

# European Centre for River Restoration

## NEWSLETTER – December 2008

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*The Proceedings of the  
conference are downloadable  
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### 4<sup>th</sup> ECRR INTERNATIONAL CONFERENCE ON RIVER RESTORATION

#### *The Proceedings of the conference are downloadable from the ECRR website (by January 2009)*

The proceedings of the 4<sup>th</sup> ECRR International Conference on River Restoration, held from June 16 to 19, 2008, in Venice-Italy, are now ready.



This event was organized on behalf of the ECRR by CIRF (Centro Italiano per la Riqualificazione Fluviale) and it is part of a series of conferences organized every four years. The previous ones were held in Denmark (1996), in The Netherlands (2000) and in Croatia (2004). The aim of the event was to disseminate the most promising applied research solutions to be adopted in integrated River Restoration projects and strategies and to share experiences, concepts, approaches, methods and strategies on River Restoration.

The Conference participants were 314, coming from five continents (36 countries in total). Italy was the most represented country (51 participants), followed by Spain (35), Austria (21), France (20), England (15), Germany (13) and many others.

The conference programme included 12 keynote speakers from all over the world, 12 scientific technical sessions and 11 workshops led by different organizations. We invited 12 of the major experts on the chosen different topics.

We strongly recommended them to give a

very update of the state of the art of the specific topic, but also to give useful explanations of the research results for practitioners. The invited speakers gave to the conference an high scientific level, which was greatly appreciated by the audience.

One of the goal of the Conference was to create active collaborations among as many participants as possible by giving them room and facilities. This aspect was emphasised with the 11 workshops. More opportunities for exchanging experience were created by the 12 oral and poster sessions.

The proceedings book includes 10 plenary papers, 82 papers both from oral and poster presentations and 11 workshops summary reports. All the documentation will be soon downloadable from the [ECRR website](#).

Two excursions were organized with the conference: one field trip along the Zero River during the first day and a post conference trip to Tagliamento and Drava rivers on 20-21 June 2008. More detailed information are available on the ECRR website as well from the [field trip page](#).



A panel session closed the Fourth European Centre for River Restoration International Conference on river restoration: the conclusions and recommendations are reported at the end of this proceeding book.

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**CONCLUSIONS AND RECOMMENDATIONS**  
**4th INTERNATIONAL RIVER RESTORATION CONFERENCE**  
**VENICE, SAN SERVOLO ISLAND, 15-21 JUNE 2008**  
*By Bart Fokkens and Harald Leumanns*

**Introduction**

This summary paper on conclusions & recommendations of the 4th International Conference on River Restoration aims at identifying the key issues for river restoration for the near future, as they were noted during key note presentations and workshops. Individual sections elaborate in statements on the state-of-the-art in river restoration today and the key aspects for the future, and on the interaction between the EU and river restoration. The paper concludes with an elaboration on the envisioned role of the ECRR and its activities in contributing towards preparing river restoration for the future.

The authors wish to thank all key note speakers for the insights and experiences provided, and all workshop and session chairs for their stimulating and useful summary contributions which all provided the basis of this paper.

**State-of-the-art in river restoration**

From the multitude of abstracts read and presentations heard, past and present features of river restoration practices can be characterized in an number of statements:

- Often the term "river restoration" does not regard ecological restoration, the terminology of river restoration is misused for other purposes;
- River restoration is more research-oriented instead than focusing on practical implementation;
- Predominantly river restoration is tackled on small-scale, focusing on the river, more rarely on (part of) the floodplain, hardly ever on the river basin. It is often uncertain whether local restoration efforts tackle the impact of relevant larger-scale regional factors on the right location;
- Clear descriptions of reference situation are used only occasionally to elaborate or define envisioned future ecological desirable conditions to be aimed for after the completion of river restoration activities;
- objective which produce targetable and measurable outcomes for river restoration are rarely defined in advance;
- Often the broad possibilities featured by river restoration meet with entrenched practices and mind-sets: commonly implementation of river restoration is dominated by the engineering approach

of modifying hydro-morphological processes;

- River restoration is increasingly facing a policy gap: growing organizational complexity, tighter procedures and control enforced by government authorities and funding agencies oppose the need for diversified risk protection strategies;
- During the latest decades new policy drivers have emerged, which link river restoration to risk management, flood safety, renewable energy etc.
- river restoration implementation strategies are increasingly providing an explanation of the factors affecting the development of selected species instead of an interpretation whether predefined, integrated ecological objectives are being achieved. In fact, descriptions of local changes prevail, commonly supported by statistical analysis "before" and "after" intervention.

