

There is mounting evidence that the status of many ecosystems is reaching or has already reached the point of no return. In the same way that a 2 degree rise in global temperature above pre-industrial levels would lead to catastrophic climatic change, the loss of biodiversity beyond certain limits would have far-reaching consequences for the very functioning of the planet. These limits are still being defined, but it is already clear to the scientific community that the current rate of biodiversity loss puts the future well-being of citizens in the EU and worldwide at risk (European Commission, 2010).

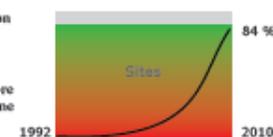
Species faced with the risk of extinction
Up to 25 % of European animal species, including mammals, amphibians, reptiles, birds and butterflies face the risk of extinction and are therefore included in the EU Regional Red List by IUCN.



Poor conservation status
62 % of the habitats and 52 % of the species covered by the EU Habitats Directive are considered to be in an unfavourable conservation status (EEA-ETC/BD, 2009).



Natura 2000 site designation – nearly completed
Designation of Natura 2000 terrestrial sites in Europe is nearly completed. Much more effort is needed for the marine sites (EEA-ETC/BD, 2010).



| Services | Ecosystems | Agro ecosystems | Forests | Grasslands | Heath and scrubs | Wetlands | Lakes and rivers |
|---------------------|------------|-----------------|---------|------------|------------------|----------|------------------|
| Provisioning | | | | | | | |
| Crops/timber | | ↓ | ↑ | | | | |
| Livestock | | ↓ | ↓ | ↓ | ↓ | ↓ | |
| Wild Foods | | ↓ | ↓ | ↓ | ↓ | ↓ | |
| Wood fuel | | | ↓ | ↓ | ↓ | ↓ | |
| Capture fisheries | | | | | | ↓ | ↓ |
| Aquaculture | | | | | | ↓ | ↓ |
| Genetic | | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Fresh water | | | ↓ | ↓ | ↓ | ↓ | ↓ |
| Regulating | | | | | | | |
| Pollination | | ↑ | ↓ | ↓ | ↓ | ↓ | |
| Climate regulation | | | ↑ | ↓ | ↓ | ↓ | ↓ |
| Pest regulation | | ↑ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Erosion regulation | | | ↓ | ↓ | ↓ | ↓ | ↓ |
| Water regulation | | | ↓ | ↓ | ↓ | ↑ | ↓ |
| Water purification | | | | | | ↓ | ↓ |
| Hazard regulation | | | | | | ↓ | ↓ |
| Cultural | | | | | | | |
| Recreation | | ↑ | ↓ | ↓ | ↓ | ↑ | ↓ |
| Aesthetic | | ↑ | ↓ | ↓ | ↓ | ↑ | ↓ |

Status for period 1990–present: ■ Degraded ■ Mixed ■ Enhanced ■ Unknown Not applicable

Ecosystem services in the EU

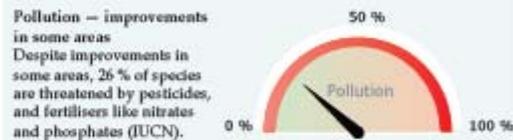
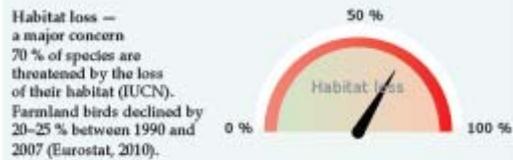
Ecosystem services still degrading
Most of the ecosystem services in Europe are judged to be 'degraded' – no longer able to deliver the optimal quality and quantity of basic services such as crop pollination, clean air and water, and control of floods or erosion (RUBICODE project 2006–2009; marine ecosystems not included).

Trend between periods

- ↑ Positive change between the periods 1950–1990 and 1990 to present
- ↓ Negative change between the periods 1950–1990 and 1990 to present
- = No change between the two periods

Threats

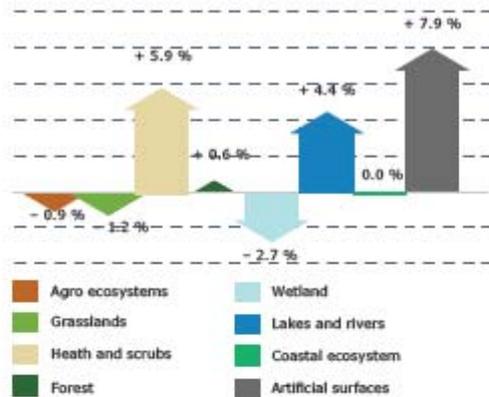
The main causes of biodiversity loss are changes in natural habitats. These are mostly due to: intensive agricultural production systems and land abandonment; construction and transport (fragmentation); overexploitation of forests, oceans, rivers, lakes and soils; invasion of alien species; pollution; and – increasingly – climate change. For any policy to be effective in maintaining and restoring biodiversity in Europe, it must address these threats.



Climate change
Shifts in habitats and species distribution are being observed, so is desertification. Climate change interacts and often exacerbates other threats.

Ecosystems

Changes in ecosystems between 1990 and 2006

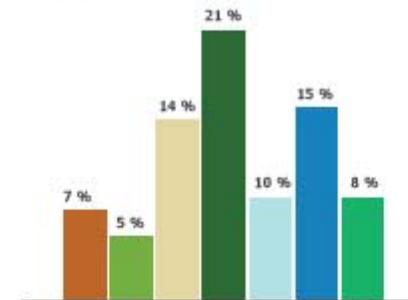


Natural areas still being lost

The latest Corine Land Cover inventory (EEA, 2010) shows a continued expansion of artificial surfaces (e.g. urban sprawl, infrastructure) and abandoned land at the expense of agricultural land, grasslands and wetlands across Europe. Natural grasslands are still being turned into arable land and built-up areas. The loss of wetlands has slowed down (near 3 % lost in the last 16 years) but Europe had already lost more than half of its wetlands before 1990. Extensive agricultural land is being converted into forms of more intensive agriculture and for parts into forest.

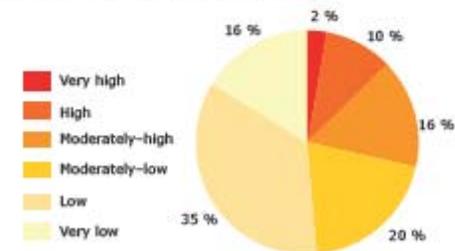
Exploiting natural resources at current rates is steadily reducing biodiversity and degrading ecosystems. Simply designating protected areas is not enough to halt this decline. Biodiversity must be further integrated into other relevant policies (agriculture, fisheries, energy, transport, structural policies and development). To monitor progress and measure trends beyond 2010, the European Environment Agency and the European Commission have developed a 'baseline' – a snapshot of the current state of biodiversity to establish the evidence base necessary for stepping up EU action to address the global biodiversity crisis now. For further information please see www.biodiversity.europa.eu.

Favourable conservation status of habitats



Habitats in ecosystems – poor conservation status overall
The progress report for Article 17 of the EU Habitats Directive for the period 2001–2006 shows that the conservation status of species and habitats characteristic of the main ecosystems is poor. Depending on the ecosystem, the proportion of habitats in favourable conservation status is between 5 and 21 %.

Fragmentation in EU-27 (% of total area)



Fragmentation threatens EU green infrastructure
The fragmentation of nearly 30 % of EU-27 land is moderately-high to very high due to urban sprawl and infrastructure development. Fragmentation affects ecosystem connectivity and their health and ability to provide services (EEA, ETC/LUSI, 2010).

ANNEX 2 – CONSULTATION AND EXPERTISE UP TO THE ADOPTION OF THE POST-2010 EU BIODIVERSITY TARGET

Towards an EU vision and a new target for biodiversity

Since the completion of the mid-term assessment of the BAP¹, all the European institutions and many Member States, organisations and stakeholders have pronounced themselves on the 2010 biodiversity targets and the need to look beyond 2010.

High Level Conclusions

In April 2009, **G8 Environment Ministers** adopted the "Carta di Siracusa" on Biodiversity, which proposes a "common path toward the post-2010 framework on biodiversity". This was subsequently endorsed by **G8 Leaders** at their Summit in l'Aquila, Italy in July 2009, who underlined "*the necessity to establish a vision and an ambitious and achievable common framework for biodiversity beyond 2010, making use of the synergies between climate change and biodiversity policies.*"

European institutions

The **Council** has expressed its views on the way forward on biodiversity after 2010 in different sets of Conclusions. In its **March 2009** Conclusions the **Environment Council** "*UNDERLINES the need to establish, by mid-2010 at the latest, a vision and targets beyond 2010 for the conservation and sustainable use of biodiversity within the EU, building on and contributing to deliberations at global level on a vision for biodiversity beyond 2010*". The **June 2009 Council** reiterated this request. Additionally, in its Conclusions² on 'A mid-term assessment of implementing the EU Biodiversity Action Plan and Towards an EU Strategy on Invasive Alien Species' the **Environment Council** expressed its deep concern that the EU is unlikely to meet its 2010 target of halting biodiversity decline. It further stressed that biodiversity loss is extremely worrying on account of both its important intrinsic value and because it results in a decline in ecosystem functions that are essential in providing vital services which underpin long-term sustainable development, and on which a healthy environment, food security and human livelihoods, particularly for the world's poorest, depend. The Council also called for greater synergies between measures for climate change mitigation and adaptation and for combating land degradation and desertification and the conservation and sustainable use of biodiversity and ecosystems, in order to fully exploit and maximise co-benefits. The **European Council** stressed in its **Conclusion of December 2009**³ the urgent need for action and significant additional efforts to, among others, reverse the current loss of biodiversity and natural resources in order to reach the goal of sustainable development.

The **European Parliament Intergroup on Climate Change and Biodiversity** hosted in 2009 a high-level international conference '*The 2010 Biodiversity Challenge: Will the EU reach it? What future after 2010?*' on the EU Biodiversity Action Plan (BAP). The conference discussed the BAP mid-term review, and focused on defining future targets and the post-2010 vision. The participants acknowledged that some progress had been made in certain areas, but

¹ COM (2008) 864 final.

² (ST/11412/09) of 25 June 2009.

³ EUCO 6/09; 10/11 December 2009.

that more still has to be done to halt biodiversity loss. The need for better integration of biodiversity into other policy sectors, the lack of adequate funding and the economic dimension of biodiversity and ecosystem services was stressed.

The opinion of the **European Economic and Social Committee**⁴ on the BAP Mid-term assessment gave specific recommendations on a post-2010 EU biodiversity policy, pointing out that mainstreaming of biodiversity considerations has not yet been achieved, and that the economic value of biodiversity has not yet been taken into account when defining policies.

The **Committee of the Regions**⁵ adopted a specific opinion on a new impetus for halting biodiversity loss, in which it notes the failure of policies to stem the erosion of biodiversity in Europe by 2010. It suggests that a proactive strategy is required, reflected in a systemic approach and supported over the long-term, well beyond 2010. The Opinion stresses that this strategy must fully involve local and regional authorities.

The **Commission** has engaged in a broad and long consultation within its services, using the **Biodiversity Inter-service Coordination Group** to exchange views and collect information on the progress to target, on the options for a new post-2010 biodiversity target for the adoption of the Communication on options for a post 2010 target and vision, and on the way towards a new EU biodiversity strategy. Regular meetings were held and the BISCG has been convened 5 times in the space of one year.

- *Stakeholder and Member State consultations*

The German CBD Presidency organised a high-level stakeholder event entitled '**High-level working group on the future of global targets for biodiversity**' (9-10 March 2009, Bonn).

The Commission organised the **Biodiversity Protection – Beyond 2010 Conference** (April 2009, Athens), which resulted in the adoption of "The Message from Athens", an eight-point plan for future action to confront the ongoing global biodiversity crisis. As regards the post-2010 vision and target, this inter alia called upon the EU institutions and Member States to develop a clear target on biodiversity⁶.

- The Commission has used the opportunity offered by meetings of the **EC Coordination Group for Biodiversity and Nature (CGBN)** and **EU Nature Directors** to consult EU Member States, environmental NGOs and biodiversity user groups (agriculture, forests, business, fisheries sectors, etc.) on their views on a post-2010 biodiversity vision and target.

European institutions

Already in March 2009, the Environment Council underlined the need to establish, by mid-2010 at the latest, a vision and targets beyond 2010 for the conservation and sustainable use of biodiversity within the EU, building on and contributing to deliberations at global level on a vision for biodiversity beyond 2010.⁷

⁴ Opinion (Nat/436) adopted on 15 July 2009.

⁵ Opinion [CoR 22/2009](#) adopted on 18 June 2009.

⁶ <http://ec.europa.eu/environment/nature/biodiversity/conference/>

⁷ 7065/09 conclusions adopted by the Council (Environment); 3 March 2009.

One year later, on 15 March 2010, the **Environment Council**⁸ agreed on:

- a long-term vision that by 2050 European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided;
- a headline target of halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss, for the above vision to be achieved.

It also outlined the EU's stance concerning biodiversity protection at global level. In addition, the conclusions call for reinforced mainstreaming of biodiversity objectives in cross-cutting EU policies and in the Strategy for Growth and Jobs (EU 2020 Strategy⁹) that was in preparation at the time, in order to maximise coherence and mutual supportiveness at the highest political level. Finally, it called upon the Commission in co-operation with Member States to develop an EU post-2010 Biodiversity Strategy proposing targets and also identifying the necessary, feasible and cost-effective measures and actions for reaching them, and to adopt the Strategy as soon as possible after the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity in October 2010, Nagoya (CBD COP 10).

The **Spring European Council** in its Conclusions of 25/26 March 2010¹⁰ stressed the urgent need to reverse continuing trends of biodiversity loss and ecosystem degradation and the EU Heads of State and Government **committed themselves to the long term biodiversity 2050 vision and the 2020 target** set out in the Council's conclusions of 15 March 2010.

The **European Parliament** in its 21 September¹¹ Resolution expressed its concerns that the EU 2010 biodiversity target to significantly reduce the rate of biodiversity loss has not been met and stressed the urgency and importance of halting the loss of biodiversity. It called for ensuring a further mainstreaming of biodiversity into other EU policy areas, making the European Union's sectoral and budgetary policies more consistent; improving the integration of biodiversity criteria in decision-making processes at local and regional level in matters concerning land use and territorial policy, increasing the budget for research dedicated to biodiversity, ensuring synergies between actions taken for climate change and biodiversity, adopting measures to develop resource efficiency and sustainable consumption and production and improving the implementation of EU legislation. The EP adopted a further resolution on 7 October¹² stressing that the decisions to be taken needed to build on the recommendations of the study on 'The Economics of Ecosystems and Biodiversity'¹³; and underlining that more regard should be given to investigating and approving market instruments, to help ensure adequate financial resources for biodiversity.

⁸ 7536/10 conclusions adopted by the Council (Environment); 15 March 2010.

⁹ COM (2010) 2020 on "EUROPE 2020 – A strategy for smart, sustainable and inclusive growth".

¹⁰ The EUCO 7/10 conclusions of the European Council (25/26 March).

¹¹ PE441.267v02-00 - European Parliament Resolution on the implementation of EU legislation aiming at the conservation of biodiversity.

¹² P7_TA(2010)0353 European Parliament resolution on the EU strategic objectives for the 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD), to be held in Nagoya (Japan) from 18 to 29 October 2010.

¹³ www.teebweb.org

The **Committee of the Regions** in its June 2010 Opinion¹⁴ expressed its concern about the serious consequences of increasing loss of biodiversity; welcomed the EU 2050 biodiversity vision and the new target for 2020 adopted by the Council and supported the call of the Council upon the European Commission to submit an EU 2020 Biodiversity Strategy, taking account of the results of the CBD COP 10. It highlighted that the EU 2020 Biodiversity Strategy should focus on a limited set of five to six targets including agriculture, fisheries and marine environments, land use and habitat destruction and fragmentation. Additionally, it stressed that there was a need for a significant increase of the financial means within post 2013 EU budgets to meet the targets and to improve the integrated model to fund biodiversity and Natura 2000; and highlighted the role of local and regional authorities in promoting a EU 2020 Biodiversity Strategy.

The **European Economic and Social Committee** in its September 2010 Opinion¹⁵ expressed its concerns about the impacts of further loss of biodiversity, called to bring biodiversity higher on political agenda and stressed the need for enhanced integration, without which no biodiversity targets can be achieved. More specifically, EESC explicitly urged to introduce changes to the agricultural and fisheries policies, to secure and develop further the Natura 2000 network, called for the establishment and development of "green infrastructure" through a TEN biodiversity network and for stronger integration of biodiversity into all other EU policy areas as well as education campaigns at EU level.

- *Stakeholder and Member States consultations*

There have been intensive discussions with various internal and external experts and stakeholders. The 2020 EU Biodiversity Strategy has been developed in a close co-operation with Commission services concerned and also other groups outside EU institutions. Specifically, the Commission organised several stakeholder meetings (3 June 2010, 3 September 2010) and ran a public Internet consultation between 23 August and 22 October, which received 2905 responses. Over 80% of respondents felt that EU biodiversity policy measures did not have the necessary buy-in from other sectors. Close to 80% of respondents also said that the objectives of economic development were prioritized over biodiversity concerns, that the economic value of biodiversity for other sectors is underestimated and that the political will to tackle the issue has been insufficient.

