



River Restoration NEWS

NEWSLETTER of the RIVER RESTORATION CENTRE

Working to restore & enhance our rivers

Issue 4

November 1999

UK wins international River Management Award for Excellence

RRC's work on the R. Skerne, R. Cole and in promoting river restoration in the UK led to the Centre being nominated for the 'International River Management Award for Excellence' in Brisbane, Australia. The nomination reached the final, alongside four Australian projects and another UK entry, that of the Mersey Basin Campaign. The 100,000 Aus \$ riverprize, awarded at the 2nd International River Management Symposium at the end of September, was scooped by Mersey Basin Campaign for many impressive achievements, not least for helping 35 fish species return to the Mersey when previously there were none. Martin Janes went to the symposium and took the opportunity to look around several river restoration projects in Australia; he will give some feedback on these in the next newsletter.

"outstanding examples"

Hot foot after success at the Civic Trust Awards in March, the River Skerne project won yet another accolade on October 7th. This time from the Royal Town Planning Institute's Northern Branch for 'PLANNING - Delivering Results Through Partnership'. Chris Clarke, the scheme organiser, said: "The awards go to some of the most outstanding examples in the region of current good practice in Town and Country Planning. Indeed the two award winners bear comparison with the best in Europe."

"excellent projects"

In July RRC chaired the panel of judges for the Wild Trout Society (WTS) annual 'Famous Grouse' prize for environmental rehabilitation projects which benefit wild trout and enhance riverine environments. Five schemes reached



The Mersey Basin Campaign receiving award

the final (see inside for more details) with the prize of £2,000 going to the Wye Habitat Improvement Project (WHIP). They were given their award on October 8th and the WTS hope that next year will see a continuation of excellent projects being put forward for the award.

"ambitious ideas"

RRC actively participated in the 'Into the Blue' workshop held in Liverpool in September; this was organised over two days by the Urban Wildlife Partnership and Mersey Basin Trust, with 60 people involved in sessions focusing on urban waterway restoration. We were also involved in a workshop organised by the Environment Agency, NE Region, which is looking for ways to take forward ambitious ideas for restoring a wide range of environmental qualities and cultural history to the industrial valley of the R. Team, on Tyneside.

"workshop seminars"

RRC is working closely with many of its core funders to 'audit' restoration schemes and run training workshops for staff. Three,

one-day, workshop seminars were undertaken in the three regions of SEPA and SNH in Scotland in early November. The objective was to raise awareness of the role of river rehabilitation in sustainable river and catchment management, and how staff of the two organisations can positively contribute to improving Scotland's rivers through both direct actions, and through advice given in their statutory consultee role.

INSIDE THIS ISSUE

- UK News and the Wild Trout Society award p2/3
- The Work of the West Country Rivers Trust p4/5
- Project Feature - River Soar p6/7
- Announcements p8

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News from around the UK

COUNTY ANTRIM

A salmonid enhancement project is being implemented and monitored on the River Bush, County Antrim. This has been initiated due to reductions in habitat available for salmonids resulting from major drainage works in the 1950s. The Rivers Agency, in conjunction with colleagues in Fisheries Division, now presides over a project aiming to recreate suitable fish spawning, nursery and holding areas at 33 selected sites; to date 14 have been completed. RR News will report on this in the future, since the project includes research and monitoring to determine: i) effectiveness in improving fish populations; ii) long term viability and maintenance issues; iii) their hydraulic effects.

NORTH YORKSHIRE

The Upper Wharfedale 'Best Practice' project is now in full swing. The project has been awarded a £200,000 grant from the European Commission from the Northern Uplands Objective 5b programme. The Environment Agency leads a multi-organisation partnership to tackle a number of common issues affecting uplands - e.g. effects of moorland

drainage, riverbank erosion, overgrazing and pollution caused by sheep dip. In addition to implementing practical measures, it plans to raise awareness of good environmental management practices through educational activities.