**River restoration ready for the future**

The presentations and discussions of the conference participants, however, also demonstrated that as a result of the increased number of implemented river restoration projects during the last 10-15 years, learning from practice has increased. There is a progressively growing awareness and knowledge among stakeholders of the need to use new approaches. More and more national policies become available and/or are under implementation, while there is more attention for regional differences within Europe. Last but not least, there is an increased awareness and understanding of opportunities and benefits related with river restoration among the various stakeholders. More specifically, a number of more specific observations on the future of river restoration have been formulated:

- River restoration should target at restoring complete ecosystems and ecosystem processes in which, as in undisturbed conditions, dynamism is a key feature, expressed as the self-sustaining capacity of river and stream ecosystems and their capacity to respond to imposed external environmental changes. In this, hydro-morphological processes remain a key factor in steering ecosystem processes and ecosystem quality;
- Uncertainty is inherent in ecosystem processes, guided by changing environmental conditions and human

## TOP NEWS

### [Best LIFE Environment Projects 2007-2008](#)

*This publication presents 21 LIFE selected projects addressing environmental issues that are listed according to the following structure: Land-use development and planning; Water management; Minimising the impact of economic activities; Waste management; Integrated Product Policy.*

### [The houting gets free passages in Denmark](#)

*In Denmark, LIFE funding has contributed to the clearance of a passage for spawning fish on the river Vidå. On 29 September, in the presence of the Danish desk officer from the LIFE unit, Anne Louise Friedrichsen, the last blocks of stone and earth that blocked the river were removed as part of the LIFE project, Urgent actions for the endangered Houting 'Coregonus oxyrinchus' (LIFE05 NAT/DK/000153).*

*Previously, the river was blocked by a fish farm dike, which impeded the migration of the houting (Coregonus oxyrinchus), an endangered fish species, to its spawning grounds in the upper river.*

### [Great success for the 6th "EUROPE-INBO 2008" conference](#)

*The annual "EUROPE-INBO 2008" conference of the European Basin Organizations on the implementation of the Water Framework Directive (WFD) took place in Sibiu, Romania, from 1st to 3 October*

- activities. On the one hand the capability to predict the effects of interventions needs to be improved, but on the other hand the understanding and level of acceptance of uncertainty in restored ecosystem processes needs to be improved as well;
- A pre-inventory, preferably quantitative, definition of ecological success criteria is necessary to assess the success level of river restoration;
- In defining ecological success criteria, historic standards may be largely inappropriate due to the need to take external changes into account (climate change, human population growth, land use changes, economic developments, etc.). Therefore, rivers must be designed for the future with reference to the past, with the understanding that only selected services can be realistically restored;
- River restoration should aim at tackling or contributing to solving regional impacting factors, from the river to the basin via the floodplain. Key targets are the restoration of lateral and longitudinal connectivity, both aquatic and terrestrial;
- River restoration must be based on scientific processes and predictions to anticipate outcomes and guide design. Meanwhile, research should shift more towards supporting practical implementation;
- With increasing scale, river restoration should be based on multidisciplinary, adaptive management approaches and the acceptance of non-stationarity. With increased scale, public involvement in planning, monitoring and appraisal, social processes and interactions between stakeholders are increasingly important. Engaging the range of stakeholders and most specifically the 'public' in decision-making processes is the major challenge. A better analysis of the possible conflicts and synergies between ecological and social functions of river restoration projects allows a better understanding of the needs of nature and its possible use by people;
- In planning and assessment, river restoration should use approaches including multi-criteria analysis, cost-benefit analysis, economic evaluation. This requires also the elaboration of pre-interference restoration assessment plans, as well as adequate (long-term) multi-level monitoring, including monitoring of restored processes and separating the effects of natural variability from those if the intervention. Monitoring could vary from in-depth scientific monitoring at a few selected sites, to expert opinion and small scale

local stakeholder monitoring.