Member States and other major constituencies were consulted at the meetings of the Nature Directors and the Co-ordination Group for Biodiversity and Nature. Additional ad hoc meetings with Member States' experts were also held.

Almost 80% of the respondents answered that the future actions to halt biodiversity loss should include measures and actions that go beyond nature conservation and most felt that in order to reach the EU's 2020 biodiversity target, existing EU environmental legislation is not sufficient and that additional measures focusing on other sectors are required. On the sub-target on agriculture and forestry – over 80% of respondents felt that the reformed Common Agricultural Policy should include more explicit biodiversity conservation objectives. On the target on fisheries, close to 80% of respondents felt that in order to contribute to a better conservation of biodiversity, the reformed Common Fisheries Policy (CFP) should include

¹⁴ ENVE-V-003 Opinion of the Committee of the Regions on "EU and International Biodiversity Policy beyond 2010".

¹⁵ NAT/411 – CESE 1178/2010 Opinion on Biodiversity beyond 2010.

more explicit biodiversity conservation values. On the target on nature conservation over 80% felt that it should focus on an improved conservation status of species and habitats of community interests. On the target on Green infrastructure, almost 90% felt that the measures should focus on mitigating the adverse effects of transport and energy infrastructure, and almost 80% said that focus should also be on ecosystem restoration contributing to climate change mitigation and adaptation and natural disaster risk reduction. On the target on EU contribution to global biodiversity, most respondents also agreed with the proposed measures, especially (>80%) on ensuring that biodiversity concerns are systematically reflected in the EU's dialogue with third countries and on reducing the negative impacts of EU's production and consumption patterns on global biodiversity. http://ec.europa.eu/environment/consultations/pdf/biodecline_results.pdf provides a full report of the internet consultation.

ANNEX 3 – STUDIES CARRIED OUT BY THE COMMISSION, RESEARCH PROJECTS

The Commission has gathered a significant amount of information to support the development of a vision and target post 2010. Hereafter are listed the **most relevant studies and scientific findings** which have provided a crucial input to substantially strengthen the necessary knowledge base:

- Reports on the progress made in the implementation of the Biodiversity Action Plan¹⁶
- The UNEP's Millennium Ecosystem Assessment¹⁷,
- The Economics of Ecosystems & Biodiversity (TEEB)¹⁸,
- Assessing biodiversity in Europe – the 2010 report¹⁹,
- The EU 2010 Biodiversity Baseline²⁰,
- The 3rd edition of the Global Biodiversity Outlook²¹, the flagship publication of the Convention on Biological Diversity, which summarizes the latest data on status and trends of biodiversity and draws conclusions for the future strategy of the Convention.

Studies

- Commission Assessment of the Conservation Status of Habitat Types and Species²²
- Studies on the "Value of Biodiversity, the assessment of the Cost of Policy Inaction (COPI), and on the drivers of biodiversity loss"²³
- Study on the "Costs Benefits Assessment of measurement/monitoring systems of progress towards an EU post 2010 biodiversity target"
- Study on "Policy Options for a Future EU Biodiversity Strategy"
- Study "Soil biodiversity: functions, threats and tools for policy makers"²⁴
- Literature study on the impacts of biodiversity changes on human health²⁵

¹⁶ Available at http://ec.europa.eu/environment/nature/biodiversity/comm2006/index_en.htm

¹⁷ Mace, G. et al. Biodiversity in Ecosystems and Human Wellbeing: Current State and Trends (eds Hassan, H., Scholes, R. & Ash, N.) Ch. 4, 79–115 (Island Press, 2005).

¹⁸ <http://www.teebweb.org/>

¹⁹ EEA Report No. 5/2010 <http://www.eea.europa.eu/publications/assessing-biodiversity-in-europe-84>

²⁰ <http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline/>

²¹ <http://gbo3.cbd.int/>

²² COM(2009)358 final on the "Conservation Status of Habitat Types and Species as required under Article 17 of the Habitats Directive".

²³ Available at <http://ec.europa.eu/environment/enveco/biodiversity/index.htm>

²⁴ Available at <http://ec.europa.eu/environment/soil/biodiversity.htm>.

- Study on "The Social Dimension of Biodiversity Policy"²⁶
- Study on "The use of market-based instruments for biodiversity protection – the case of habitat banking"²⁷
- Technical support to EU Strategy on invasive alien species (IAS)²⁸
- Assessment of reasons for 2010 target failure²⁹
- Assessment of the EU Biodiversity Action Plan as a tool for implementing biodiversity policy³⁰
- Impact Assessment accompanying the Commission Communication on invasive species³¹
- The assessments for the compilation of the latest European Red Data Lists³²

Research Projects

- DAISIE³³ – Delivering Alien Invasive Species Inventories for Europe
- MACIS³⁴ – Minimisation of and Adaptation to Climate Change Impacts on Biodiversity
- ALARM³⁵ – Assessing Large scale Risks for biodiversity with Tested methods
- ALTER-Net³⁶ – A Long-Term Biodiversity, Ecosystem and Awareness Research Network
- MARBEF³⁷ – Marine Biodiversity and Ecosystem Functioning EU Network of Excellence
- RUBICODE³⁸ - Rationalising Biodiversity Conservation in Dynamic Ecosystems
- PRESS³⁹ - PEER Research on EcoSystem Services

²⁵ Zaghi, D., Calaciura, B., Spinelli, O., Basili, M., and R. Romi (2010). Comunità Ambiente Srl, report for the European Commission (Directorate General Environment), Contract 07-0307/2009/533527/ETU/B3. July 2010 (forthcoming).

²⁶ Nunes, P.A.L.D., Ding, H., Ghermandi, A., Rayment, M., Varma, A., Pieterse, M. Lago, M., Görlach, B., Kapthengst, T. and P. ten Brink (2010). Final Report to the contract No. ENV.G.1/FRA/2006/0073 – 2nd, Contract: 070307/2009/550766/ETU/F1, pages vii-179, Italy, Venice 2010 (forthcoming).

²⁷ Available at http://ec.europa.eu/environment/enveco/pdf/eftec_habitat_technical_report.pdf

²⁸ http://ec.europa.eu/environment/nature/invasivealien/index_en.htm

²⁹ [Assessment report to Service contract 07.0307/2008/513998/SER/B2](http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/bap_2010/4%20EC_Knowledge_Base_Assessment_BAP_final.pdf)

³⁰ Assessment report to Service contract nr 09/543261/B2
http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/bap_2010/4%20EC_Knowledge_Base_Assessment_BAP_final.pdf

³¹ COM(2008)789 final EU strategy on invasive species.

³² http://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm

³³ <http://www.europe-aliens.org/>

³⁴ <http://www.macis-project.net/>

³⁵ <http://www.alarmproject.net/alarm/>

³⁶ <http://www.alter-net.info>

³⁷ <http://www.marbef.org>

³⁸ www.rubicode.net

³⁹ <http://www.peer.eu/projects/press/>

ANNEX 4 – MAIN EU FUNDING INSTRUMENTS THAT CONTRIBUTE TO FINANCING EU BIODIVERSITY

The single instrument of the European Union directly targeted at supporting environment related projects across Europe is LIFE+, a part of which is used to support the development of nature, biodiversity and especially Natura 2000 (LIFE+ Nature and LIFE+ Biodiversity). Among others, LIFE+ supports biodiversity monitoring, the development of demonstration and best practice projects for management and restoration of Natura 2000 sites and facilitate projects outside Natura 2000, aimed at contributing to the progress towards achieving the EU biodiversity target. Despite the importance of LIFE+ as regards the only EU funding dedicated to biodiversity and nature, the LIFE programme amounts to less than 0.1 % of the EU budget in any recent year.

The Common Agricultural Policy (CAP), through the **European Agricultural Fund for Rural Development (EAFRD)**⁴⁰ provides approximately EUR 53.5 billion per year in funding for the agricultural and forestry sector, with a breakdown of EUR 42.7 billion (80%) for direct aids and market interventions (Pillar 1) and EUR 10.9 billion (20%) for rural development (Pillar 2). Support for biodiversity protection, management and restoration measures in agricultural and forest habitats is principally funded under Pillar 2. The most important measures for biodiversity are primarily those available under Axis 2 of the EAFRD, which are aimed at improving the environment and the countryside. These include Natura 2000 payments, Agri-environment payments and Forest-environment payments, Planned allocations under Axis 2 for the period 2007-2013 amount to 44% (approximately EUR 42.7 billion) of total EAFRD funding. Of these three measures, agri-environment payments account for the majority of EAFRD expenditure with approximately 23% of Rural Development Programme expenditure (roughly EUR 22.2 billion of the EAFRD across all Member States). But there is considerable variation in the proportion spent amongst the Members States. Budget allocations for the other two Axis 2 measures that may provide substantial biodiversity benefits are small in all Member States and absent in many. In particular, allocations for dedicated Natura 2000 measures (agriculture and forest) are very low, 0.62% of total EAFRD expenditure, or approximately EUR 590 million. However, quite a few Member States have chosen to finance Natura 2000 management essentially or solely via agri-environment.

In addition to the measures described above, the less favoured area (LFA) measure may provide some biodiversity benefits where it supports traditional low intensity farming systems that maintain certain semi-natural habitats and other high nature value farmland, as well as High Nature Value (HNV) farming. Two other measures under Axis 2 may also provide important biodiversity benefits: the non-productive investment measures for agriculture and for forests. These measures are sometimes used to provide one-off capital grants, e.g. for habitat restoration works. In addition, under axis 1, support for training, advisory services and environmental investments, and under axis 3, support for the conservation and upgrading of the rural heritage have a role to play in the preservation of biodiversity. Other pro-biodiversity instruments that may favour farmland biodiversity are cross-compliance, the decoupling of single farm payments and modulation.

⁴⁰ Council Regulation 1698/2005 of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development, OJ L 277, 21.10.2005.

The **European Agricultural Guarantee Fund** (EAGF) finances direct payments necessary to maintain farmers on land, therefore contributing to preventing land abandonment. In addition, it gives the possibility of financing agri-environmental measures under article 68 of horizontal regulation and agri-environmental measures under the Common market organisation for fruit and vegetables.

The **European Fisheries Fund**⁴¹ (EFF) is designed to secure a sustainable European fishing and aquaculture industry. Assistance under the EFF shall aim to: support the Common Fisheries Policy (CFP) so as to ensure exploitation of living aquatic resources and support aquaculture in order to provide sustainability in economic, environmental and social terms; promote a sustainable balance between resources and the fishing capacity of the Community fishing fleet; promote a sustainable development of inland fishing; and foster the protection and enhancement of the environment and natural resources where related to the fisheries sector. Under the EFF, each Member State was required to adopt a national strategic plan and submit it with the Operational Programme document. The Operational Programme (OP) is the single document drawn up by the Member State and approved by the Commission containing a set of 'Priority Axes' to be achieved with the aid of the EFF. Axis 1 is for measures for the adaptation of the Community fishing fleet to ensure it is in balance with available resources; Axis 2 is for measures relating to aquaculture, inland fishing, processing and marketing of fishery and aquaculture products and requires the inclusion of aqua-environmental measures; Axis 3 is for measures of common interest (e.g. collective actions, protection and development of aquatic fauna and flora; fishing ports; development of new markets etc.); and Axis 4 is for actions that support the sustainable development of fisheries areas. Due to the structure of data collection on funding under EFF, it is not possible to give exact figures on EFF funds allocated to biodiversity and Natura 2000 purposes. The only available information concerns the total allocation of the EFF plus the national public contribution for each Priority Axis, and the total annual commitment of the EFF in the operational programme.

In relation to EU Cohesion Policy, the Community Strategic Guidelines and the relevant fund regulations include clear references to the importance of nature protection in developing infrastructure and in relation to economic diversification. The 2007-2013 programming period of the Cohesion Policy addresses directly the preservation of biodiversity under the **European Regional Development Fund** (ERDF), **European Social Fund** (ESF) and **Cohesion Fund** (CF). A few categories of the European Regional Development Fund (ERDF) and Cohesion Fund (CF) spending are related to the protection of biodiversity and management of natural resources⁴². The most relevant category is No. 51 the "Promotion of biodiversity and nature protection" (for which EUR 2 689 million has been allocated). Also highly relevant are the category No. 55 ("promotion of natural assets", for which EUR 1 137 million is allocated) and the category No. 56 ("protection and development of natural heritage", with a total of €1 406 million) both of which might have some indirect, positive impact on our natural heritage.

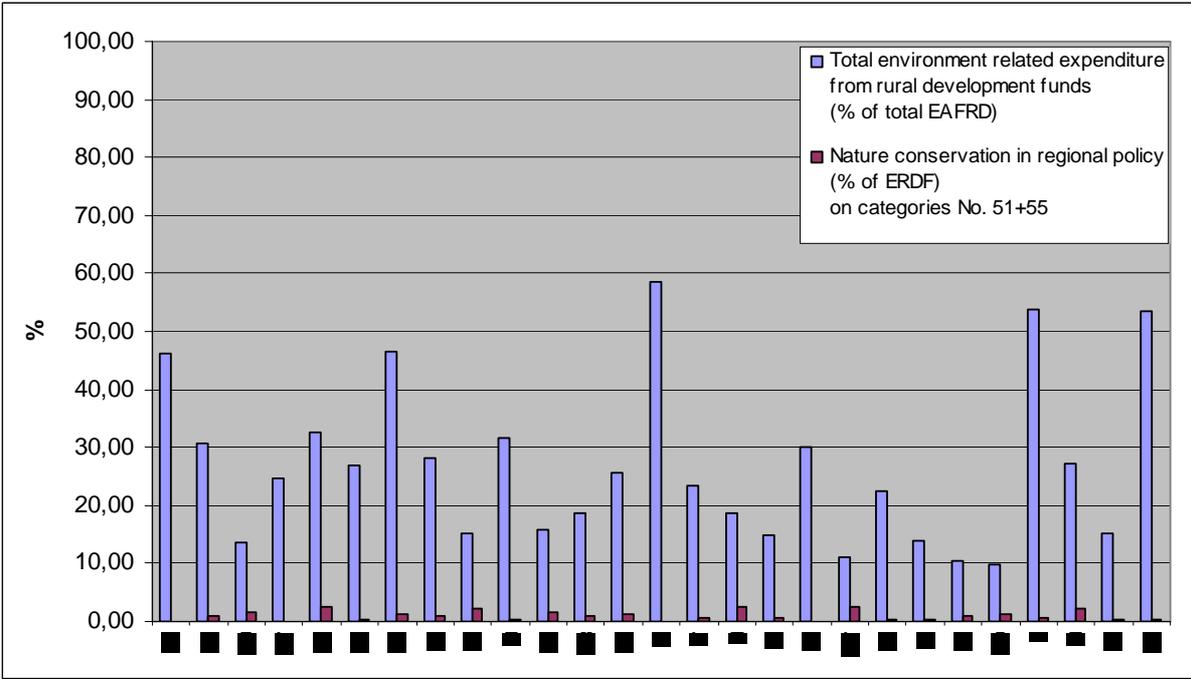
It is the Member States' responsibility to select and implement the programmes and projects co-funded by the Cohesion Policy, along the strategy and priorities set in the National Strategic Reference Framework (NSRF) and the their National Development Plans and the relevant Operational Programmes (OPs). All but two Member States have allocated some funding for nature and biodiversity protection, although as a proportion of the overall allocations this varies considerably between countries. As it is shown in the 2010 BAP

⁴¹ Council Regulation (EC) No 1198/2006.

⁴² See OJ L45 15/02/2007 and Commission Regulation EC n° 1828/2006 of 8 December 2006.

assessment, seven Member States intend to use more than 2% of their allocated funds for biodiversity related categories. Nonetheless, other categories can have indirect benefits on biodiversity such as "Management and distribution of water" (No. 45), "Water treatment" (No. 46), "Air quality" (No. 47), "Integrated prevention and pollution control" (No. 48), "Rehabilitation of industrial sites and contaminated land" (No. 50) or "Promotion of clean urban transport" (No. 52). For instance waste water treatment projects may contribute to preserve biodiversity in rivers and seas while natural risk prevention developments may also protect biodiversity through projects such as restoration of natural floodplains.

The **European Social Fund (ESF)** promotes employment and better prepared workforce and companies to face new challenges such as biodiversity protection. It is difficult to track accurately spending for nature protection under the ESF, however impacts can be positive just like in Spain where spending has been made to improve and adapt labour force and companies to new environmental challenges and to promote nature conservation into the private sector management. Additional support to the regional development funds are provided by European Territorial Cooperation schemes contributing to bi- or multilateral projects.



The comparison of allocation on direct and indirect measures for Natura 2000 and biodiversity from rural and regional development funds (state of October 2008; source: 2008 BAP assessment).