WILTSHIRE

Habitat rehabilitation work began in October on the upper River Kennet near Marlborough, Wiltshire. This marks the start of a series of projects which are planned to take place over the next 2-3 years, primarily funded and co-ordinated by Thames Water. Working with the Environment Agency, English Nature, 'Action for the River Kennet' and many other interested parties, the project aims to rehabilitate physically degraded reaches of this chalk river. Such rivers are of key national importance, with the Habitat Action Plan having recently been submitted to DETR for approval. The project plans to utilize techniques tried and tested elsewhere, as well as be innovative and trial some experimental approaches. A key objective is to improve the sustainability of habitats and species most characteristic of chalk rivers.

WILD TROUT SOCIETY – HABITAT IMPROVEMENT COMPETITION

During two days in July the Wild Trout Society judged this year's entries for their annual river habitat improvement competition, sponsored by The Famous Grouse. The judging panel comprised: Martin Janes, RRC Centre Manager, Simon Johnson, Environment Agency, and John Shilcock, Independent Fisheries Advisor.

Here Simon reports on the competition which aims to promote awareness of river restoration, and highlight best practices in design, construction, and monitoring. Entries were received from a variety of sources including Angling Clubs, Fisheries consultants, The Environment Agency, and independent fisheries interests. After screening, entries were reduced to five, centred on two river catchments, the Hampshire Avon

and River Wye.

Avon 1.

Little Durnford –

Simon Cain Consultancy

Like all entries from the Avon, this was reach-based in nature, addressing serious local river degradations. The entry employed novel techniques to combat the effects of lack of overhead and in-stream cover, siltation and cattle poaching. The project was part of a wide-ranging partnership between angling and conservation organisations, with support funding from the Environment Agency. Simon has been active for many years on this catchment, pioneering 'super-soft' techniques which help the river heal itself over time. The techniques are well researched and post project-monitoring is underway.

Avon 2.

Stratford Sub Castle –

Environment Agency

This entry tackled an over-wide stretch of the R. Avon - a problem common to many rivers, particularly chalk streams. They principally used groynes to narrow the river and create a vastly improved variety of habitat through more diversity in substrate character and flow velocity and depth. The

project was very good value for money in terms of cost per linear metre, and achieved quite spectacular results; Salisbury A.C. catch returns improved greatly within the reach.

Avon 3.

River Nadder – Barford

–

Five Rivers Consultancy

Five Rivers entry was for work undertaken on a significant tributary of the Avon, the River Nadder at Barford. Work was carried out to improve both the main river and a carrier stream. The project employed tried and tested rehabilitation techniques whilst using locally obtained materials. It is a good example of a low cost approach to tackle poor quality salmonid habitat, designed and implemented with a sustainable philosophy.



River Avon - strategically installed brush to create runs and encourage silt deposition in over-wide channel.

Joining the River Restoration Centre

If you are not a member of RRC, and wish to continue to receive the Newsletter, know more about the activities and outputs of the Centre, and also contribute to widening the Network of sharing experiences and knowledge, please contact us.



River Avon - river narrowing through creation of a causeway formed with spoil derived when linear pool dug.

**Wye 1.
The River Wye Tributaries –
Wye Foundation**

The Wye Foundation's entry focused on removing barriers to salmonid migration to headwater spawning grounds. As a catchment scale project the effect on the river is huge, opening miles of previously inaccessible spawning tributaries. The project had very limited funding and relied heavily on volunteer labour. The

judging panel felt the achievements of this project with such limited resources warranted special commendation.

**Wye 2.
River Clywedog – Wye
Habitat Improvement
Project (WHIPS)**

This entry, like the previous one, was on a catchment-based scale. The project's entry on the River Clwyd focused on improvements to the riparian habitat by coppicing to reduce shading, and fencing to reducing impacts of overgrazing of bankside vegetation and siltation. WHIP has attracted substantial E.U. funding and there is a wide ranging monitoring programme underway looking at the whole habitat spectrum. The project relies on sound expertise and local knowledge, and has

employed a dedicated land agent to win over hard pressed hill farmers, with an almost 100% success rate! The project aims to increase the capital value of the river by attracting more anglers to the area to sample wild brown trout fishing, in an area of outstanding natural beauty.

