



The mission of the European Platform for Biodiversity Research Strategy (EPBRS) is to ensure that research contributes to halting the loss of biodiversity by 2010.

## **Recommendations of the meeting of the European Platform for Biodiversity Research Strategy**

held during the Swedish presidency of the EU  
Sigtuna, Sweden 11-12th June 2001

*concerning*

### **BIODIVERSITY OF FRESHWATER AND FOREST – SCIENCE IN SUPPORT OF THE ECOSYSTEM APPROACH**

*“The significant problems we face cannot be solved at the same level of thinking we were at when we created them.”*

ALBERT EINSTEIN

***To gain knowledge necessary to halt biodiversity loss by 2010, the participants of this meeting agreed that the following research action points have high priority:***

1. Inventory, taxonomy and systematics: a primary goal of research in this ecotone must be to identify, inventory and classify European species that are under threat of global, regional or local extinction. This research should include the improvement and harmonisation of the systematics of taxa in this ecotone;
2. Ecosystem functions and interactions: Research is required on the resilience of the forest-water ecotone and the services provided by the ecosystems that compose it, up to the catchment scale or biogeographical region. This research must also clarify how biological diversity is related to the resilience of this ecotone, and should focus on how biodiversity and ecosystem services respond to or influence the ecosystem biology (e.g. dispersal), chemistry (e.g. acidification and eutrophication), physics (e.g. siltation), hydrodynamics and hydrology, and the needs of society (including sustainable use);
3. Modelling the effect of large-scale drivers: There is an urgent need for improved models of forest-water ecological systems, human activities and landscapes, including successional development and habitat fragmentation;
4. Management practices: Research is urgently needed to monitor the effect of management, and where appropriate to improve management practices. This research should also include the scientific understanding, testing and development of the CBD ecosystem approach;
5. Biodiversity assessment tools. Research is needed to establish criteria for setting targets and objectives for management, and to generate standardised protocols to monitor biodiversity status and trends, and ecosystem dynamics, with a view to conservation or sustainable use, taking into account human values, economic benefits, attitudes and aspirations.

***The above research priorities stemmed in particular from the following considerations:***

- The components of biodiversity in forest and water interact over great distances, with the result that the ecotone between these ecosystems is often an extensive area of mutual influence, rather than a narrow strip.
- The forest-water ecotone, the riparian zone, and related groundwater are all understudied ecosystems. The interactions between them are not clearly understood, though they have important implications for biodiversity conservation and sustainable use of the biological resources in the forest-water ecotone. The taxonomy and systematics of many groups of organisms in the ecotone is far from complete. Furthermore, there is considerable room for improvement in the methodologies to assess or monitor habitat quality in this ecosystem, or to identify ecosystems with low resilience.
- Drivers of biodiversity change of particular importance in the ecotone include carbon sequestration, acid deposition, and ecosystem dynamics; the demand for energy, water, wood, and food; and in some parts of Europe, flood control, recreation and urbanisation. Management practices have a key role in the protection and restoration of biodiversity in this zone.
- Both forest and water ecosystems are complex, and interaction between them contributes to the complexity and richness of biodiversity in the ecotone. These ecosystems and zones of interaction are multifunctional and provide a wide range of services and benefits to society.
- Riparian zones are dynamic and exhibit disproportionately high biodiversity relative to their surface area. They play important economic and ecological roles in flood mitigation and water quality. Riparian zones at the interface of forest and water act as buffer zones between the two and are affected by the management practices of both ecosystems.
- The interaction between forest and fresh water means that activities and policies within one ecosystem may influence biodiversity in the other, and human activities place particular pressure on the intermediate zone. For example, forest management practices may affect the biodiversity of riparian and aquatic ecosystems. The Water Framework Directive thus has major implications for forest management in these areas. Similarly, hydrological engineering may affect the biodiversity of nearby forests.
- Research on the interactions between these ecosystems is likely to have significant management and policy implications and should be designed accordingly, taking into account the possible impacts of EU policies on the biodiversity of non-EU countries. Research to help monitor, maintain and enhance forest and water biodiversity should be an integral part of national spatial strategies and land use policies. Land use planning in these ecosystems is typically scaled to the landscape, and research should be designed appropriately. Research design should also bear in mind that while the nature of interactions affecting biodiversity in the forest-water ecotone may be similar from one part of Europe to another, the relative importance of the interactions may vary greatly.
- Research on forest-water biodiversity is more likely to have an effect on policy if it is interdisciplinary, and involves both natural and social scientists. Researchers and stakeholders should work together to define objectives, to develop arenas of negotiation and to review progress.
- Research objectives, policy design and management strategies should be established to assess and provide for the interactions of climate change and biodiversity in the ecotone and for the sustainable use of its biological resources.