EU Research Framework Programmes (FP) also provide financial support for biodiversity-related research across. Thus far under the Environment Theme of the 7th Framework Programme (2007-2013), EUR 109.5 million have been allocated to projects aimed at the conservation and sustainable management of natural and man-made resources and biodiversity (sub-activity 6.2.1), out of a total budget of EUR 780.5 million. Also under the Environment theme, further financial resources have been allocated to biodiversity topics under sub-activity 6.2.2 (Management of marine environments) and 6.4.2 (Forecasting methods and assessment tools for sustainable development taking into account different scales of observation).

The **Environment and Natural Resources Thematic Programme (ENRTP)** is targeted at helping developing countries and partner organisations to address environmental and natural resource management issues. Concerning EU financing for global biodiversity, the total amount allocated to biodiversity specific projects for the period 2007-2010 under the ENRTP was almost EUR 70 million, while approximately EUR 110 million was committed for biodiversity related activities – equivalent to about EUR 44 million when using an adjustment factor to avoid overestimation, as biodiversity conservation is only a secondary objective⁴³. This would represent a total amount of EUR 114 million for the period.

⁴³ The OECD DAC developed the so called "Rio markers" to help determining whether aid activities contribute to the objectives of the three Conventions – including the UN Convention on Biological Diversity (CBD). Activities receive a principal score (score "2") where the CBD is the principal objectives, and a significant score (score "1") where CBD is an important, but not principal objective. To avoid overestimation of the financial support for meeting the obligations of the CBD, EuropeAid proposes to apply a fixed adjustment factor to account for activities that are only partially relevant to the objectives of the CBD – that is, to consider 40% of the allocated budget if biodiversity conservation is only a secondary objective.

| Target | Agriculture and Forestry | | Fisheries | | Invasive Alien Species | | Nature Conservation | | Restoration | | Global biodiversity | |
|--------------------|--|--------|---|--|------------------------|---|---|---|--|---|--|----------------|
| Funding instrument | | | | | | | | | | | | |
| EU funding | Main instruments | Budget | Main instruments | Budget | Main instruments | Budget | Main instruments | Budget | Main instruments | Budget | Main instruments | Budget |
| | Common Agricultural Policy – European Agricultural Fund for Rural Development 2007-2013 | | Common Fisheries Policy – European Fisheries Fund | Due to the structure of data collection on funding under EFF, it is not possible to give exact figures on EFF funds allocated to biodiversity and Natura 2000 purposes | LIFE+ | Less than 0.1% of total EU budget per year; out of which ca. EUR 119.5 million p.a. for LIFE+ Nature and LIFE+ Biodiversity | EAFRD Pillar 2 Axis 2: Natura 2000 payments + agri- and forest-environment payments | 0.62% of total EAFRD for 2007-2013 + 44% of total EAFRD = EUR 42.7 billion | LIFE+ | Less than 0.1% of total EU budget per year; out of which ca. EUR 119.5 million p.a. for LIFE+ Nature and LIFE+ Biodiversity | Environment and Natural Resources Programme 2007-2010 | |
| | Pillar 2 Axis 1: measures on training, information and advisory services | n.a. | European Social Fund | n.a. | | | LIFE+ | Less than 0.1% of total EU budget per year; out of which ca. EUR 119.5 million p.a. for LIFE+ Nature and LIFE+ Biodiversity | Pillar 2 Axis 2: land management and non-productive investment measures (especially Natura 2000 payments, agri- and forest-environment payments) | 44% of total EAFRD = EUR 42.7 billion | Biodiversity | EUR 70 million |

| Target | Agriculture and Forestry | | Fisheries | | Invasive Alien Species | | Nature Conservation | | Restoration | | Global biodiversity | |
|--------------------|--|--|-----------|--|------------------------|--|---|------------------|-------------|--|--|-------------------------------|
| Funding instrument | | | | | | | | | | | | |
| | Pillar 2 Axis 2: land management and non-productive investment measures (especially Natura 2000 payments, agri- and forest-environment payments) | 44% of total EAFRD = EUR 42.7 billion | | | | | EFF protection and development of aquatic fauna and flora | n.a. | | | Projects with likely benefits to biodiversity | EUR 44 million ⁴⁴ |
| | Pillar 2 Axis 3: measures for the conservation and upgrading of natural heritage | n.a. | | | | | European Development Fund and Cohesion Fund Regional Fund and 2007-2013 | | | | Geographic instruments (EDF, DCI, ENPI) 2007-2009 | |
| | | | | | | | Promotion of biodiversity and nature protection | EUR 2689 million | | | Programmes with a focus on biodiversity | EUR 133 million |
| | | | | | | | Promotion of natural assets | EUR 1137 million | | | Programmes with likely benefits to biodiversity | EUR 100 million ⁴⁵ |
| | | | | | | | Protection | EUR 1406 | | | | |

⁴⁴ Equivalent to the EUR 110 million spent on projects that might deliver biodiversity benefits, using the so called "Rio markers" developed by OECD DAC.

⁴⁵ Equivalent to the EUR 255 million spent on projects that might deliver biodiversity benefits, using the so called "Rio markers" developed by OECD DAC.

| Target | Agriculture and Forestry | | Fisheries | | Invasive Alien Species | | Nature Conservation | | Restoration | | Global biodiversity | |
|--------------------|--------------------------|--|-----------|--|------------------------|--|-------------------------------------|---------|-------------|--|---------------------|--|
| Funding instrument | | | | | | | and development of natural heritage | million | | | | |
| | | | | | | | | | | | | |

*n.a. – data/information not available or the categorisation system of the funding instrument does not allow breakdown of allocations
 Inclusion of the same funding stream in different cells does not refer to additional funding but indicates the relevance of funding for the target in question.*

ANNEX 5 – AWARENESS ABOUT BIODIVERSITY

Public awareness about biodiversity loss is on the increase. This has led to changes in consumer preferences and purchasing decisions. Businesses, too, have begun to recognise the threats posed by biodiversity loss to their activities. Nonetheless, from available statistics it is clear that awareness remains insufficient and the urgency of the problem is largely unnoticed by the wider public.

A recent Eurobarometer survey shows that most Europeans still do not feel well informed about biodiversity. The new "Attitudes towards biodiversity" survey reveals that only 38% of Europeans know the meaning of the term, although another 28% have heard of it but do not know its meaning. A majority feel that biodiversity loss is a serious issue, although they do not think they will be personally affected by the decline, with only 17% of respondents agreeing that they are already touched by it. When asked about the most important threats to biodiversity, 27% prioritised pollution, with another 26% blaming man-made disasters. The main reason cited by citizens for their lack of actions to stop biodiversity loss was low awareness of what can be done.

Another survey of CEOs and their attitudes to biodiversity loss revealed that of the 1100 CEOs surveyed, only 27% expressed concern about the impacts of biodiversity loss on their business growth prospects⁴⁶. Those expressing concern were more numerous in industries characterized by large direct impacts on biodiversity and in developing regions (Figure 1).

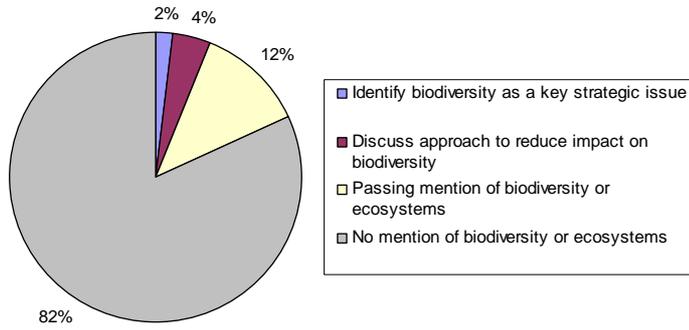


Source: PricewaterhouseCoopers 13th Annual Global CEO Survey 2010

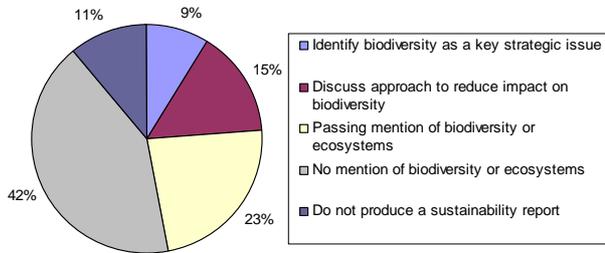
The same survey assessed the annual reports and sustainability report of the top 100 companies in the world by revenue. Figures 2 and 3 show that very few companies actively consider biodiversity as a strategic issue or discuss ways of reducing the impacts of their activities on biodiversity. Not surprisingly, companies in sectors sometimes characterized by high impacts or dependency on biodiversity and ecosystem services (i.e. oil and gas, utilities, chemicals, big pharmaceutical companies and food retailers) are more likely to identify biodiversity as a key strategic issue (19% versus 9% overall) and are also more likely to report actions to reduce impacts on biodiversity (36% versus 24% overall).

⁴⁶ PwC survey 2009.

**Reporting by business on biodiversity and ecosystems-
Top 100 Companies Annual reports**



**Reporting by business on biodiversity and ecosystems-
Top 100 Companies sustainability reports**



ANNEX 6 – POLICY BASELINE

General overview of the likely impacts of different policies on reaching the 2020 EU biodiversity target ⁴⁷

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|---|---|--|---|--|--|---|--|---|---|---|--|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| Biodiversity policies Birds (1979) & Habitats (1992) Directives Biodiversity Action Plan (2006) | +++ + : Core of EU biodiversity policy is the Natura 2000 network of protected areas, species and habitats, based on strong legal basis in Habitats and Birds Directives | ++ + : Connectivity is promoted within the nature directives (Article 10 of the Habitats Directive) | +++ + : Natura 2000 marine species and sites | +++ + : By protecting species and habitats and managing sites, nature directives highly contribute to maintenance of ES | +++ + : Aims to achieve favourable conservation status; nature conservational objectives through proper management. | +++ + : Protection of EU biodiversity contributes global biodiversity through the protection of migratory species and ES and provides an example for other countries as it is the biggest network of protected areas | +++ + : directly addressed in the BAP, Favourable Conservation Status | +++ + : directly addressed in the BAP, Favourable Conservation Status, connectivity under Habitats Directive | ++ + : directly addressed in the BAP | +++ + : directly addressed in the BAP, LIFE projects | + + : measures to protect biodiversity contributing to reduction of pollution |

⁴⁷ The policy baseline was produced based on the study "Policy Options for a Future EU Biodiversity Strategy" and further developed based on the 2010 BAP report and inputs received throughout the discussions with members of the Biodiversity Inter-service Coordination Group. The table is structured in alphabetical order, biodiversity policy upfront.