### **River restoration and the EU**

The embedding of river restoration into an appropriate policy context is crucial for decision-making processes and implementation practices to reach defined results. In western Europe, the Water Framework Directive (WFD) has been an effective driver although slow to make its effect felt. In other regions (e.g. Eastern Europe, Latin America) policy exists but government is weak or failing to enforce such policies; here the roles of academic institutions and civil society to act as an 'honest broker' to support policy implementation are critical. In most cases there is a gap between policy development and practice, in which the learning processes linking the two are lacking.

Commonly agreement exists, both within EU authorities and ECRR delegates, that on the one hand river restoration practices are being supportive to the implementation of various EU Directives, while on the other hand the implementation obligations under the EU Directives often are a driving force for the implementation of river restoration projects. The sustainable maintenance of biodiversity is especially the objective of the combined implementation of the WFD and the Bird & Habitat Directives (BHD), especially in Natura-2000 sites. Implementation of the WFD deals strongly with the reduction of nutrients, micro pollutants, reduction of heavily modified waterbodies and improvement of the ecological quality of the riverbed, while river restoration is based on an integrated ecosystem development approach. This difference creates evident good opportunities, but also some threats with respect to an effective joined implementation of both river restoration measures and the EU directives.

Although there is a common understanding that river restoration is more than an instrument to implement EU Directives obligations, river restoration practices can contribute to the creation of habitats (Habitat, Bird Directives, Natura 2000), reduction of flooding (Flood Directive) abatement of pollution. The EU and related national implementation programmes can therefore be targeted to finance river restoration, especially when river restoration targets are formulated in line with programmes on flood defence, water quality improvement, the Common Agricultural Programme, ecological networks, fisheries, renewable energy etc. The ECRR in this respect could assist EU member states in implementing EU Directives using river restoration where it is the most cost-effective instrument to obtain good ecological quality.

2008, at the invitation of the Romanian Authorities. It gathered 195 participants coming from 26 countries. This conference was an important step before the World Water Forum of Istanbul. A workshop on the IWRM-Net (European network of research programmes on IWRM) project was organized as a side event. Three workshops presented many case studies and exchanges were particularly fruitful. The EU-non-member countries were very present, proof of their growing interest in the WFD.

#### River levels will dip by middle of century

The flow of water in the UK's rivers during the summer months could halve by the middle of the century, putting stress on wildlife and the wider environment.

#### LIFE+ workshops presentations available

Presentations prepared for the LIFE+ information workshops, organised by DG Environment of the European Commission within the context of the 2008 Call for Proposals, are now available online.

These presentations, each tailored to a different EU Member State, introduce the new LIFE+ programme and explain how to prepare successful project proposals. They also highlight some reasons for unsuccessful project applications, golden rules for project management, application requirements as well as selection criteria.

Different language versions of the presentations are available for download on the LIFE+ workshop information page.

However, some questions remain, mainly dealing with river restoration in relation to river basin management, variability in ecological and physio-chemical targets, the protection of wetlands in relation to water quality and quantity status, the position of saturated and unsaturated groundwater zones, and the contribution of restored sites to the environmental cost recovery. It is also unclear how river restoration can be best included formally into the programs of measures under EU directives. While EU directives have a strong legislative basis, there is some flexibility in the implementation of river restoration measures.

#### **The ECRR**

The European Centre for River Restoration is an excellent platform providing both scientists, project managers and decision-takers with the opportunity for a regular refocusing of actual practices and forecasting of future human developments and their impact on river restoration.

The network function of the ECRR translates into several proposed strategic fields of activities for the ECRR:

- Policy support: The ECRR should be the supportive link between the EU and the professionals who have to apply the WFD and related directives. The ECRR should collect questions and problems from the different member states of the EU and should reflect on these in reports to the EU, proving the achievements of the EU Directives goals in the light of socio-economic benefits they can provide to the society (economic evaluation as a pillar to prove the goodness of river restoration). Aspects as climate change, energy renewable energy, fisheries, sustainable fisheries, (minimum) ecological flows, changed land use should be taken in account as well. ECRR should spread information on good experiences with river restoration (projects) as a possible solution to these problems, including the communication of common policy vision at international and national platforms like the EU, UN, FAO, the 5th World Water Forum etc.
  - Cooperation: the ECRR has a key role in providing support to strengthening the national and international networks. One way to do so is by expanding the number of official cooperation agreements with trans-national and national organizations. The ECRR should aim for more and stronger cooperation with NGOs, to assure better project implementation through commitment of local communities,
- municipalities and stakeholders, like farmer organisations, water boards, power companies etc. towards river, wetland and floodplain restoration.
- Information: Conference participants generally agreed on the need to assemble a best practices database and tool-kit on river restoration & river management techniques, based on commonly accepted guidelines as to what can be considered as best practice and expert assessment of selected projects. The database & toolkit should be structured in accordance with the different fields of application, with both scientific and non-scientific evidence included and accessible in various ways. Improved communication aims at targeting researchers, policy makers, practitioners and the public alike. Instruments available include an improved newsletter a distant e-learning course on techniques & best practices on river restoration, regional seminars, international conferences, publication of proceedings, etc. The ECRR intends to target EU funding to further elaborate this strategic field of activities.
  - Communication: Strategic objective for the ECRR is to promote the conversion from research-oriented local river restoration activities to the elaboration and implementation of integrated larger-scale practical activities. As such, ECRR activities aim at increasing the base of knowledge and the common understanding of expectations among scientists, practitioners and decision-takers at the European level by means of publications, website conferences, all based on the recognition of the various stakeholder groups – technical disciplines, policy makers, decision makers, practitioners, funders, etc. The ECRR should emphasis the link between strategic and operational levels, by improving the base of knowledge of the decision-makers (awareness raising) and improving the understanding of scientists and practitioners on relevance and complexity at the policy level. It also provides scientists and practitioners with opportunities to exchange experiences and best practices. The ECRR serves as a representative of its members in international and national platforms like national governments and the EU, at international conferences, river basin commissions, the World Water Forum, etc., where the common view on river restoration can be expressed.

*Bart Fokkens, Harald Leumens*

### [Environmental Site Design for Stormwater Control](#)

*The Maryland Department of Environment posted its proposed regulations to implement the Stormwater Management Act of 2007, which requires developers to use state-of-the-art environmental site design practices wherever possible to control runoff and pollution from both new development and redevelopment.*

### [Commission approves €186 million for 143 new LIFE+ projects](#)

*The European Commission has approved funding for 143 new projects under the first call for the LIFE+ programme (2007-2013). The projects are from across the EU and cover actions in the fields of nature conservation, environmental policy, and information and communication. Overall, they represent a total investment of €367 million, of which the EU will provide €186 million.*

### [Strengthening Flood Management Education](#)

*Professor Erik Pasche, from the University of Hamburg, focused its first lecture at UNESCO-IHE on software development for flood risk management. Professor Pasche will be lecturing as visiting professor for the institute in the coming years. This collaboration with the University of Hamburg will be extended to the area of research in flood resilience and urban flood management.*

## *News from the newsletter “Science for Environment Policy”, a service from the European Commission*

### **NEW TOOL IMPROVES INTEGRATED RIVER BASIN MANAGEMENT (issue 128)**

A new computer system has been shown to provide a 'full picture' of a river basin's health, by taking into account all relevant influences, including rainfall, pollution and soil. The system integrates several existing environmental data programmes in a user-friendly way, and is aimed at helping the sustainable management of entire river catchment areas.

The system, called the 'Elbe-DSS' (Elbe decision support system) will help users meet the requirements of the European Water Framework Directive<sup>1</sup> on water quality, especially in cross-border situations. It was designed and implemented by the researchers for the river Elbe, one of the largest rivers in central Europe: 1100 km long and with a catchment area of 148,000km<sup>2</sup>.

The system brings together a range of components including:

- Simulation models, representing the effect of different inputs such as rainfall, nutrient levels, and climate changes
- Databases including soil maps and rainfall records
- Management actions such as reforestation or erosion control
- External constraints such as demographic change or agriculture policy
- Management objectives such as reduction of emissions, improvement of water quality, or reduction of nutrients into the sea

The system is designed to help coordinate strategies for managing river basins. It helps to predict the likely outcome of management actions, as well as the range of possible options needed to achieve specific objectives. For example, the system could predict how the river would be affected by changes in agricultural methods, such as reducing fertiliser levels or introducing reforestation programmes, taking into account soil types and climate. The system could also be used to determine the effect of changes in emission levels from sewage works or industry, should changes occur in the population or activities along the river.