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | B. Contribution to reducing main pressures on biodiversity | | | | | | | |
|--|--|-----------------------------|-----------------------|---|--|---|-------------------|---------------|----------------|------------------|-----------|---|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution | |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | | |
| | | | | | | <p>in the world; Initiative to develop 'Natura 2000-like' networks (BEST) in Outermost Regions and Overseas Territories</p> <p>+: LIFE+ Nature funding targeted directly at protection and restoration of Natura 2000 species, habitats and sites, which also contributes to ES restoration</p> | | | | | | <p>+: Projects that prevent or mitigate</p> |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|--|---|--|--|---|---|---|---|---|--|---|---|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| LIFE+ | | delivering biodiversity benefits in the wider landscape (outside Natura 2000 areas) and contributing to biodiversity objectives | | | | | +: Projects that prevent or mitigate over-exploitation can be funded by LIFE+ | fragmentation can be funded by LIFE+ | +: Projects that prevent or mitigate climate change can be funded by LIFE+ | +: Projects that prevent the introduction or establishment of IAS can be funded by LIFE+ | pollution can be funded by LIFE+ |
| Agriculture and Forestry policies | +++/-- | ++/-- | ++ | +++/-- | ++/-- | -- | -- | +/-- | -- | -- | +/-- |
| CAP EU Forestry Strategy (1998); EU-Forestry Action Plan (FAP) for 2007-2011 Forest Focus Regulation Framework Directive on the Sustainable use of | +: Some agricultural and forestry measures in the CAP can contribute significantly to biodiversity (e.g. Natura 2000 payments, HNV farming, Less Favourable Areas, organic farming) Various commitments in | +: Agri- and forest-environment schemes; Cross-compliance; organic farming -: Intensification with high input agriculture; marginalisation; land abandonment, monocultures. Use of invasive species, homogenous age | +: Cross-compliance can bring a reduction of nutrients in river effluent to sea -: Intensification can lead to increased use of nutrients | +: Appropriate management contributes to creation and maintenance of ES, public goods (e.g. food supply, soil functioning, timber, flood prevention, pollination). Forest Focus co-financing forest fires prevention activities and studies on forest | +: Some agri-environment measures and forest environment measures highly contribute to restoration and delivery of ES -: competition for land, trade offs, | -- | -: intensive agricultural management | +: hedgerows, pastures, set-aside areas etc. elements creating connectivity, conversion of arable land into grassland and forest. -: conversion of natural, semi-natural land into | -: intensive livestock, energy grass, non-permanent soil cover | +: rural development can be used to combat IAS and protect genetic resources and species/varieties under threat of extinction | +:support for organic farming, integrated production, nutrient management -: use of chemicals as well as fuel for cultivation purposes |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|---|--|--|---|---|--|--|--|----------------------|----------------------------|--|---|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| Pesticides | the Forest Europe to protect biodiversity in forests -: Land abandonment and unsustainable agricultural practices can be very harmful to. Insufficient integration of biodiversity aspects in the management of forests | structure of forests | | biodiversity -: Both intensification and land abandonment may decrease provision of ES, for example through damaging ES or leading to imbalanced provisioning of multiple ES | | -: competition for land, intensification, increasing demand for food supply and production | | arable land, | | | |
| Air policies | + | + | + | + | + | + | 0 | 0 | ++ | 0 | +++ |
| Air Quality FWD, CAFÉ, NECD, VES, IPPC, LCP, Waste Incineration Directive, Thematic Strategy on Air Pollution | +: local reduction of N-deposition in protected areas | +: general reduction of deposition on land | +: general reduction of deposition on sea | +: general improvement of air quality good for all services | +: general improvement of air quality good for restoration initiatives | +: general improvement of air quality good for global biodiversity | Not using natural resources | No spatial dimension | +: reduction of emissions, | No major disturbance or activity that may lead to new introduction | +: all tools aimed at reducing pollution from different sources |
| Consumption / | + | + | + | + | 0 | + | + | 0 | + | 0 | ++ |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|--|---|--|--|--|---|--|--|---|---|--|---|
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| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| <p>Production policies</p> <p>IPP, EMAS, Ecolabel, ETAP, GPP, ERP, SICP/SIP action plan</p> <p>Environmental Liability Directive</p> | +: indirect effect might come from demand for labelled products | +: indirect effect may be expected through demand for / supply of eco-products | +: indirect effect on marine biodiversity may be expected through demand for / supply of sustainable fisheries | +: indirect effect via eco-market on increase of multiple services in forestry, agri- & aqua-culture | | +: eco-labels, certification of products and materials (e.g. forest, timber, fish and food) reduces ecological footprint | +: sustainability criteria | No necessary spatial dimension | +: sustainable production methods; reducing negative impacts of consumption, lower input demand | No inclusion of IAS criteria | +: long-term sustainability |
| <p>Climate Change policies</p> <p>EU 20/20/20 climate change target</p> <p>White paper on adaptation to climate change (COM (2009) 0147)</p> <p>Reducing Emissions from Deforestation and Forest Degradation</p> | ++ | ++ | ++ | +++ | ++ | ++ | + | ++ | +++ | + | +++ |
| | +: general slow down of climate change | +: general slow down of climate change | +: general slow down of climate change | +: general slow down of climate change Improve the resilience of ecosystems through adaptation measures | +: general slow down of climate change and restoration of ecosystem services through adaptation and mitigation measures | +: general slow down of climate change; REDD funding to stop deforestation in biodiversity hotspots | +: REDD | +: building on ecosystem-based solutions, creating Green Infrastructure | Main objective of the package | +: Mitigation measures which will lead to lower migration of IAS | +: increased use of alternative energy sources, ETS |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|--|---|---|--|--|---|---|--|--|---|--|--|
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| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| (REDD) Climate Change Programme (ICCP), European Emission Trading Scheme (ETS); UN Framework Convention on Climate Change (UNFCCC) | | | | | | | | | | | |
| Energy policies | +/- | +/- | + | - | - | +/- | 0/- | - | +++ | -- | +++ |
| EU Biomass Action Plan (up to 2010) Directive on the promotion of the use of energy from renewable sources | +: wind and solar energies contribute to GHGs emission reductions that lower pressure of climate change Sustainability criteria for biofuels that include restrictions on areas where raw material for biofuel production can be grown in | +: more use of renewable resources lowers pressures from grey energy -: increase demand on land to produce biomass and biofuels likely to lead to intensification of agriculture | +: Off-shore wind energy contributes to reducing GHGs emissions. In general, wind energy does not represent a serious threat to wildlife, but poorly designed wind farms can pose a potential threat to vulnerable species and | -: large areas devoted to energy-crops monocultures have low level of other services | -: potential competition with biofuel plantations | +: reduction of GHGs emissions and lower the pressure of climate change, -: direct and indirect land use changes due to increased EU biomass demand, with potential negative | -: possible overexploitation of soil and water by energy plantations | -: potential competition for land, conversion of semi-natural land into energy crop production/tree plantation | +: increased share of renewables, lower demand due to increased energy efficiency -:unsustainable practices of biomass production can in some cases lead to deforestation or soil carbon depletion | -: use of non native species as energy crops/trees | +: Increased use of renewable energy decrease pollutants |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|---|---|--|---|---|---|---|---|---------------|---|---|---|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| | order for those biofuels to be counted towards the 2020 targets and to benefit from financial support - potential conversion of natural/semi-natural land to biofuel plantations, biofuel plantation monocultures having less biodiversity | | habitats. | | | consequences for biodiversity in third countries | | | | | |
| External relations | + | +/- | +/- | +/- | - | -- | - | 0 | + | -- | - |
| Thematic Programme for Environment and Natural Resources (ENRTP), European Neighbourhood and Partnership Instrument (ENPI), Development | + : CBD, other biodiversity-targeted programmes and funding - : - : international trade can drive habitat loss in third countries | + : biodiversity-targeted programmes and funding - : - : international trade can drive overexploitation of resources in third countries | + : biodiversity-targeted programmes and funding - : - : international trade can drive overexploitation of resources | + : biodiversity-targeted programmes and funding - : - : international trade can drive overexploitation of ecosystems in third countries | + : biodiversity-targeted programmes and funding - : - : international trade can drive overexploitation of ecosystems in third countries | + : OCTs and ORs, Voluntary Partnership Agreements (VPA) under FLEGT - : - : international trade can drive overexploitation of ecosystems in third countries | + : CITES, certification criteria - : international trade can drive overexploitation of resources in third | | + : FLEGT, biodiversity targeted programmes | - : increased introduction of IAS through increased trade | - : increased pollution through increased trade and transport |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|---|--|-----------------------------|-----------------------|---|---|---|--|---------------|----------------|------------------|-----------|
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| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| Cooperation and Economic Cooperation Instrument (DCECI), European Development Fund (EDF) Millennium Development Goals (MDG) Global Environment Facility (GEF) CITES EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan Trade and other bi- or multilateral agreements | | | in third countries | | | | countries | | | | |
| Fisheries and | +/-- | - | +++/-- | +++/-- | ++/-- | ++ | +/-- | - | 0 | -- | ++ |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|---|--|--|--|--|---|---|---|--|---|---|--|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| <p>Marine policies</p> <p>CFP, Marine Strategy FWD (2008), Integrated Coastal Zone Management,</p> <p>Illegal fishing (IUU)</p> | <p>+: extensive fish farming methods in protected areas, management and restoration plans for targeted species</p> <p>-: overfishing, intensive fishing destructive fishing practices, and unsustainable fish farming methods, overnutrification</p> | <p>-: intensive fish farming, use of invasive species, overnutrification</p> | <p>+: Total Allowable Catch (TAC) & Quota Regulation, Maximum Sustainable Yield of fish stocks, Community Action Plan for Sharks, combating Illegal, Unreported and Unregulated fishing</p> <p>-: Overfishing, harmful methods, by-catch</p> | <p>+: TAC & Quota</p> <p>-: Other uses of marine ecosystem (recreation) degraded</p> | <p>+: ecosystems based approach of Marine Strategy Framework Directive</p> <p>-: Intensive overfishing and destructive fishing practices destroying marine ecosystems</p> | <p>+: covering all EU seas and fleet</p> <p>-: EU / MS subsidies & lack of control on EU fleet enables fishing in grounds of developing countries</p> | <p>+: MSY, Good Environmental Status</p> <p>-: overfishing, by-catch, discard</p> | <p>-: degradation of seabed, destructive practices</p> | <p>No direct mitigation and/or adaptation actions</p> | <p>-: Introduction and dispersal of IAS</p> | <p>+: MSY leading to reduction of fleet and fishing activities</p> |
| <p>Plant and Animal Health policies</p> <p>Plant health directive, animal health legislation (various directives and regulations)</p> | +++ | +++ | 0 | ++ | 0 | 0 | 0 | 0 | 0 | +++ | - |
| | +: Both regimes are under review and the possibility of expanding their | +: Both regimes are under review and the possibility of expanding their | Marine environment outside the scope | See first 2 columns: reducing the impact of invasive alien | Scope on prevention and eradication | Scope on EU | Scope on health and safety | Scope on health and safety | Scope on health and safety | +: the review of the Plant Health Regime to consider the inclusion of all | |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | B. Contribution to reducing main pressures on biodiversity | | | | | | |
|--|---|--|-----------------------|--|--|---|-------------------|---------------|----------------|--|-----------|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| | <p>scope to include pest and diseases of wild species is under consideration; for the plant health regime, the possibility of including all invasive alien plants causing damage to the wider environment is being considered</p> <p>-: Control measures may cause direct damage to protected areas (e.g. tree felling against pinewood nematode)</p> <p>-: Control measures may cause indirect damage to protected areas (e.g. spreading pesticides)</p> | <p>scope to include pest and diseases of wild species is under consideration</p> <p>+: If plant health regime considers the inclusion of all invasive alien plants causing damage to the wider environment, this means that also aquatic plants would be included</p> <p>-: Control measures may cause direct and/or indirect damage to other lands or fresh water (e.g. spreading pesticides)</p> | | <p>species will also be beneficial for the ecosystem services, control measures may also affect ecosystem services</p> | | | | | | <p>invasive alien plants causing damage to the wider environment</p> | |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|--|--|---|--|--|---|---|--|--|--|--|--|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| Regional development | ++/-- | +/-- | +/- | +/-- | ++/-- | + | 0 | --- | +/- | +/-- | ++/-- |
| EU Regional Policy (ERDF, ESF, CF) | <p>+: investments directly benefiting biodiversity, compliance with regulations,</p> <p>-: fragmentation, competition for land, natural area clearing for infrastructure</p> | <p>+: contributions to environmental quality, investments in waste water treatment</p> <p>-: grey infrastructure & urban development, habitat destruction</p> | <p>-: development of ports and seashore investments putting at risk nature and biodiversity</p> <p>+: programmes and projects on integrated coastal management, coastal protection</p> | <p>+: environmental quality improvement, in particular for water bodies</p> <p>-: land for urban sprawl/ grey infrastructure</p> | <p>+: environmental quality improvement facilitates ESS, investment in Green Infrastructure, investments in rehabilitation of contaminated land, floodplains...</p> <p>-: land for urban / infrastructure</p> | <p>+: territorial cohesion, making EU businesses competitive thus reducing import rates</p> | | <p>+: ecosystem based approaches</p> <p>-: grey infrastructure, strong spatial dimension, without built-in biodiversity criteria</p> | <p>+: energy efficiency, isolation, renewable energy investments</p> <p>-: no criterion to ensure no negative impact on climate change</p> | <p>+: projects/measures to reduce IAS in some programmes</p> <p>-:</p> | <p>+: investments in technologies reducing pollution (BAT)</p> <p>-: development of infrastructure and facilities increasing pollution</p> |
| EIA/SEA | ++ | + | 0 | + | 0 | ++ | ++ | +++ | 0 | 0 | +++ |
| | <p>+: aim to avoid destruction; mitigation and compensation measures</p> | <p>+: all major plans and projects covered</p> | | <p>+: aim to avoid destruction; mitigation and compensation measures</p> | | <p>+: assessments applied in Outermost Regions and Overseas Territories</p> | <p>+: aim to avoid destruction; mitigation and compensation measures</p> | <p>+: aim to avoid destruction; mitigation and compensation measures</p> | <p>Climate change not sufficiently addressed by EIA/SEA</p> | <p>IAS not addressed by EIA/SEA</p> | <p>+: complex assessment of all environmental impacts</p> |
| Transport/ | +/-- | --- | 0/- | --- | -- | --- | 0 | --- | -- | -- | - |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | | | B. Contribution to reducing main pressures on biodiversity | | | | |
|--|---|--|---|---|--|--|--|--|--|--|--|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| <p>Infrastructure and Energy Trans European Networks</p> <p>TEN-T, TEN-E,</p> | <p>+: application of best practices minimising or eliminating negative impacts</p> <p>-: fragmentation, habitat loss, destruction of populations of protected species and habitats both during construction and functioning</p> | <p>+: new technology with lower pollution and noise levels, sustainable transport initiative</p> <p>-: expected increase in total transport volume, development of new transport infrastructures destroying habitats, no impact assessment on nature conservation criteria</p> | <p>-: conversion and urbanisation due to new infrastructures</p> | <p>+: new technology with lower pollution and noise levels</p> <p>-: expected increase in total transport volume, contribution to main pressures on biodiversity (pollution, climate change etc.)</p> | <p>+: compensation measures</p> <p>-: degradation, conversion, destruction</p> | <p>-: fragmentation and habitat loss adding up to the already fragmented EU</p> | <p>No direct policy measures on natural resources</p> | <p>-: conversion, habitat loss, fragmentation,</p> | <p>-: degraded ecosystems having lower mitigation and adaptation capabilities, increased traffic, higher fuel demand</p> | <p>-: IAS spreading along linear infrastructures; increased transport raising risk of IAS introduction</p> | <p>-: increased pollution</p> |
| <p>Water policies</p> <p>Water Framework Directive, Flood risk management , Groundwater, Urban Wastewater Treatment Directive, Nitrates Directive,</p> | <p>+++</p> <p>+: improving ecological status of water and soil</p> | <p>+++</p> <p>+: improving ecological status of water and soil</p> | <p>+</p> <p>+: in the long run improved ecological status in marine systems</p> | <p>+++</p> <p>+: regulating and cultural services improving (recreational, sport fishing)</p> | <p>++</p> <p>+: enhances restoration projects, ecosystem based approaches e.g. for flood risk management</p> | <p>+</p> <p>+: Improvement of the quality of river basins shared with third countries, .</p> | <p>+</p> <p>+: good ecological status of water bodies</p> | <p>+</p> <p>+: river basin management</p> | <p>++</p> <p>+: flood risk prevention through Green Infrastructure</p> | <p>++</p> <p>+: good ecological status</p> | <p>+++</p> <p>+: quality of both inland and ground water</p> |

| Key EU policy area relevant for biodiversity | A. Contribution to achieving the 2020 EU biodiversity target | | | | B. Contribution to reducing main pressures on biodiversity | | | | | | |
|--|--|-----------------------------|-----------------------|---|--|---|-------------------|---------------|----------------|------------------|-----------|
| | 1. Halting biodiversity loss | | | 2. Halting degradation of ecosystem services (ES) | 3. Restoration of biodiversity & ecosystem services | 4. Counteracting increased loss of biodiversity at global level | Over-exploitation | Fragmentation | Climate change | Invasive species | Pollution |
| | a. Protected area/ species | b. Other land / fresh water | c. Marine environment | | | | | | | | |
| Environmental Quality Standards Directive | | | | | | | | | | | |

+++, ++, + = relevant; most, many and some positive results expected (policy present and effective);

-, --, --- = relevant; generally negative results expected (policy not present, or in-effective);

+/- = relevant; positive and negative results may vary across Europe; across policy tools; across species or habitats; or services;

0 = not relevant or not of significant importance

ANNEX 7 – ANALYSIS OF AGRICULTURAL AREA POTENTIALLY COVERED BY BIODIVERSITY-RELATED MEASURES

1. Rationale:

The aim is to estimate the area covered by the components of agricultural land that are likely to deliver the highest benefits if targeted by adequate measures. Grasslands and Natura 2000 have been highlighted as likely targets for payments in the communication on the future CAP reform. High Nature Value (HNV) is not explicitly highlighted, but would be covered by agri-environmental measures, as it is already done at present to some extent.

In addition, a proportion of more intensive arable land can also deliver biodiversity benefits through the use of complementary measures such as set-aside and crop-rotation, which were also highlighted as possible elements of the greening component of the first pillar in the new CAP.

Currently 22% of the Utilised Agricultural Area (UAA) is covered by some type of agri-environment contract. It can be assumed that about 15% of the UAA can be associated with biodiversity targets.

2. Data sources:

Eurostat produces official statistics on the use of utilised agricultural areas. The latest data (2007) for EU-27 are: 60% of UAA under arable land, 33% under grassland, and 6% under permanent crops.

Corine Land Cover (CLC) data are also a useful source of information, but do not correlate exactly with official statistics. Areas that are too small to be visible through remote sensing are not measured. In addition, some categories of agricultural land are classified in “heterogeneous” classes, making it difficult to estimate its components separately (arable, permanent crops and grasslands).

For example according to CLC data, grasslands represent only 22.5% of UAA. Comparing to official statistics, this means that about 10% of UAA as grassland are not directly measured, either because they are hidden in heterogeneous CLC agricultural categories⁴⁸ (i.e. complex cultivation patterns) or because they are embedded in other non-agricultural classes (i.e. forests). In addition, in some countries, natural vegetation such as moors and heathland, transitional woodland-shrub, sclerophyllous vegetation are included in UAA official statistics. This is for example the case of Scotland. The CLC estimates of grasslands based on 'UAA like' categories are therefore clearly an underestimate.

⁴⁸ Gallego, J. and Bamps, C., 2008. Using CORINE land cover and the point survey LUCAS for area estimation, *International Journal of Applied Earth Observation and Geoinformation* 10:467–475.

3. Analysis based on HNV, N2000 and grassland areas

| | % of EU UAA |
|-------------------------------------|-------------|
| HNV | 26 |
| Grasslands | 33 |
| Natura 2000 | 10 |
| - Nat 2000/HNV overlap | 7.1 |
| - Grasslands/HNV overlap | 16.5 |
| + grasslands/HNV/Natura2000 overlap | 3.1 |
| | 48.5 |

Explanation of categories:

- *HNV area in total EU UAA*

Estimation from the Commission's Joint Research Centre (JRC) based on CLC categories that can be related to UAA ('UAA-like' categories), covering EU-24.

- *Grasslands in total EU UAA*

Official Eurostat statistics (2007, EU-27)

- *Natura 2000 area in total EU UAA*

JRC estimation based on 'UAA-like' CLC categories, for EU-24.

- *Overlap between HNV and Natura 2000 areas:*

According to JRC estimations based on CLC data, 71% of Natura 2000 agricultural area (based on CLC categories that can be linked to UAA) is HNV. Applied to 10% of UAA covered by Natura 2000, this represents 7.1% of total UAA

- *Overlap between HNV and Grassland areas:*

According to JRC estimations, half of grasslands is HNV. Applied to 33% of grasslands, this represents 16.5% of total UAA.

- *Overlap between HNV, grasslands and Natura 2000*

This area has been subtracted twice in the above two categories, and needs to be added in compensation. According to JRC estimations, based on 'UAA-like' CLC categories, this represents 3.1% of total UAA.

2. Analysis based on disaggregation of arable land, permanent crops and grassland in total HNV, Natura 2000 and grassland.

According to JRC estimation of 'UAA-like' CLC categories, the disaggregation of HNV, Natura 2000 and grassland areas is as follows (without overlaps between categories):

| | % total UAA |
|----------------------------------|-------------|
| Arable | 4.1 |
| Permanent crops | 0.83 |
| Grassland | 22.5+7 |
| Heterogeneous agricultural areas | 11.92 |
| Total | 46.35 |

Included in these categories are:

- *Arable land*
This is the proportion of CLC categories that can be directly related to arable land in UAA (Non-irrigated arable land, Permanently irrigated land, Rice fields)
- *Permanent crops*
This is the proportion of CLC categories that can be directly related to permanent crops in UAA (Vineyards, Fruit trees and berry plantations, Olive groves)
- *Grassland*
This is the proportion of CLC categories that can be directly related to grassland in UAA (Pastures and Natural grasslands). However, when comparing to official statistics, it is clear that this is an underestimate of grasslands, and that 10.5% is contained in heterogeneous areas. Assuming that the Heterogeneous agricultural areas in HNV and Natura 2000 already counted below include 1/3 of grasslands, 7% of grassland outside HNV and Natura 2000 still need to be added.
- *Heterogeneous agricultural areas*
This includes the following categories, which are either in HNV and Natura 2000: annual crops associated with permanent crops + complex cultivation pattern + land principally occupied by agriculture with significant areas of natural vegetation + agroforestry areas. These categories represent different proportions of a mix of arable land, permanent crops and grassland, which is not possible to allocate precisely.

Conclusion

Based on these two different methods, it can be concluded that a plausible proportion of area covered by HNV, Natura 2000 and Grasslands would be between 45 and 50% of UAA. Including a higher proportion than this under biodiversity-related measures in the new CAP reform would involve targeting more intensive arable and permanent crop land, for example through set-aside and crop rotation measures. Covering an additional 10 to 15% of UAA

under more intensive agricultural land would imply a realistic proportion of about 60% of UAA under biodiversity-related measures.

ANNEX 8 – JUSTIFICATION OF FEASIBILITY OF THE NATURE CONSERVATION TARGET

"To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status "

1. Habitat types and species under the Habitats Directive

Background

The Habitats Directive target uses the first conservation status assessment under Article 17 of the Directive for habitat types and species of Community importance. This EU level assessment was published in 2009 based on national reports provided by the Member States. The assessment will be repeated every 6 years, with a next round of national reports foreseen in 2013.

The European Environment Agency, with the support of the European Topic Centre for Biodiversity, helped develop this sub target using data from the 2009 assessment. The feasibility assessment relates to the conservation status (defined as favourable, unfavourable – inadequate, unfavourable-bad, unknown) for each habitat type and each species in each biogeographical region and looks at four parameters for both habitat types and species that underpin the Article 17 conservation status assessments⁴⁹. A species or habitat type is considered to have a favourable conservation status only if either all four parameters are positive or three are positive and one "unknown".

Feasibility

The assessment is based on the assumption that if adequate conservation management measures are carried out certain parameters (habitat area for species, population and future prospects for species and future prospects and structure & functions for the habitat types) will improve. Range is not considered likely to change significantly over the relatively short period of time up to 2020.

Improvements in only one or two parameters are considered most likely during the period up to 2020. Signs of potential improvement within single parameters are also included in the assessments to make the target more sensitive to trends and improvements that do not necessarily trigger a change in overall status. Based on these assumptions and using the EU-assessment database the calculations of what could be considered as realistic improvements were made. This analysis used 2240 assessments for species and 701 assessments for habitats at the biogeographical level.

⁴⁹ For species the parameters are population, habitats for the species, range and future prospects. For habitat types the parameters are area covered by the habitat type, specific structures & functions as well as typical species, range, and future prospects.

For species, using ‘population’, ‘habitat for the species’ and ‘future prospects’ as parameters most likely to change between assessments, it was estimated that the maximum attainable improvement is

- 7 % from unfavourable-inadequate (U1) to favourable (FV) and
- 4 % from unfavourable-bad (U2) to unfavourable-inadequate (U1).

For habitats, using the parameters ‘habitat area’, ‘structure & functions’ and ‘future prospects’, the estimated maximum improvement is

- 13 % from unfavourable-inadequate (U1) to favourable (FV) and
- 11 % from unfavourable-bad (U2) to unfavourable-inadequate (U1).

The other level of the assessment looks at the potential for improvement within selected parameters. To assess potential improvement within U1 and U2 assessments trend data under the parameter ‘population’ for species and ‘area of habitat’ for habitats were used. It was ensured that assessments were not double-counted with the ‘traffic light’ assessment above. As a result of this analysis, about 2% more species assessments show potential for improvement (within a conservation status category). The equivalent figure for habitats is less than 1 %.

Conclusion

When the above mentioned figures are aggregated (FV, + potential improvement from amber (U1) to green (FV) + potential improvement from red (U2) to amber (U1) + improvement within selected parameters) the maximum potential figure that might be used in a target is 30% for species and 42% for habitats. This includes attaining favourable conservation status, improvements in a category of conservation status, and clear signs of improvement that might be detected by 2020. As these represent an absolute maximum, slightly reduced figures are used to make sure reaching the target will be realistic. The proposed targets are 25% in favourable or improving conservation status for species and 33% for habitat types.

Presentation of the target

The target is presented as a percentage of improvement, i.e. from 17% to 25 % for species and from 17% to 33% for habitat types. With some rounding this translates into a 50% improvement for species and a 100% (i.e. doubling of) improvement for habitat types.

2. Bird species under the Birds Directive

Background

All bird species are protected under the Birds Directive. Previous assessments of their conservation status, prepared by BirdLife International, have been based on an analysis of extinction risk of each species and a determination of species of European conservation concern (SPECs). The latest 2004 assessment for the EU 25 Member States concluded that 52% of species are secure, although the situation appears to vary between different categories of species, with migratory and farmland bird species of particular concern. Four categories of bird species covered by the Birds Directive can be considered in the context of setting targets

for the period up to 2020. It has already been demonstrated that targeted conservation actions for Annex I bird species under the Directive have resulted in improvements in conservation status for different species. In August 2007 the journal *Science* published an analysis showing that the Birds Directive has made a significant difference in protecting many of Europe's most threatened birds from further decline⁵⁰. The groundbreaking paper shows that the Birds Directive has clearly helped those species considered to be most at risk, partly through the designation of Special Protection Areas (SPAs).

1. Globally threatened species

60% of these 40 species are already stable or increasing in the EU, which represents important progress, given that most of them were declining and in very poor condition in the 1980s and 1990s. This is largely down to conservation action inspired by EU Species Action Plans and often funded by EU projects, particularly the LIFE financial instrument. This has halted the decline of many species (e.g. Lesser Kestrel, Great Bustard) and led to dramatic increases in others (e.g. White-headed Duck, Imperial Eagle). This recovery can be continued for the other 40% of species that are currently still declining or have unknown trends.

2. Annex I species

Likewise, 76% of these species are already stable or increasing in the EU. Due to the size of the species pool, and the fact that some of these species cannot be conserved solely through Special Protection Areas as they also need other 'special conservation measures', e.g. at landscape scale, they will require a suite of conservation measures over the coming decade to achieve significant improvements in conservation status.

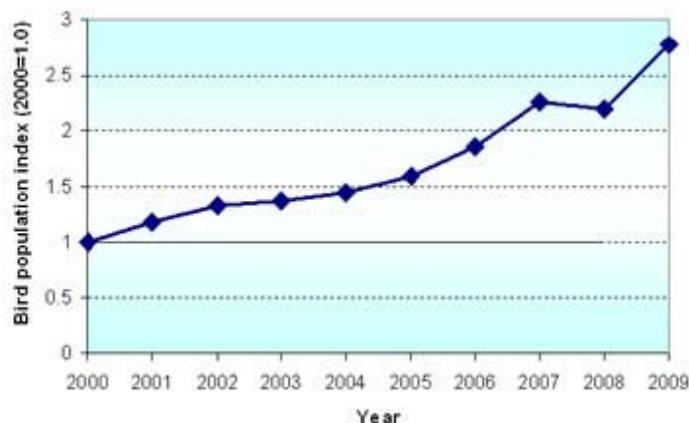
3. Migrant species

Improvements in conservation status are clearly feasible for many species but there are particular challenges for declining long-distance migrants. Tackling the problems facing these species will require international collaboration with countries outside the EU, within the framework of the African Eurasian Waterbird Agreement and other mechanisms.

4. Farmland species

Thanks to a large amount of research there is now a good scientific understanding of why most farmland bird species are declining. Conservation measures have been developed, trialled and rolled out solutions developed that can be deployed through agri-environment schemes to reverse their declines (and benefit other biodiversity).

⁵⁰ Paul F. Donald, Fiona J. Sanderson,¹ Ian J. Burfield,² Stijn M. Bierman, Richard D. Gregory, Zoltan Waliczky International Conservation Policy Delivers Benefits for Birds in Europe *Science*, 2007.



The above graph shows what can be achieved by implementing targeted conservation measures: a near-trebling of the farmland bird population at the Royal Society for the Protection of Birds (RSPB) Hope Farm in less than a decade⁵¹. This is not a special case, but a regular arable farm that the RSPB bought to demonstrate that it is perfectly possible for modern farming methods and wildlife to co-exist, producing food cost-effectively and benefiting biodiversity. The farm is not organic and applies fertiliser, pesticide, etc. in the same way as other modern farms. It just makes full use of agri-environmental scheme measures.

Feasibility

Therefore, on the basis of current knowledge, if the necessary conservation measures are put in place it is considered feasible to achieve a significant measurable improvement from the current level of 52% of bird species populations having secure/good status to a maximum level of 80% of bird species either being secure or showing improving population status by 2020. This formulation implies that all those species currently in good status should be maintained there, whilst about 50% of those not in a good status should show signs of improvement (positive trends) by 2020 – some of these may even recover sufficiently to be restored to a good status by that time. Obviously, the possibility remains that some other EU bird species continue to decline or remain in a less good status. This is probably inevitable, especially for long distant migrants that only spend part of their annual cycle in the EU, owing to the scale of the challenges facing them.

Presentation of the target

The target is presented as a percentage of improvement, i.e. from 52% to 80% for bird species. With some rounding this translates into a 50% improvement of population status of bird species

⁵¹ Case study by RSPB <http://www.rspb.org.uk/ourwork/farming/hopefarm/index.aspx>

ANNEX 9 – PROPOSED TARGETS IN RELATION TO POLICY PRIORITIES AS HIGHLIGHTED AT COMMISSION, COUNCIL AND GLOBAL LEVEL

| | Link to COM (2010)4 | Link to Council Conclusions | Link to global targets in the revised Strategic Plan for Biodiversity 2011-2020 |
|--|--|--|--|
| T1- Nature Conservation related target | <p><i>"In Europe, conservation assessments of species and habitats show that, despite some successes, the overall situation has continued to deteriorate."</i></p> <p><i>"Early estimates show that only 20% of the total financing needs for managing protected areas in Europe are being met."</i></p> | <p>CC March 2010</p> <p><i>" Reaffirming that protected areas and ecological networks are a cornerstone of efforts to preserve biodiversity, stresses the need to fully implement the Birds and Habitats Directives, to speed up the completion of the Natura 2000 Network, both on land and at sea, and to put in place adequate finance, taking into account also that biodiversity is unevenly spread throughout the EU, and effective management and restoration measures;"</i></p> | <p>This would be linked to T1, T5, T11 (in particular), T12</p> |
| T2- Restoration and Green Infrastructure related target | <p><i>"Appropriate forms of land and maritime management are needed to maintain and enhance ecosystems that provide ecosystem services to society at large"</i></p> <p><i>"while EU regulations contribute to ensuring that the environmental impacts of infrastructure development and spatial planning at EU level are minimised, further benefits could be reaped from better coordination, in accordance with the subsidiarity principle, with the development of and investment in 'green infrastructure' in the 83% of EU territory falling outside the Natura 2000 network.."</i></p> | <p>CC Dec 2009</p> <p><i>"Highlights the mitigation and adaptation potential of resilient wetlands, oceans, forests, peatlands and grasslands and other ecosystems"</i></p> <p>CC March 2010</p> <p><i>"Emphasizes the contribution of Green Infrastructure" to climate adaptation and mitigation objectives, to prevent habitat fragmentation, to increase connectivity and to maintain species evolution processes" " Calls on the Commission to further develop this process"</i></p> | <p>This would be linked to T2, T5, T6, T7, T11, T10, T14, T5 (in particular)</p> |
| T3- Agriculture and forestry related target | <p><i>"Strengthening rural development policy with a view to developing ecosystem services by preserving and enhancing farming and forestry with a high nature value in the context of the CAP"</i></p> | <p>CC December 2009</p> <p><i>"Acknowledges that agrobiodiversity is an important element with significant potential for improving food security and climate</i></p> | <p>This would be linked to the achievement of targets T3, T4, T7 (in particular), T8, T13,</p> |

| | Link to COM (2010)4 | Link to Council Conclusions | Link to global targets in the revised Strategic Plan for Biodiversity 2011-2020 |
|--|--|---|--|
| | | <i>change mitigation and adaptation"</i> | T14, T15 |
| T4- Fisheries related target | <i>"Addressing the problems identified in the Green Paper on reform of the common fisheries policy is a priority in order to deliver an ecologically sustainable policy in 2012 based on scientific advice and effectively tackling overcapacity, and to better contribute to biodiversity targets."</i> | CC December 2009 <i>"Acknowledges the need for a growing world population to sustainably use marine resources and stresses the urgent need to reverse the loss of freshwater, marine and coastal biodiversity"</i> | This would be linked to T3, T4, T6 (in particular), T10 |
| T5- Invasive Alien Species related target | COM(2008) 789 final <i>"Halting the loss of biodiversity in the EU will not be possible without tackling IS in a comprehensive manner. The ecological, economic and social consequences of IS in the EU are significant and require a coordinated response. [...]"</i> <i>The Commission will examine the possibility of setting up an Early Warning and Information System based on a regularly updated inventory combined with effective response mechanisms which it considers would be an important step forward".</i> | CC June 2009 <i>" Recalls the urgent need for an EU strategy on invasive alien species "</i> <i>" Calls for an effective Strategy which should fill the existing gaps at EU level and establish a comprehensive EU IAS framework in a proportionate and cost-effective manner including by providing for new, dedicated legislative elements and, where necessary, amending or incorporating existing provisions"</i> | This would be linked to target T9 |
| T6- Global contribution related target | <i>"Further integration is a priority in external policy and in other policies closely interlinked with biodiversity. In addition to stepping up efforts to reduce the negative impact of these policies on biodiversity in the EU and globally, more awareness is needed about the implications of biodiversity loss for the long-term sustainability of activities resulting from these policies, as well as the economic benefits they can harness from healthy ecosystems."</i> | CC Dec 2009 <i>"Stresses the need to take measures to reduce the EU's ecological footprint"</i> CC March 2010 <i>"Promote all necessary measures to protect biodiversity in third countries"</i> | This would be linked to T2, T3, T4, T16, T18, T20 |

ANNEX 10 – GLOBAL 2020 TARGETS AND MEASURES REQUIRED TO ACHIEVE THEM⁵²

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
|---|--|--|
| <p><i>Target 1:</i> By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.</p> | <p>Efforts to step up communication and raise awareness about biodiversity were stepped up in recent years, especially during the 2010 International Year of Biodiversity. The Commission launched a major biodiversity awareness raising campaign for this purpose in early 2010.</p> | <p>This is an ongoing challenge underpinning the achievement of all other targets, and cannot be achieved through a single activity or measure but rather needs to be pursued as a cross-cutting issue at all levels of government and in all relevant sectors to be effective.</p> <p>Therefore, it is to be integrated as a cross-cutting issue in the EU biodiversity strategy. Additionally, for example among the measures proposed under target 1 involves a communication campaign on Natura 2000 to be carried out by the Commission.</p> <p>Further actions will be required at all levels of government and in all relevant sectors.</p> |
| <p><i>Target 2:</i> By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.</p> | <p>Based on the Treaty, environment policy objectives are to be achieved through policy integration. Thus, several EU policies take partial account of biodiversity concerns and provide opportunities to invest in actions promoting biodiversity (see Policy Baseline). The current work of the Commission to develop the Green Infrastructure concept and subsequently put it in place is especially focusing on development and spatial planning based on a strategic, ecosystem-based approach.</p> <p>The integration of biodiversity values into national and regional development policies and national accounting</p> | <p>The selection of the 6 targets of the EU biodiversity strategy is partly designed to enable better integration within the EU.</p> <p>Target 2 will contribute to incorporating biodiversity values into accounting and reporting systems. Target 6 of the EU biodiversity strategy is expected to contribute partially towards achieving this target by assisting developing country partners with biodiversity integration into development planning and undertaking work on valuation. However, additional measures beyond the scope of the EU strategy will be required to achieve this</p> |

⁵² For more on EU action, please see Annex on Policy Baseline.