The researchers found that the system satisfactorily simulated the concentrations of nutrients or pollutants across the whole river basin, and could also be applied at sub-catchment or tributary level. This would provide insights into why smaller catchment areas respond differently to the same action, for example, revealing where nutrient concentrations would be higher due to lower flow rates. This enables more targeted and cost-effective actions to be taken. It also enables management actions to be ranked in importance, depending on cost, assumptions about future climate change and demographic changes.

The system is available free of charge for not-for-profit or research institutions from the German Federal Institute of Hydrology (BfG)<sup>2</sup>.

European Water Framework Directive:

[http://ec.europa.eu/environment/water/water-framework/index\\_en.html](http://ec.europa.eu/environment/water/water-framework/index_en.html)

Download from: <http://elise.bafg.de/?3283>

Source: Lautenbach, S., Berlekamp, J., Graf, N. et al. (2009). Scenario analysis and management options for sustainable river basin management: Application of the Elbe DSS. *Environmental Modelling and Software*. 24(1): 26-43.

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### [The 2008 Living Planet Report](#)

2008's Living Planet Report (LPR) looks at the cause and effect relationships which determine the Earth's health. Key to the report is the Living Planet Index, used to map out the state of the world's ecosystems, and our Ecological Footprint. This year the report also examines the impact of our consumption of the Earth's water resources and our growing vulnerability to water scarcity, which now affects over 50 countries on this planet.

### [SPI-Water project has published its recommendations](#)

The purpose of this leaflet is to give recommendations on the transfer of valuable water management knowledge to non-EU countries.

This leaflet is based on a two-year experience and knowledge exchange between EU and non-EU water experts who have studied the applicability of the European Water Framework Directive (WFD) practices to non-EU countries.

### [Launch of STRIVER Series of Policy and Technical Briefs on IWRM](#)

STRIVER project has just launched the STRIVER Series of Policy and Technical Briefs on IWRM. The intention is to communicate the results from the project in an easy non-technical fashion with a clear management and policy impact message. The two series summarize results from the project so far, and are aimed at an applied research audience, water managers, decision takers and policy makers.

## *News from the newsletter “Science for Environment Policy”, a service from the European Commission*

### **AGRICULTURAL PRACTICE COULD HELP REDUCE FLOOD RISK (issue 129)**

Coherent agri-environmental schemes could contribute to wider climate change adaptation objectives including safeguarding water quality, carbon storage, biodiversity and habitat conservation. New research suggests that integrating Sustainable Flood Management (SFM) principles into agricultural practice will require relatively few changes under the current legislative framework.

Climate change is expected to increase the intensity and frequency of rainfall, and hence flood risk, across much of Europe. Traditional flood management is dominated by hard-engineered flood defence structures, but the Water Framework<sup>1</sup> and Flood Directives<sup>2</sup> imply increasing use of SFM techniques. Using natural processes to reduce risk has also been specifically discussed in the recent EU adaptation green paper<sup>3</sup>, which outlined other 'soft' flood control measures.

The researchers gathered expert opinion on SFM and found that, at present, legislation and the distribution of responsibilities are uncoordinated. The analysis showed that past SFM schemes relied on the goodwill of landowners, who were under no legal obligation to consider downstream flooding. Experts expected that future agricultural and water policies would combine in order to meet SFM goals, but that contradictory urban planning and economic policies would remain obstacles to its implementation.

Agriculture is recognised as a significant factor in floods, but less often for its potential role in flood management. Therefore, education of farmers, advisors and service providers was highlighted as a vital component of SFM. Rural and urban land use policies should also avoid offering 'perverse' incentives for activities such as draining of wetlands or river straightening and confinement, which increase surface water run-off. A third major conclusion was that SFM demands a package of measures over entire catchments, rather than just isolated and local schemes.

The researchers suggested that subsidised water management under the reformed Common Agricultural Policy<sup>4</sup> may be possible as another way of delivering economic, social and environmental improvements.

[http://ec.europa.eu/environment/water/water-framework/index\\_en.html](http://ec.europa.eu/environment/water/water-framework/index_en.html)

[http://ec.europa.eu/environment/water/flood\\_risk/index.htm](http://ec.europa.eu/environment/water/flood_risk/index.htm)

[http://ec.europa.eu/environment/climat/adaptation/index\\_en.htm](http://ec.europa.eu/environment/climat/adaptation/index_en.htm)

[http://ec.europa.eu/agriculture/index\\_en.htm](http://ec.europa.eu/agriculture/index_en.htm)

Source: Kenyon, W., Hill, G. and Shannon, P. (2008). Scoping the role of agriculture in sustainable flood management. Land Use Policy. 25(3): 351-360.

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### [Pollution in Irish rivers and lakes falls](#)

*Almost a third of the river water tested was polluted. The amount of serious pollution in rivers and lakes in Ireland has reached its lowest level in recent decades.*

### [Rivers are Carbon Processors, not Inert Pipelines](#)

*Microorganisms in rivers and streams play a crucial role in the global carbon cycle that has not previously been considered.*

*Freshwater ecologist Dr. Tom Battin, of the University of Vienna, told a COST ESF Frontiers of Science conference in October that our understanding of how rivers and streams deal with organic carbon has changed radically. Microorganisms such as bacteria and single-celled algae in rivers and streams decompose organic matter as it flows downstream. They convert the carbon it contains into carbon dioxide, which is then released to the atmosphere.*

### [Wildlife experts push natural flood solutions](#)

*'Hard' flood defences can play their part but natural flood management solutions must also be considered when looking at how to protect ourselves from increasingly frequent and severe extreme weather events.*

### [Flood lessons already being forgotten](#)

*Like the gradually subsiding waters after a deluge, the lessons learned by those who fought the summer floods in 2007 are already seeping away.*

## *News from the newsletter "Science for Environment Policy", a service from the European Commission*

### **PRIORITY ZONES FOR HABITAT PROTECTION (issue 130)**

Models that predict the effect of climate change on the landscape have been used to estimate potential habitat fragmentation. This research has revealed that habitats, such as those protected under the Natura 2000 initiative<sup>1</sup>, are too fragmented and isolated to enable continuing survival of some species as the climate changes. The methods developed can be used to identify priority conservation zones in Europe and have potential for use globally.

Climate change induced alterations in vegetation and land-use can lead to additional 'habitat fragmentation'. This loss of the preferred habitat of a species reduces biodiversity and can affect ecosystem functioning. In many parts of Europe, natural or semi-natural ecosystems have become fragmented. As certain species are forced to move as the climate changes, suitable habitats are becoming isolated and there may not be routes, known as climate corridors, via which some species could disperse to new regions.

The remit of the BRANCH project<sup>2</sup> was to bring together European planners, policymakers and scientists, to show how spatial planning could help biodiversity to adapt to climate change. Research funded by this programme has investigated whether loss of suitable habitat will be compensated by colonisation of new regions where climate conditions and habitats or 'new climate space' become suitable for dispersing species. Using models researchers predicted the network of suitable habitats that would be available to three species, in three ecosystems types; forests, wetlands and natural grasslands, in 2020 and in 2050.

They predict that the amount of suitable habitats in Northwest Europe will diminish for all species studied. Furthermore, these species would not be able to colonise new climate space as corridors would not connect the network of suitable habitats. For example, the habitat range of the middle spotted woodpecker, is expanding northwards through Europe. However, further expansion is blocked where distances between broadleaved forests are too large. The research concluded that there would be a decline in the amount of suitable habitat protected by the Natura 2000 initiative, but that 'climate-proof' habitats could provide a refuge for dispersing species.

The researchers suggested that models could be used to select the best locations for climate corridors, where improving connectivity is most urgent and potential biodiversity gains would be highest. They suggested three adaptation strategies to combat future habitat fragmentation:

- link isolated habitats within new suitable climate zones to the nearest climate-proof habitats, by modelling the dispersal patterns of species and by creating new habitats where that is most effective
- increase colonising capacity in habitats that are predicted to remain suitable in the future, by conserving or enlarging these habitats
- increase colonising capacity in habitats that are predicted to remain suitable in the future, by conserving or enlarging these habitats

Current spatial planning policies do not generally consider wildlife responses to climate change. The BRANCH programme has argued that biodiversity policy must be integrated with other land use policies. Furthermore, conservation strategies should take much longer timescales into consideration. The current work has developed a method for identifying ecosystem hotspots, where climate-proof refuges for a significant set of species coincide. These sites could be focal points in developing the Natura 2000 conservation network, assisting European policymakers with their goals of climate-change adaptation in order to protect biodiversity.