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
|---|--|---|
| | <p>systems is a key recommendation from the TEEB study.</p> <p>In addition to taking action to implement this target within the EU, the EU can also contribute to the achievement of this target at global level by providing assistance to third countries in carrying out work on valuation of biodiversity and ecosystem services and enhancing the integration of biodiversity in national development and poverty reduction strategies.</p> | target at EU level. |
| <p><i>Target 3:</i> By 2020, at the latest, incentives, including subsidies harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.</p> | <p>In its Europe 2020 Strategy, the EU recognised the negative effects on the environment of different existing subsidies and called upon the Member States to phase out environmentally harmful subsidies, limiting exceptions to people with social needs. This exercise will need to be followed and strengthened with the development and implementation of the flagship initiative on Resource Efficiency.</p> <p>The ongoing reforms of the main EU policies (e.g. CAP, CFP and Regional Development) provide an excellent opportunity for further integration to achieve that no EU funds counteract biodiversity objectives. Ensuring that biodiversity concerns are adequately reflected in these initiatives will be key to achieving this CBD target.</p> | <p>Targets 3 and 4 of the EU biodiversity strategy are expected to promote positive incentives for biodiversity conservation and sustainable use.</p> <p>Biodiversity concerns (impacts, benefits) should also be integrated into the EU's subsidy reform agenda.</p> |
| <p><i>Target 4:</i> By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.</p> | <p>The EU has put considerable effort towards promoting sustainable consumption and production patterns over the past decades. Numerous initiatives have been taken both at EU and national levels, such as the Sustainable Production and Consumption and Sustainable Industrial Policy Action Plan (SCP/SIP), EMAS or Eco-labelling. The Europe 2020 Strategy aims at achieving, among others, sustainable growth and identifies resource efficiency as one of its</p> | <p>Several targets in the EU biodiversity strategy will require planning aimed at improving resource use and minimising negative impacts on biodiversity, most specifically T3, T4 and T6, and as such are expected to contribute towards the achievement of this target.</p> <p>Biodiversity concerns (impacts, benefits) should also be integrated into the EU's Resource Efficiency Flagship</p> |

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
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| | flagship initiatives. | initiative. |
| <i>Target 5:</i> By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero , and degradation and fragmentation is significantly reduced . | The EU takes numerous actions on this field both inside and outside the EU. Most notably, the creation and management of the Natura 2000 network in EU territories and marine areas and through dedicated development projects in third countries, or the promotion of Natura 2000-like protected networks in Overseas Territories. | All targets in the EU biodiversity strategy are expected to contribute towards achieving this target |
| <i>Target 6:</i> By 2020, all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches , so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits. | The EU committed in 2002 to maintain or restore fish stocks to levels that can produce Maximum Sustainable Yield (MSY) not later than 2020. The Marine Strategy Framework Directive sets the objective to achieve good environmental status by 2020. The Common Fisheries Policy should be designed to assist these processes. | Target 4 is expected to contribute directly towards achieving this target, and target 1 and target 5 would contribute indirectly. |
| <i>Target 7:</i> By 2020, areas under agriculture, aquaculture and forestry are managed sustainably , ensuring conservation of biodiversity. | The Common Agriculture Policy and the Common Fisheries Policy are providing the major frame for actions to achieve sustainable agriculture, forestry and aquaculture. Additionally, there are targeted tools promoted by the EU, like certification (e.g. FSC, MSC), that contribute to global target. | Targets 3 and 4 are expected to contribute towards achieving this target. Additional measures focusing on aquaculture may be required given the lack of a coherent and consistent aquaculture policy for the EU. |
| <i>Target 8:</i> By 2020, pollution , including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity. | The EU already has an extensive pollution-related <i>aquis</i> covering a wide range of pollutants (nitrates, pesticides, air, chemicals, industrial emissions, waste, etc.) | NO |
| <i>Target 9:</i> By 2020, invasive alien species and pathways are identified and prioritized , priority species are controlled or eradicated , and measures are in place to | The EU is currently poorly equipped to tackle the challenge of invasive alien species as it currently lacks an EU framework. However, some existing tools if better | Target 5 is expected to contribute directly towards achieving this target. |

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
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| manage pathways to prevent their introduction and establishment. | fitted (e.g. Plant and Animal Health Regime) may contribute. Unless action is taken there is a serious risk that the EU will not reach the 2020 global target. | |
| <p><i>Target 10:</i> By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.</p> | <p>The EU has been leading the efforts to combat climate change and ocean acidification, and has decided to increase its contribution to protect vulnerable marine ecosystems by establishing a "Voluntary scheme for Biodiversity and Ecosystem Services in Territories of European Overseas" (BEST) to promote conservation and sustainable use of biodiversity and ecosystem services in European overseas entities inspired by the experience with EU nature conservation.</p> <p>EU climate commitments are expected to highly contribute to mitigate climate change.</p> | NO |
| <p><i>Target 11:</i> By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.</p> | <p>At present, the Natura 2000 protected areas network covers almost 18% of EU territory and designation of marine sites is in well underway. In this sense, the EU has already partially achieved this target. However, it is clear that further efforts will be needed to reach the 10% coastal and marine target, as well as the qualitative dimension of the global target.</p> | <p>Target 1 in particular, as well as targets 3 and 4 of the EU biodiversity strategy are expected to contribute towards achieving this target.</p> |
| <p><i>Target 12:</i> By 2020, the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.</p> | <p>The objective of the EU nature conservation policy is explicitly the achieving of favourable conservation status of species and habitats covered by the pieces of legislation. Additionally, there are other EU policies, the implementation of which improves the status of species,</p> | <p>All targets in the EU biodiversity strategy are expected to contribute towards achieving this target.</p> <p>However, additional action at national and local level will also be needed.</p> |

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
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| | such as the Water Framework Directive (obligation to achieve good ecological status) or the Marine Strategy Framework Directive (obligation to achieve good environmental status). The EC support improving knowledge on species through promoting monitoring, research as well as the assessment of species' threatenedness (Red Lists). | |
| <p><i>Target 13:</i> By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.</p> | <p>Action to conserve genetic diversity in the EU is carried out at EU and Member State level, including through the 2nd Community programme on the conservation, characterisation, collection and utilisation of genetic resources in agriculture 2006-2011 which aims inter alia at reinforcing the Community's efforts to conserve and document plant, animal and microbial genetic resources and eliminating duplication of effort. Additionally, EU funds (especially the EAFRD, but also the EU research framework programme) provide opportunities to protect genetic diversity especially that of local breeds or varieties.</p> | <p>In addition to existing measures, a specific action will be included under target 3 to support genetic diversity in agriculture.</p> |
| <p><i>Target 14:</i> By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.</p> | <p>Though there is no EU policy dedicated to the protection and enhancement of ecosystem services, there are several policies having an influence on delivering on this target, and work has been started to enable policy making to build on ecosystem services (e.g. TEEB, Green Infrastructure, mapping of ecosystem services).</p> | <p>Target 2 is directly aimed at improving ecosystem services, whereas targets 1, 3, 4 and five are expected to contribute.</p> <p>Additional actions will be needed to be taken at national, regional and local level.</p> |
| <p><i>Target 15:</i> By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.</p> | <p>Achieving the status based objectives of EU policies (e.g. favourable conservation status under the Habitats Directive, good ecological status under the Water Framework Directive or good environmental status under the Marine Strategy Framework Directive) requires</p> | <p>Targets 2 and 1 in particular, as well as targets 3 and 4 of the EU biodiversity strategy will contribute towards achieving this target.</p> <p>However, there is a need to enhance the use of ecosystem-based approaches to climate change mitigation</p> |

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
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| | <p>restoration.</p> <p>The very strong involvement of the EU in Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries yield a significant improvement of the contribution of natural carbon storage in ecosystems in developing countries thus combating global biodiversity loss.</p> | <p>and adaptation to maximise biodiversity benefits.</p> |
| <p><i>Target 16:</i> By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.</p> | <p>There is no EU legislation in place.</p> | <p>The EU will need to transpose into European legislation the obligations and provisions of the Nagoya Protocol. New EU legislation is likely to be developed in 2012 with a view to implementing this target.</p> |
| <p><i>Target 17:</i> By 2015, each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.</p> | <p>The 2006 EU Biodiversity Action Plan is no longer adequate for ensuring delivery on the 2020 biodiversity targets.</p> | <p>The 2020 biodiversity strategy will itself fulfil this target for the EU.</p> <p>Member States, as individual Parties to the CBD, will also be required to develop or review and update/revise their National Biodiversity Strategies and Action Plans.</p> |
| <p><i>Target 18:</i> By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.</p> | <p>Traditional knowledge falls under the exclusive competence of the Member States.</p> | <p>NO</p> |
| <p><i>Target 19:</i> By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its</p> | <p>The EU is supporting biodiversity-related research through its research framework programmes and is strongly supporting the establishment of the Inter-governmental</p> | <p>To be integrated as a cross-cutting issue in the EU biodiversity strategy.</p> |

| 2020 Global target (agreed at CBD COP10) | Current action(s) within the EU | EU contribution towards achieving the 2020 global target |
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| loss, are improved, widely shared and transferred, and applied. | Panel on Biodiversity and Ecosystem Services (IPBES). Once in place, this Platform will help build strong consensus on scientific evidence that would secure knowledge based sound policy making. This is addressed in the monitoring section. | |
| <i>Target 20:</i> By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011-2020 from all sources and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties. | There are funding streams within the EU established to contribute to biodiversity, both within the EU in an integrated approach and globally through dedicated aid or support (see especially Annex on main EU funding instruments). | Target 6 is expected to contribute towards achieving this target. Efforts will need to be stepped up in the lead to COP-11 to establish EU funding targets by 2012, as agreed in COP-10 in Nagoya. |

ANNEX 11 – SUPPORTING EVIDENCE FOR SOME PROPOSED MEASURES

1. Supporting evidence for the nature protection measures

- Natura 2000 in Scotland (Environment Group, 2004): The estimates were developed based on information from seven representative case study areas, extrapolated over the total number of Natura 2000 sites in the area. The cost estimates includes direct costs (management and policy) and opportunity costs. The benefits arising from both use values (e.g. recreational use) and non-use values were measured using contingent valuation questionnaire surveys (willingness to pay). Finally, a cost benefit analysis was carried out to estimate the net benefits of Natura 2000 in Scotland. The benefit-cost ratios are strongly positive (about 7:1 for protection overall, and 12:1 for the incremental value of the Natura 2000 designation), and there are additional values not assessed (social, cultural, educational, research, environmental services and health values: all likely to be positive, though possibly partly included in the non-use responses). The broad result that non-use values from local and international populations could justify Natura 2000 costs and opportunity costs seems robust.
- Natura 2000 in the Netherlands (Kuik et al, 2006): A 2006 assessment by the Dutch Institute for Environmental Studies of the benefits associated with Natura 2000 in the Netherlands has provided the estimated value of different benefits associated with Natura 2000 sites, calculated as an average of €/ ha / year benefits from different key Natura 2000 ecosystems. Based on these average values, benefits provided by Natura 2000 in the Netherlands were estimated to be around €4000 / ha / year. Recreation and tourism as well as wider ecosystem functions were important components of this value. Non-use benefits were also important. The provisioning service of raw materials was of lesser importance in the Netherlands. The authors extrapolated the gross welfare benefits of all Natura 2000 areas in the Netherlands (1.1 million ha), deriving an estimate of around €4.5 billion / year.
- Large Blue butterfly conservation in Germany (Watzold et al 2008). This study considers optimal conservation levels of Large Blue butterflies (protected by the EU Habitats Directive) via payments to conserve specific times and sequences of mowing regimes on which the species depends. Costs include opportunity costs and compensation payments needed; Benefits are based on an ecological model to determine the ecological effects of alternative mowing regimes, coupled with contingent valuation. The results show that conservation is cost-effective up to maximum level assessed

2. Supporting evidence for restoration and green infrastructure measures

- Lower Danube Green Corridor (WWF, 2000). The 2236 km² corridor (Bulgaria, Romania, Moldova and Ukraine) has made significant improvements to water quality; increased biodiversity; lowered risks from flooding; and improved local livelihoods. The flood in 2005 caused an estimated €396 million worth of damage. The cost of the restoration has been estimated at €183 billion. The estimated value of the ecosystem services provided is €500ha/yr and additional future earnings are estimated at €5.6 million per year.
- River Elbe floodplain restoration (Meyerhoff and Dehnhardt, 2007). The context of this study is restoration along River Elbe (Germany) through dike shifting, reducing agriculture

impact and constructing fish ladders. This combines a partial a cost benefit analysis based on CV study, avoidance costs, engineering costs and land opportunity costs, and a statistical model of nitrogen retention as a result of reduced water runoff velocities in two areas, then scaled up to whole restoration area. Recreation and flood protection benefits, carbon benefits and/or methane disbenefits were not valued and could be significant, which would strengthen conclusions. 8 scenarios were considered, with BCRs ranging from 2.5 to 4.1. Separate sensitivity scenarios still produced a positive NPV, providing robust support for the conclusion that NPVs are positive.

- Skjern river restoration in Denmark (Dubgaard, 2004). This study focused on the restoration of the Skjern river from a channelled river to a meandering course, with the creation of outflows from the river to the Fjord with the intention of forming a delta of app. 220 ha in time, the creation of a lake of approximately 160 ha, permitting periodical floods on land within the project area. This would involve the transfer of 1,550 ha of arable land to extensive grazing. An ex-post CBA which uses value transfer, market prices and replacement costs to value costs and benefits, showed that up to at least 5% social discounting, the project appears to have a positive net present value. The net present value was of DDK 228 million at 3% discount rate, and 67 million at 5%.
- Blackwater Estuary, UK (Luisetti et al., 2008). This study focused on an estuary of 5,500 hectares with open water, mudflats and saltmarshes, and the costs and benefits of maintaining flood defences with sea-level rise and coastal squeeze of intertidal wetlands. Benefits were estimated through a production function for fish (bass) and sediment burial estimates from simultaneous fisheries and biogeochemistry studies, carbon calculations taking into account methane and nitrous oxide emissions, market prices for coastal defence work (costs avoided) and fish production function; three carbon price estimates, and finally stated preference for “composite environmental benefit”. Results show that with constant discount rate, the highest NPV is the Deep Green scenario (£106m over 25 years, £192m over 100 years) but with declining discount rates the Extended Deep Green scenario looks better over longer horizons. Overall, the study shows that managed realignment can be cost-beneficial if account is taken of non-marketed benefits, in particular for conservation and recreation.
- National Forest, UK (eftec, 2010). Large regeneration area including some former landfill sites, quarries, other post-industrial brownfield sites, in the context of a long-term project to create woodlands and priority open habitats on 33% of The National Forest land area. The study estimated £178m of costs based on actual and predicted expenditures for achieving the objectives, compared to £1,623m of benefits, largely from recreation, with lesser contributions from carbon, biodiversity and aesthetic values in particular. Results indicate a Net Present Value of £1.44bn, and a Cost Benefit ratio of 9.1:1.
- Agro-ecosystem of Sint-Truiden, Belgium (Turkelboom, 2010). A series of actions were undertaken primarily to protect the village from soil erosion and mud floods, including almost 20 hectares of grassed waterways, 150 hectares of grassed buffer strips, 40 earthen dams (retention ponds) and 150 ha of conservation tillage in the catchment. The total cost of the control measures is low (€126/ha/20 years). This figure is low if one compares to the saving of the damage and clean-up costs caused by muddy floods in the study area (€54 /ha/year) and all the secondary benefits, which included improvement of downstream water quality; reduction in downstream dredging costs; reduced psychological stress to inhabitants who were frequently threatened by muddy floods; increase in biodiversity

(birds and mammals); and enhanced landscape quality due to the new green and blue corridors through the landscape. Local entrepreneurs responded to bikers and hikers exploring the area by transforming traditional farms into bed-&-breakfast facilities, and by promoting agro- and eco-tourism.

3. Supporting evidence for agri-forestry related measures

- A study on restoring land to increase forage for bumblebees in intensively farmed landscapes in UK (Pywell et al. 2006) shows clear benefits from pollination services for semi-natural ecosystems and a wide range of agricultural and horticultural crops, and many garden plants.
- An assessment of costs and benefits of wild goose conservation in Scotland (Macmillan et al., 2004) demonstrates that wild goose numbers have risen rapidly over the past 30 years which cause some damage in crops. Farmers receive compensation for putting in place conservation schemes (feeding and buffer areas for geese on farmland). The study estimated the willingness to pay of the general public for goose conservation measures and the costs of goose damage to agriculture. The resulting cost-benefit ratio was of 700:1 for measures allowing a 10% increase in endangered species, and 113:1 for measures allowing a 10% increase in all species. The study concluded that goose conservation measures were good value for money for taxpayers.
- The assessment “Agriculture-forest conversion in Wales” (Bateman et al, 2005) looks at costs and benefits of establishing multi-purpose woodland on agriculture land. Net benefits in the latter areas reach as high as £200/ha/year in 1990 prices. Overall the analysis shows that there are substantial areas of Wales which would yield significant net social benefits from conversion out of agriculture and into multi-purpose woodland.

4. Supporting evidence for fisheries related measures

- Several studies showed that overfishing has significant economic impacts. Cod fishing in the Baltic in 2002 represented a cost of US\$ 128.6 million compared with what could have been harvested with sustainable yields. Similarly, the North Sea cod fishery lost US\$ 195.3 (WWF-Germany, 2002). Economic and social consequences of failing to apply Maximum Sustainable Yield (MSY) was also dramatically demonstrated in the case of Newfoundland, Canada after the collapse of North Atlantic cod stocks in the early 1990s. The sector provided between 80 and 100% of income in some communities, and 20% of the population was employed in the fishery. The collapse resulted in over 40,000 people losing their jobs, including 10,000 fishermen.
- Ecosystem-based fisheries management has resulted in highly successful fish stock rebuilding efforts in California, the northeast United States and northwest Australia. Efforts have involved experimentation with closed areas, gear and effort restrictions, and new approaches to catch allocation and enforcement.
- Marine conservation zones in the UK (Defra 2009): The study looks at costs to government for implementing and maintaining the marine conservation network as well as the costs to business from restrictions on activity and benefits from the conservation zones (including food and raw materials; nutrient cycling; climate regulation; sea defence; cognitive values (research spending) and expenditure (education) with specific marine focus. The conclusion is that active conservation of the UK marine habitat has a positive net present

value. Establishment of a network of marine conservation zones (MCZs) throughout UK waters has a Benefit Cost Ratio of between 6.7 and 38.9. Sensitivity testing shows that even given the uncertainty in the estimates it is rather unlikely that the BCR could be below 1.

- Restricting damaging fishing practices (Homarus Ltd, 2007). The study considers a proposed conservation zone of 60 square nautical miles centred on Lyme Regis, UK. Within this area, scallop dredging would be stopped, but more sustainable forms of fishing would be allowed (e.g. dive catching of scallops, crustacean potting and fixed netting of skates and rays), as would recreational use. The results suggest that benefits from other uses are at least double benefits from scallop dredging. This provides good evidence that protection would be beneficial, given that the environmental benefits of protection are unknown but certainly positive.

5. Supporting evidence for measures related to Invasive Alien Species

- McConnachie et al. (2003) review 10 benefit-cost studies of successful biological control programs, including four insect pests, four terrestrial weeds, and two aquatic weeds. For terrestrials, the benefit-cost ratios range from 1.9:1 to 24:1.
- Van Wilgen et al. (2004) estimate the costs and benefits of biocontrol of six invasive weed species in South Africa, where biocontrol has been practiced since 1910. They estimate benefit-cost ratios ranging from 8:1 for red Sesbania to 709:1 for jointed cactus.

6. Supporting evidence for measures related to achieving the global target

- Conservation in Sumatran oil palm plantations - Bateman et al (2009), Bateman et al (2008). This study looked at costs of possible conservation measures within palm oil plantations in Sumatra, which would contribute to sustaining tiger populations and other species in surrounding land. This is compared to potential price premium for 'conservation-grade' palm oil. The analysis shows a 'win-win' situation in that the optimal areas for biodiversity are also the areas with least opportunity cost. The smallest conservation area scheme requires only the lowest (15%) price premium to generate a small yet positive net benefit for the plantation; larger schemes are not viable at the lower price premium level. The results suggest that a reorganization of conservation efforts incorporating the strategies underpinning recent conservation-grade and Fairtrade production movements would provide an economic incentive for a majority of plantations to see conservation as an economically beneficial undertaking.
- Coral mining in Indonesia and Sri Lanka - Ohman and Cesar, 2000. This study examines the socio-economic effects of coral mining for lime production in Lombok, Indonesia and Sri Lanka. Extraction of corals has a detrimental effect on the reef ecosystem and recovery is slow. Tourism is an important industry in Lombok and is growing rapidly. Other activities include fishing and mangrove forestry. The study compares cost-benefit analyses of two sites of coral mining. The analyses produces different values which reflects the biological differences in fisheries in the two areas as well as the production differences in lime from coral. Both studies suggest net economic losses from coral mining once the ecosystem service impacts are taken into account.
- Mangrove conservation, Southern Thailand - Sathirathai and Barbier, 2001 – This study reviews the case of conservation of mangroves in Southern Thailand versus conversion to

shrimp farms, when water and flood protection services are taken into account. The study compares costs and benefits of three different land-use options for mangroves in Southern Thailand, and concludes that the value of conserving mangroves in Surat Thani Province is higher than that of converting mangroves to shrimp farms.

References

Bateman, I.J., Lovett, A.A., & Brainard, J.S. 2005. *Applied Environmental Economics: A GIS Approach to Cost-Benefit Analysis* Cambridge, UK, Cambridge University Press.

Bateman, IJ, Fisher, B, Glew, DW and Watkinson, A, 2008. Making Tigers Pay: Marketing Conservation Of The Sumatran Tiger Through ‘Tiger Friendly’ Oil Palm Production, CSERGE Working Paper ECM 08-06

Bateman, IJ, Coombes, E, Fisher, B, Fitzherbert, E, Glew, D and Naidoo, R, 2009. Saving Sumatra’s species: Combining economics and ecology to define an efficient and self-sustaining program for inducing conservation within oil palm plantations, CSERGE Working Paper EDM 09-03 Defra 2009, *Marine and coastal access bill impact assessment: Introduction to the House of Commons*, Defra, London.

Dubgaard, A. 2004, Cost-benefit analysis of wetland restoration, *Journal of Water and Land Development* 8, 87-102

Eftcc, 2010, *Flood and coastal erosion risk management: Economic valuation of environmental effects - Annex 1*, Defra.

Environmental Group, 2004. An Economic Assessment of the Costs and Benefits of Natura 2000. Sites in Scotland, Scottish Executive Research Report 2004/05

Homarus Ltd, 2007. Estimate of Economic Values of Activities in Proposed Conservation Zone in Lyme Bay Report to the Wildlife Trusts

Kuik, O., Brander, L. & Schaafsma, M. 2006. Globale Batenraming van Natura 2000 gebieden.

Luisetti, T., Turner, K., & Bateman, I. 2008. *An ecosystem services approach to assess managed realignment coastal policy in England*. CSERGE Working Paper ECM 08-04

Macmillan, D., Hanley, N., & Daw, M. 2004. Costs and benefits of wild goose conservation in Scotland. *Biological Conservation*, 119: 475-485

McConnachie, A.J., M.P. de Wit, M.P. Hill, and M.J. Byrne. 2003. Economic Evaluation of the Successful Biological Control of *Azolla filiculoides* in South Africa. *Biological Control* 28(1): 25–32.

Meyerhoff, J. & Dehnhardt, A. 2007. The European water framework directive and economic valuation of wetlands: The restoration of floodplains along the river Elbe. *European*

Environment, 17, (1) 18-36 available from:
<http://www.scopus.com/scopus/inward/record.url?eid=2-s2.0-33947531665&partnerID=40>

Ohman, M. C. & Cesar, H. S. J. 2000. "Costs and Benefits of Coral Mining," *In Collected Essays on the Economics of coral Reefs*, H. S. J. Cesar, ed., Kalmar, Sweden: CORDIO, pp. 85-93.

Pywell R.F., Warman E.A., Hulmes L., Hulmes S., Nuttall P., Sparks T.H., Critchley C.N.R. & Sherwood A., 2006. Effectiveness of new agri-environment schemes in providing foraging resources for bumblebees in intensively farmed landscapes. *Biological Conservation*, 129, 192-206

Sathirathai, S. & Barbier, E.B. 2001. Valuing mangrove conservation in Southern Thailand. *Contemporary Economic Policy*, 19, (2) 109-122

Turkelboom, F. (2010) TEEBcase 'Changed agro-management to prevent muddy floods, Belgium, available at: TEEBweb.org.

van Wilgen, B.W., M.P. de Wit, H.J. Anderson, D.C. Le Maitre, I.M. Kotze, S. Ndala, B. Brown, and M.B. Rapholo. 2004. Costs and Benefits of Biological Control of Invasive Alien Plants: Case Studies from South Africa. *South African Journal of Science* 100(1/2): 113–122.

WWF-Germany, 2002. The economics of a tragedy at sea: Costs of overfishing of cod from the North Sea and the Baltic. (2002 converted to US\$, rate from 31.12.2002, <http://fxtop.com/de/cnvhisto.php3>).

ANNEX 12 – EXAMPLES OF GOOD PRACTICE ON RESTORATION AND GREEN INFRASTRUCTURE IN THE EU

1. STRENGTHENING ECOSYSTEM SERVICES

France: Réseau pollinisateurs - pollination

Given that 35% of the food resources of France depend on pollinators, France is creating 250 km of pollinator corridors along side of highways. The aim is to extend this exercise to 12.000 km of highways in the next years.

Austria: Vienna - Rax-Schneeberg-Schneealpen massif – drinking water purification

The per capita consumption of water in Vienna is 150 litres per day. About 95% of annual water supplies come from springs in the Rax, Schneeberg, Schneealpe mountains and from the Hochschwab mountain massif. The Vienna City Constitution put Vienna's water and the forests surrounding the springs under protection orders provide for pure drinking water at any time. Vienna established water protection areas and preservation areas were proclaimed around the supply sources. In 1965, for instance, the whole Rax-Schneeberg-Schneealpen massif was declared a water protection area. The Forestry Office of the City of Vienna administers a total area of approximately 32,000 hectares of forest, mountain pastures and meadows in the Rax and Schneeberg area as well as in the Hochschwab massif, enabling it to coordinate the use of all country area, tourism, hunting and fishing activities with the requirements of spring protection.

Ireland: Anne Valley – local solutions for waste water purification

In Anne Valley, Ireland, an integrated constructed wetland (ICW) was created instead of installing a traditional treatment plant. Not only the wetland is more efficient in clearing mostly livestock wastewater than a comparable traditional sewage plant, it also offers multiple benefits for the ecosystem services the wetland provides: water purification, fresh water, climate regulation and carbon sequestration, flood control, recreational aspects, soil formation and nutrient cycling - and it provides a suitable habitat for wetland flora and fauna. Farmers are quoted that they are only keeping their farming business due to the installation of this wetland, and the aesthetical value of the area has considerably increased. Capital costs for 1750 population equivalents were 770,000 EUR + 165,000 EUR for scientific monitoring of the project over three years. This sum includes costs for tourism facilities of 220.000 EUR, and maintenance costs are lower than for a traditional plant. This favourably compares to estimated costs of 1.530.000 EUR for an equivalent traditional plant. Financing stems from LIFE and INTERREG III A programmes + local funding sources.

Denmark: Copenhagen - Green roofs for climate regulation and provision of habitats

The City of Copenhagen has set out four requirements for green roofs. Buildings with green roofs should be able to meet at least two of the following effects:

Absorb 50-80% of the precipitation that falls on the roof, provide a cooling and insulating effect of the building and reduce reflection, help make the city greener, reducing the urban heat island effect, counteracting the increased temperatures in the city. They will also

contribute to a visual and aesthetic architectural variation that has a positive effect on the quality of life and double the roof life of the roofing membrane by protecting it against UV rays.

Similar policies take place in Germany (Osnabrück), Switzerland (Basel - where 10% of buildings have a green roof), Copenhagen, where there are mandatory green roof objectives.

2. GREEN INFRASTRUCTURE FOR CLIMATE CHANGE MITIGATION/ADAPTATION

Belgium: Dijle River – prevent flooding by grassland protection

LIFE funding enabled Natuurpunt, a Flemish NGO, to acquire land along the banks of the Dijle, in Leuven, and to remove obstacles to flooding, such as poplars and maize crops. Before the implementation of the project actions, flooding would regularly affect areas of Leuven, including the famous University campus. However, since the completion of the project, the city has not experienced flooding for several years. The dual conservation and flood management benefits of the project means that it has been a win-win situation. It has also proven to be a cheaper alternative to constructing a large dam near the city, even taking account of the cost of buying the land.

Hungary: Tisza- HU- flood management

From September 2005 onwards, the Hungarian Tisza River Floodplain is conserved and restored through Integrated Floodplain Management. The project is managed by the UNDP/Global Environment Facility and will mainstream biodiversity conservation within floodplain management across the Tisza River Floodplain. The project will significantly improve management of 1,600 km² through activities within pilot areas, while moderately influencing an estimated area of 9,400 km² (about 20% of the Great Hungarian Plain) applying supportive policy environment and institutional capacity building at the local level. In addition, Hungary is planning to use farmland to hold up to a billion cubic meters of water to prevent flooding elsewhere. The Hungarian government will create a dozen reservoirs on farmland near the Tisza that will be allowed to flood during emergencies. Two is operational since end of 2006 and up to 12 by 2020.

Netherlands: Rhine Delta Project - flood and coastal management

Due to anticipated climatic changes the Rhine delta river branches have to accommodate ever-higher extreme discharges. Until recently it was standard policy to raise the crest levels of the dikes to maintain the required level of flood protection. This centuries' old policy was abandoned in 2000 in favour of 'Room for the River'. In the new policy, river cross sections are widened by situating the dikes further away from the river, or by lowering the river forelands. This will result in lower flood levels. By the year 2015 the river should be able to safely discharge 16,000 m³/s.

Improvement of overall environmental conditions: In giving 'Room for the River' care should be taken not to affect valuable features of landscape, nature and cultural history. More space can also be found by enlarging the river channel within the dikes. In the process, one should aim at a balance between present and foreseeable future spatial requirements, keeping an open eye for every opportunity to enhance safety as well as the master landscaping and the improvement of overall environmental conditions.

3. GREEN INFRASTRUCTURE FOR BIODIVERSITY AND CONNECTIVITY

France- Trame Verte et Bleue

Within its Grenelle de l'Environnement process, France has passed a new law to create a green and blue infrastructure across the country – known as la Trame Verte et Bleue (TVB) by 2012 which will become an indispensable element of all future spatial planning policies. The legislation is being tested through a series of pilot projects in 45 regional national parks across France. The green infrastructure network will be founded on scientific data and include protected areas and other areas in order to ensure the connectivity and global functionality of biodiversity across the country. The blue infrastructure network will have an equivalent structure for fresh water bodies and their associated ecosystems.

Czech Republic and Slovakia- "ecocenters"

These countries have developed so called "Territorial system of ecological stability, which consists of so called "ecocenters" and interactive elements (eco-corridors) at three levels (local, regional, supra-regional).

The Netherlands - Building up a National Ecological Network

The Dutch government decided in 1990, following a multi-year research programme, to develop a National Ecological Network that could provide the long-term basis for ecological sustainability throughout the country. Given the scale of the initiative, establishing the network is a long-term enterprise with full implementation scheduled for 2018.

The National Ecological Network as originally adopted in 1990 was an “oversized” indicative map of core areas, nature development areas and corridors. It is the task of the 12 provinces to delineate the precise boundaries of the network. This is being done using 132 habitat and landscape types for which minimum aggregate total areas have been fixed at national level. The final network is intended to cover about 730,000 hectares, or 17.5 per cent of the Dutch countryside.

ANNEX 13 – SYNTHESIS OF EXISTING TOOLS UNDER KEY EU INSTRUMENTS ADDRESSING INVASIVE ALIEN SPECIES

| ACTIVITY | ANIMAL HEALTH INSTRUMENTS | PLANT HEALTH DIRECTIVE | WILDLIFE TRADE REGULATION | AQUACULTURE REGULATION | HABITATS AND BIRDS DIRECTIVES | WATER FRAMEWORK DIRECTIVE | MARINE STRATEGY FRAMEWORK DIRECTIVE | COMMENTS |
|---|--|--|----------------------------------|--|--|---|-------------------------------------|---|
| Scope/coverage | | | | | | | | |
| Taxonomic coverage | Animal pathogens & diseases Wild bird imports (avian flu) | Animals, plants, pathogens to the extent these are 'harmful organisms' (pests of plants or plant products) | 'Species' | Aquatic organisms/GMOs | 'Species' | Not limited. | 'Species' | AQR not applicable to pet-shops, garden centres or aquaria. |
| Impact coverage | Health of farmed & wild animals | (Current) direct impacts on plants | Ecological (wild native species) | Biodiversity & ecosystem functions | Natural habitats, wild native species | Ecological (inland, transitional, coastal waters) | Ecological impact (marine waters) | |
| Risk assessment & decision-making procedures | | | | | | | | |
| Decision level | COM | MS initiate proposals: adopted at COM level | COM | MS COM oversight if transboundary | MS | MS | MS | |
| Listing mechanism | Black (open) | Black (open) | Black (open) | White (closed): exemptions for long-used species | Variable, mainly black | N/A | N/A | |
| Adaptable to biogeographic/areas? | ✓ (zonation) | ✓ ('protected zones') | No | ✓ (explicit) | Depends on interpretation of 'territory' | ✓ (river basins) | ✓ (marine regions) | WFD/MSFD both based on ecosystem approach. |
| Formal risk assessment? | ✓ EFSA | ✓ EFSA | No | ✓ (non-routine movements) | ✓ (impacts to Natura 2000 sites) | N/A | N/A | |
| Prevention | | | | | | | | |

| ACTIVITY | ANIMAL HEALTH INSTRUMENTS | PLANT HEALTH DIRECTIVE | WILDLIFE TRADE REGULATION | AQUACULTURE REGULATION | HABITATS AND BIRDS DIRECTIVES | WATER FRAMEWORK DIRECTIVE | MARINE STRATEGY FRAMEWORK DIRECTIVE | COMMENTS |
|--|---------------------------|--|---------------------------|---------------------------|---|---------------------------|-------------------------------------|---|
| Import | ✓ | ✓ | ✓ | (✓) | N/A | N/A | N/A | AQR references EU fish health legislation applicable to imports |
| Intra-EU movement/ holding | ✓ | ✓ <u>BUT</u> not possible for HO once established or common in part of EU, unless protected zone | ✓(not used) | ✓('closed' facilities) | N/A | If needed | If needed | Unclear for MS (Single Mkt, holding in captivity) |
| Introduction to wild | N/A | N/A (movement focus) | N/A | ✓('open' facilities) | ✓ | If needed | If needed | Renewable Energy Directive: biofuel plantation to avoid ecol. impacts |
| Unintentional introductions: commodities/transport | ✓ | ✓ | N/A | ✓('non-target organisms') | N/A | If needed | ✓(ballast water) | |
| Unintentional: corridors and natural spread | N/A | Under consideration | N/A | (Implicit) | N/A | If needed | If needed | |
| Early warning & rapid response | | | | | | | | NOBANIS |
| Surveillance & monitoring | ✓(being strengthened) | ✓ (under review) | N/A | ✓ (2 years min.) | Yes, monitoring is required for Annex.species | Big MS variations | ✓ (specific descriptor) | WFD and MSFD: EU guidance in progress |
| Reporting & information exchange | ✓ | ✓(under review) | N/A | ✓ | Yes, Article 17-reports (6 yrs-intervals) | N/A | N/A | |
| Contingency planning | ✓(being strengthened) | ✓ (under review) | N/A | ✓ (MS) | N/A | N/A | N/A | |
| Fast track decisions for emergency action | ✓ | ✓ | N/A | ✓ (MS) | N/A | If needed | If needed | |

| ACTIVITY | ANIMAL HEALTH INSTRUMENTS | PLANT HEALTH DIRECTIVE | WILDLIFE TRADE REGULATION | AQUACULTURE REGULATION | HABITATS AND BIRDS DIRECTIVES | WATER FRAMEWORK DIRECTIVE | MARINE STRATEGY FRAMEWORK DIRECTIVE | COMMENTS |
|---|---------------------------|------------------------|-----------------------------------|------------------------|--|---------------------------|-------------------------------------|--|
| EU co-financing? | ✓ | ✓ (under review) | N/A | No | ✓(but mechanism not fast) | | | |
| Control and management | | | | | | | | |
| Long-term management | No | No | N/A | ✓ | ✓ (N2000/protected species) | ✓ (good ecol.status) | ✓ (good env status) | |
| Ecological restoration | No | No | N/A | ✓ (remediation) | ✓ (N2000/protected species) | ✓ (good ecol.status) | ✓ (good env status) | |
| Cross-cutting instruments & infrastructure support | | | | | | | | |
| Funding (variable scope) | ✓ (Solidarity) | ✓ (Solidarity) | ✓ (Occasional, contract services) | N/A | LIFE+ (management, awareness raising, etc.) Contract services | | | Opportunities under EAFRD, INTERREG, RTD framework programmes, contract services, etc. |
| Responsibility & cost recovery | Under development | Under development | | ✓ | Env.Liability | | | |
| Capacity building | ✓ | ✓ | ✓ | | | | | |
| Research | ✓ | ✓ | ✓ (Occasional) | (✓) | RTD (limited) | ✓ | ✓ | |

Shine, C., Kettunen, M. Genovesi, P., Essl, F. Gollasch, S., Rabitsch, W., Scalera, R., Starfinger, U. and ten brink, P. 2010. *Assessment to support continued development of the EU Strategy to combat invasive alien species*. Institute for European Environmental Policy (IEEP), Brussels, Belgium.