[http://ec.europa.eu/environment/nature/natura2000/index\\_en.htm](http://ec.europa.eu/environment/nature/natura2000/index_en.htm)

This study was conducted under the BRANCH programme (Biodiversity Requires Adaptation in North Western Europe under a Changing Climate), [www.branchproject.org](http://www.branchproject.org), funded by the EU Interreg IIIB Community Initiative: [www.nweurope.org](http://www.nweurope.org).

Source: Vos, C.C., Berry, P., Opdam, P. et al. (2008). Adapting landscapes to climate change: examples of climate-proof ecosystem networks and priority adaptation zones. *Journal of Applied Ecology*. 45: 1722-1731.

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*We'll never stop flooding -  
Environment Agency*

*Flash flooding like that which  
hit the South West at the  
weekend will never be stopped  
but a lot can still be done to help  
alleviate the problem.*

*More news are available in  
the [news section](#) of the  
ECRR website.*

***INVESTMENT IN ECOLOGICAL RESTORATION MEANS  
BENEFITS FOR ALL (news from [countdown 2010](#))***

At the 6th European Conference on Ecological Restoration in Ghent (Belgium) from 8 to 12 September, more than 500 experts urged leaders to increase investment in measures for nature conservation and the restoration of degraded habitats. The cost of inaction is much higher than the benefits the world would get from relatively little investment in the preservation of the planet. Especially if taking into consideration Storm Cunningham's "Rewealth" calculations which indicated that revitalizing cities and restoring natural resources could be valued at more than 2 trillion US Dollars! No doubt that a shift in the way we do business could benefit the world as a whole.

Restored fisheries, improved air and water quality, flood prevention, erosion control and carbon storage, as well as enhanced cultural services such as recreation, eco-tourism, cultural heritage value and

improved physical and mental health are just some of the examples of these benefits. Increased efforts in conservation and restoration would lead to the creation of some 125,000 new jobs worldwide. Moreover, better integrated policies will help reduce mismanagement. This is the case for several Eastern European countries whose habitats are now experiencing drastic deterioration owing to changes in agricultural land use after transition to a market economy.

"Biodiversity is important for everybody's daily life. The world cannot afford to lose such wealth", said Sebastian Winkler in his key note speech on "European ecosystems at a crossroad: from halting biodiversity loss by 2010 to a renewed restoration agenda"

To download the declaration click [here](#).

To know more about the 6<sup>th</sup> European Conference on Ecological Restoration in Ghent click [here](#).

***FIRST WORLDWIDE MAP OF GROUNDWATER RESOURCES  
CROSSING NATIONAL BOUNDARIES HAS JUST BEEN  
PUBLISHED BY UNESCO***

Almost 96 per cent of the planet's freshwater resources are found in underground aquifers, most of which straddle national boundaries. What the [UNESCO map](#) reveals is just how many aquifers cross international borders. So far, the organisation has identified 273 trans-boundary aquifers: 68 in the Americas, 38 in Africa, 155 in Eastern and Western Europe and 12 in Asia. Each trans-boundary aquifer holds the potential for international conflict - if two countries share an aquifer, pumping in one country will affect its neighbour's water supply. The map is the culmination of eight years of research and development of an extensive ground water database by UNESCO's International Hydrological Programme (IHP).

***VALUE OF SATELLITES RECOGNIZED FOR CONSERVING  
WETLANDS***

Wetlands contribute to our lives in remarkable ways by providing food and water, controlling floods, protecting against storms and supporting biodiversity, yet they are experiencing loss and degradation on a massive scale.

Wetlands are areas that are covered with water for long enough periods to support plants that thrive in wet soils, so they are not all wet year-round. The areas include marshes, swamps, bogs and wet meadows.

Countering their loss requires baseline information on wetland resources and effective monitoring programmes, but

because they are often made up of complex and impenetrable terrain monitoring them is very difficult.

In this context ESA carried out the [GlobWetland project](#) from 2003 to 2008 in order to demonstrate how employing satellite data can support the inventorying, monitoring and assessing of wetland ecosystems. The project was carried out in collaboration with the Ramsar Convention – an international treaty for the conservation and sustainable use of wetlands.

## EVENTS

### [UNESCO-IHE Online Course: Water Quality Assessment](#)

2 January 2009 – Online,  
UNESCO Water Portal

### [Improving water quality through good agricultural practices](#)

14-15 January 2009 –  
Herning, DENMARK

### [World Wetlands Day 2009 – The 2009 World](#)

[Wetlands Day Theme is: "Upstream - Downstream" - Wetlands connect us all](#)  
2 February 2009

### [Annual Stream Restoration Design Symposium](#)

3-5 February 2009 –  
Skamania Lodge in Stevenson,  
Washington, USA

### [River Restoration Course](#)

3-4 February 2009 –  
University of Münster,  
Germany

### [Aquaterra 2009](#)

10/12 February –  
Amsterdam, THE  
NETHERLANDS

### [IWRM-Net second trans-European Water research management conference: Bridging the Sci-Pol gap?](#)

11-12 February 2009 –  
Brussels, BELGIUM

## **MODELLING ENVIRONMENTAL CHANGE IN EUROPE: TOWARDS A MODEL INVENTORY (SEIS/FORWARD)** *Technical report No 11/2008*

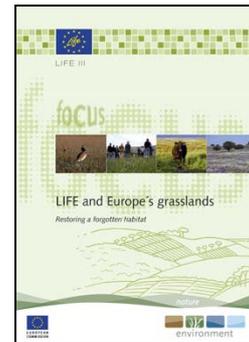


This technical report provides a non-exhaustive overview of modelling tools currently available to simulate future environmental change at a European scale. Modelling tools have become an

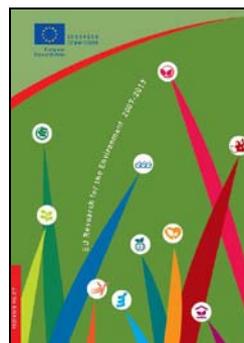
important cornerstone of environmental assessments, and play an important role in providing the data and indicators needed to describe the state of, trends in and prospects of the environment. The report presents a general characterisation of environmental models based on the themes covered, the geographical coverage and the analytical structure of the respective models. A pool of some 80 models is introduced, many of which have been used by the European Environment Agency in its recent environmental assessments and reports, a limited number of which are described in more detail. This review identifies gaps in the availability, accessibility and applicability of current modelling tools, and stresses the need to further stimulate the development and application of environmental forecasting techniques.

## **LIFE AND EUROPE'S GRASSLANDS: RESTORING A FORGOTTEN HABITAT**

Grassland ecosystems hold an important part of Europe's biodiversity. They offer ideal conditions for a vast diversity of habitats and species, are the source of a wide range of public goods and services, and also act as carbon 'sinks'. Changes in agricultural practices and land use pressures mean that grasslands are disappearing at an alarming rate. This brochure highlights a selection of LIFE co-funded projects targeting grassland ecosystems within the Natura 2000 network.



## **EU RESEARCH FOR THE ENVIRONMENT**



Summarising EU-funded environmental research, this publication is divided into two parts: the first provides the context of environmental research, while the second gives an overview of the 10 research priorities within the Environment (including climate change) theme, and highlights some of the most successful projects in environmental research.

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The ECRR newsletter, for example, is thought as a tool (available to all members) for advertising to an international platform the outcomes of the project, important events worldwide, new publications, etc.

As a member of the ECRR, you will:

- keep on receiving a monthly newsletter with the most recent international information related to river restoration (conferences, projects, policy document, funding opportunities...);
- have the opportunity to share your experiences and spread the results of your projects;
- become a part of a network of people and institutions involved in river restoration and sustainable river management at European level, find partners for your project proposals and develop joint activities;

**To Become a member of the ECRR fill in the [application form](#) in our website.**

For request of information please contact

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Tel/fax: +39 041615410  
e-mail: [info@ecrr.org](mailto:info@ecrr.org)**

*Merry*

*Christmas*

*and*

*Happy*

*New Year*