ANNEX 14 – MARKET BASED INSTRUMENTS AND POTENTIAL FINANCING MECHANISMS FOR BIODIVERSITY CONSERVATION

Market-based instruments (MBI) aim at internalising the external costs of consumption and production activities on the environment, including biodiversity. If well designed, they can contribute to reaching the objective of halting biodiversity loss at a lower cost than command and control instruments. Potential economic instruments for the management of biodiversity and ecosystem services include:

- taxes, fees and charges;
- subsidies;
- tradable permits;
- certification schemes and (eco-)labelling;
- liability and
- off-setting, compensation schemes.

Economic instruments have been used in the EU to protect biodiversity, whether at local, national or EU level. A Commission study¹ analysed over 200 examples of the application of market based instruments for the preservation of biodiversity in EU Member States. The majority of countries use MBI for biodiversity conservation. In the majority of cases, MBIs are applied in the field of habitat and ecosystem conservation. However, practices vary across the EU. For example, subsidies are most commonly used in Northern and Western Europe, whereas in Central and Eastern Europe, taxes and charges appear to be more common though this varies (e.g. taxes are widely used in Poland but subsidies are more common in the Czech Republic).

Tradable permits for the moment are mainly restricted to fishing and hunting permits. There are however a number of pilot projects (mainly in the UK, the Netherlands, France and Germany) to explore in what circumstances tradable permits for habitat areas (so called “Habitat banking”) could be implemented.

At EU level, instruments such as Payments for Ecosystem Services⁵³¹ have also been used extensively in farming and forestry, where agri-environment and forest-environment measures reward agricultural and forest practices that favour biodiversity and certain ecosystem services.

Lessons learnt through implementation in the EU so far are that well-designed and credibly implemented MBIs seem to be able to deliver biodiversity objectives cost-efficiently. Many examples of MBIs show that they work best not as a substitute to regulatory approaches, but complementary to them. It will often be desirable to use some combination of MBIs and

⁵³ A Payment for Ecosystem services is defined as “a voluntary transaction whereby a well-defined ecosystem service, or a land-use likely to secure that service, is being bought by at least one buyer from at least one provider, if, and only if, the provider secures the provision of the service“.

regulatory approaches to achieve the desired aims. In general, MBIs like taxes, fees and charges can be seen as approaches that are useful to limit damage to existing biodiversity while MBIs offering subsidies/support (e.g. agri-environmental measures) and eco-labelling or other certification schemes can foster the provision of 'new' biodiversity or the enhancement of its quality. MBIs can also act as a way of conserving the quality of biodiversity whilst generating income, enhancing the acceptance of stakeholders; the generated income can then be used to fund biodiversity management needs.

The use of MBIs is more suitable in some areas of application, than others. There may be some limitations in terms of public acceptance. For example, although individual tradable quotas have been successfully used to manage fisheries in New Zealand, Canada, the United States and Iceland, its implementation may encounter more difficulties in the EU. Or the structure of the externality itself may make the use of MBI more complex, for example in the case of invasive alien species. Greening agriculture is an area where MBIs have been used with success and where there is scope for building on existing experience, as well as new instruments to provide stronger and more consistent incentives. The use of habitat banking has also been used with some success for example in the United States and Australia. Pilot initiatives in EU Member States will also provide some lessons on whether this could be used more extensively in the EU.

Many MBIs can also generate funding for biodiversity objectives. Other innovative financial instruments (such as green investing, and other instruments described in the table below) have so far been used to a limited extent in the EU, but are undergoing a dynamic development and should also be considered as part of the packages of measures.

Table: Traditional and innovative financing instruments for biodiversity conservation

| Source of funds | Available Instruments | Geographic area | | | Applicability to Biodiversity target | | | | | | Weaknesses/needs for improved performance | |
|--------------------|--|-----------------|-----|--------|--------------------------------------|------|-----|--------|-----------|--------|---|--|
| | | L/R | Nat | EU/Int | AGRI/FOREST | FISH | IAS | NATURE | RESOURCES | GLOBAL | | |
| Private | Protected areas entrance and use fees | X | | | | X | | X | | | core component of PA funding | better calculation of prices introduce ecological sustainability when extractive/harvesting uses |
| Private | Tourism-related incomes | X | X | X | X | X | | X | X | | can recover resource costs can capture WTP from the visitors diversification of tourism markets rural/local development can be used to manage demand | investments to improve facilities expertise to provide and market these services calculation of prices and charges |
| Private | Markets for sustainable rural/local products | X | X | | X | | | X | X | | can promote and communicate the value of the resource can assist in branding of a protected area work in combination with local/rural development moneys are distributed to local communities certification is a top-up | investment needed for certification developing markets/marketing |
| Private | Innovative goodwill fundraising instruments (Internet based, etc) | X | X | X | X | X | | X | X | | very innovative source of funds that seek to reach global 'small' contributors additionality is key | need for making it policy specific and targeting mainstream the instruments in policy need for new creative ideas and marketing |
| Private | Green lotteries | X | X | X | X | X | | X | X | | new tool to mobilise funds appeal to consumers and wider public works better when associated with biodiversity of high value | need for publicity and marketing |
| Private/P ublic | Non-profit organisation (NGOs, foundations, trusts and charities) funding | X | X | X | X | X | X | X | X | X | important source of funds overall, provided at habitat level or species level, can help in mobilising actors to donate | need to sustain and increase donor and public interest in biodiversity increase interaction with donors/public develop new approaches and marketing |
| Private/ Public | (International) Markets for all type of ecosystem services (PES) and green markets | | X | X | X | X | X | X | X | X | use has increased recently opportunity to generate revenues for services and not only extractive use can provide compensation to landowners | need for developing design guidelines, supportive policy and legislative frameworks improved methodologies for establishing the biophysical links, set prices, monitor delivery of services |

| | | Geographic area | | | Applicability to Biodiversity target | | | | | | Weaknesses/needs for improved performance | |
|--------------------|---|-----------------|---|---|--------------------------------------|---|---|---|---|---|---|--|
| Private/ Public | Bio-prospecting | | X | X | | | | | | X | immediate link with biodiversity and protected areas can develop significant potential and mobilise additional funds | R&D and administrative costs need for highly specialised knowledge need to work together with access and benefit sharing (ABS) |
| Private | Public Private Partnerships (PPP) & business-public-NGO partnerships | X | X | X | X | | | X | X | X | can evolve in the context of business CSR measure included in the menu of many international financing efforts (Climate Change, poverty, etc) experiences exist flexibility and adaptability can be applied | tendency to 'move on' local/regional implementation can be more stable |
| Private | Business voluntary standards | | X | X | | | | X | | | can be developed for protected area and sustainable practices although not really bringing actual money they can contribute to sustainable management of protected area and local development | not all business can follow, as standards are costly even for those who introduce/are leaders |
| Private | Businesses' goodwill investments (like Corporate Social Responsibility - CSR) | X | X | X | | | | X | X | X | potential for increasing corporate support/sponsoring | Need to sustain and increase interest in biodiversity, increase interaction with private sector, develop new approaches and marketing |
| Private | Venture capital and portfolio (green) investments | | X | X | X | | | X | X | | Potential for mobilising corporate funds in a sustainable way; sponsoring protected areas and species; can support environmental business from SMEs near the protected area | High administrative costs; may generate low returns and loose support from capital/investors; Providing for corporate tax relief associated with these mechanisms may further support their uptake |
| Public/P rivate | Biodiversity cap-and-trade schemes and market-based instruments (MBI) (e.g. off-sets, habitat banking) | | | X | | | | X | X | X | Instrument that can help in but mostly around protected area; can mobilise significant funds; can create markets for biodiversity and their services | Costs for administration; implementation at global level and registration/monitoring; further work on equivalency methods and their application may be needed |
| Public/P rivate | Carbon emission permits (use part of the auctions) | | X | X | | | | X | | X | Can provide complementary funds for protected areas; some synergies can strengthen between climate change adaptation and ecosystem financing needs | Competition for the distribution of the resources coming from actions/permits between different environmental purposes |
| Public | Government budgetary allocations | X | X | X | X | X | X | X | X | X | Core component of protected area funding, but are not enough on their own | Some evidence of protected area funding decline; resources often driven to / compete with other priorities, strengthening policy integration and mainstreaming protected area is needed |
| Public | Earmarking public revenues | | X | X | X | X | X | X | X | X | Can potentially provide sufficient resources that will go to protected area and biodiversity conservation | Quite difficult to achieve: if resources earmarked for environmental purposes there is competition between different |

| | | Geographic area | | | Applicability to Biodiversity target | | | | | | Weaknesses/needs for improved performance | |
|--------|---|-----------------|---|---|--------------------------------------|---|---|---|---|---|---|---|
| | | | | | | | | | | | | environmental goals/policies |
| Public | Environment-related taxes (national or international) | | X | X | X | X | X | X | X | X | Taxing (or increase taxation) to international trade; some products are related to nature (timber, etc); others (aviation, shipping) are of environmental nature but already can be accepted. | Competition about the distribution of revenues between different environmental causes |
| Public | Environmental tax reform | | X | X | X | X | | X | X | X | Reforming taxation of international currency transactions can bring important resources for environmental purposes (climate and biodiversity) | Political will is needed for environmental tax reform; internationally this require more efforts |
| Public | Reforming subsidies (rural development, fisheries, etc) | | X | X | X | X | | X | X | X | Can help provide subsidies for land owners and users of protected area that will allow sustainable use of the resource, or even will allow to implement protected area management | Better calculation of prices/subsidies, design of subsidies to be more green, but quite difficult to achieve consensus and harmonised approach at global level |
| Public | Benefit-sharing and revenue-sharing | x | X | | | | | X | | X | Integral component of protected area funding; potential to offset local opportunity costs; increase availability of local funds; tapping into development sources; improving benefit sharing | Need for design and communication with local/national authorities; monitoring of its implementation to demonstrate benefits |
| Public | Reforms in the international monetary system | | | X | | | | | | X | Reforming taxation of international currency transactions can bring important resources for environmental purposes (climate and biodiversity) | Political will is needed for agreeing the introduction of such taxes internationally |
| Public | Bilateral and/or multilateral aid (and GEF) | | | X | | | | | | X | Core component of protected area funding; source of direct budgetary support to protected area | Some evidence of funding decline; Major reorientation to poverty reduction and sustainable development may drive resources to other priorities; strengthening integration and mainstreaming of protected area is needed |
| Public | Debt-for-nature swaps | | X | X | | | | | | X | can provide large and secure amounts for protected areas or specific sites; funding biodiversity through SD and poverty reduction | instrument in decline, due to difficulties in persuading donors/government to release large amounts of funds difficulties in persuading agencies to invest large amounts for the future |
| Public | Development banks and agencies | | X | X | | | | | | X | Big number of agencies, lots of funds, but no increase there | biodiversity priorities mixed with other environmental objectives/MDG bureaucracy; increased spending on start-up but not so much on reoccurring costs |
| Public | Long-term ODA commitments through a Green Development Mechanism (GDM) | X | X | X | | | | | | X | help transfers from developed/developing countries to less developed countries, GDM can Implement MDG and assist local needs too | need for developing guidelines, legislative frameworks at global level, need for improved methodologies for establishing the biophysical links, set |

| | | Geographic area | | | Applicability to Biodiversity target | | | | | Weaknesses/needs for improved performance | |
|--|--|-----------------|--|--|--------------------------------------|--|--|--|--|---|--|
| | | | | | | | | | | | prices, monitor delivery of services, evaluate the efficiency of transfers |

Abbreviations: Private (Pri), Public (Pub), Local (L), Regional (R), National; (Nat), International (Int), Small and medium sized businesses (SME).

Adapted from TEEB (2011), The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan, London..

Source: Compilation of information within Emerton et al. (2005); UNEP/CBD/WP-PA/1/3 (2005); Bräuer et al.(2006)

ANNEX 15 – MAPPING BETWEEN EU POST-2010 TARGETS AND SEBI INDICATORS

| EU post-2010 strategy | | (Potentially) relevant SEBI indicators |
|-----------------------------|---|--|
| Vision 2050 | By 2050 EU biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity’s intrinsic value and for their essential contribution to human well-being and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided. | |
| Headline target 2020 | Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss. | <i>IUCN Barometer of Life for EU (tbd?)</i> |
| <u>Targets</u> | <i>Baseline</i> | <i>Potential Indicators</i> |
| Target 1 | Nature Conservation | <p>SEBI 1. Abundance & distribution of selected species (birds, butterflies)</p> <p>SEBI 2. Red List Index for European species (mammals – marine & terrestrial, birds, amphibians, reptiles, dragonflies, butterflies)</p> <p>SEBI 3. Conservation status of species of Community interest (in EU, per biogeographical region, per MS)</p> <p>SEBI 5. Conservation status of habitats of Community interest (in EU, per biogeographical region, per MS)</p> <p>SEBI 7. Nationally designated protected areas</p> <p>SEBI 8. Sites designated under the EU Habitats and Birds Directives (Natura 2000 sites)</p> <p>SEBI 11. Impact of climatic change on bird populations</p> |
| Target 2 | Restoration and Green Infrastructure | <p>SEBI 4rev. Land cover changes</p> <p>SEBI 13. Fragmentation of natural and semi-natural areas</p> <p>SEBI 14. Fragmentation of river systems (<i>when available</i>)</p> <p>SEBI 16. Freshwater quality</p> |

| EU post-2010 strategy | | (Potentially) relevant SEBI indicators |
|-----------------------|--|--|
| Target 3 | Agriculture and agro-ecosystems | <p>SEBI 1. Abundance and distribution of selected species (farmland birds, grassland butterflies)</p> <p>SEBI 3rev. Conservation status of species of Community interest in agro-ecosystems</p> <p>SEBI 4 rev: Land cover changes in agriculture</p> <p>SEBI 5rev: Conservation status of habitats of Community interest in agro-ecosystems</p> <p>SEBI 6. Livestock genetic diversity</p> <p>SEBI 9: Critical load exceedance for nitrogen</p> <p>SEBI 19. Agriculture: nitrogen balance per ha of agricultural land in OECD countries</p> <p>SEBI 20. Agriculture: area under management practices potentially supporting biodiversity (distribution of High Nature Value Farmland & share of total UAA occupied by organic farming)</p> |
| | Forest | <p>SEBI 1. Abundance and distribution of selected species (woodland birds)</p> <p>SEBI 3rev. Conservation status of species of Community interest in forest ecosystems</p> <p>SEBI 4 rev: Land cover changes in forest</p> <p>SEBI 5rev: Conservation status of habitats of Community interest in forest ecosystems</p> <p>SEBI 17. Forest: growing stock, increment and fellings</p> <p>SEBI 18. Forest: deadwood</p> |
| Target 4 | Fish and fisheries | <p>SEBI 12. Marine Trophic Index of European seas</p> <p><i>SEBI 15. Nutrients in transitional, coastal and marine waters</i></p> <p>SEBI 21. Fisheries: European commercial fish stocks (proportion of stocks within and outside safe biological limits) - <i>To be replaced by Mean Sustainable Yield according to Marine Framework Directive</i></p> <p>SEBI 22. Aquaculture: effluent water quality from finfish farms</p> |

| EU post-2010 strategy | | (Potentially) relevant SEBI indicators |
|------------------------------|--|---|
| Target 5 | Invasive Alien Species | SEBI 10. Invasive alien species in Europe |
| Target 6 | Contribution to global biodiversity | SEBI 23. Ecological Footprint of European countries SEBI 24. Patent applications based on genetic resources SEBI 25. Financing biodiversity management SEBI 26. Public awareness |