VERDICT

All the projects either went all, or part, of the way to tackle the issues crucial to the WTS cause, and were highly commended. Judging, inevitably, was difficult. After scoring each project using criteria supplied by the WTS the highest points were obtained by the Wye projects. The judging panel felt that a joint award should be made to both of the Wye projects as a single prize, to reflect the long-term goal of sustainability of the rivers fishery and wildlife. The panel felt that the Wye projects were a huge step forward in river management. Although the Wye's 'catchment-based' approach came out as the winner of the competition, the 'reached-based' approach is still of vital importance to the conservation of wild trout, and the techniques used on the Avon catchment could be used, where appropriate, by angling clubs to improve habitat on their degraded rivers.



River Clwyd - fencing to enable marginal bank vegetation to recover and restore more sustainable channel.



River Clwyd - brushwood to create instant habitat and redress erosion.

THE WESTCOUNTRY RIVERS TRUST

An environmental charitable Trust publicly launched in 1995, the Westcountry Rivers Trust has quickly become recognised as a leader in its field in the design and delivery of innovative community based river catchment improvement and environmental projects. The Trust works closely with the Environment Agency, M.A.F.F. and other Government Departments and has built a number of powerful partnerships. In particular, Royal Holloway Institute for Environmental

Research, Wetland Ecosystems Research Group, B.D.B. Associates, Marcus Hodges Environmental and South West Water.

The Trust has expanded its scientific and technical skills concerning the control of diffuse pollution and is applying an 'ecosystem approach' to river catchment rehabilitation techniques. Active projects include Tamar 2000, Community Rivers and most recently the Westcountry Rivers Project.

The Tamar 2000 SUPPORT Project is the Westcountry Rivers Trust's 'pathfinder' project. Here Arlin Rickard and Tom Hills describe some of the Trust's work. Pictures by Peter Yeo.

The Project

'Tamar 2000' was launched in 1996, a MAFF/EU partnership project working with farmers, landowners and the wider community to improve the River Tamar and its tributaries. The project is currently working with around 350 farmers, some 250 of whom are carrying out river habitat and farm profitability improvements through integrated farm and river management plans produced with the project's advisors. Most of the physical habitat restoration work is targeted for completion before the end of 1999.

Farmers' Commitment to Restoration Pays Off

The Institute of Grassland & Environmental Research has confirmed farmers' experiences that savings of up to 20% on nitrate fertiliser usage are possible. The savings come from careful targeting, timing and application of bag fertiliser and the application of correct values of N, P and organic manures in the crop requirement calculation. Through use of clover in grass leys, and focused grazing and cutting regimes, benefits accrue to both farm profitability and the environment. The substantial cash savings on fertiliser are equivalent to that which previously would have leached from the soil and contributed to watercourse nutrient enrichment.

Farmyard manure, slurry and dirty water suffer from being labelled as farm waste.

This often means their nutrient values are underestimated, as are costs associated with their storage and application. Here the project seeks to attach real nutrient values to these important farm by-products and reduce handling costs by waste minimisation techniques. In particular the project concentrates effort on clean and dirty water separation in the farmyard. Advice is then directed to its careful application to reduce run off and maximise uptake by the crop.

Phosphates contribute greatly to enrichment problems in the Tamar system. Soil testing has revealed that on many livestock farms the application of bag phosphate can be dramatically reduced. This approach, coupled with developing Best Management Practices to reduce loss of topsoil and erosion (phosphates enter rivers



The best sustainable permanent solutions to siltation problems come from a change in management through a range of soil conservation measures. Further examples include the creation of buffer zones through erection of fencing 5-10 metres from the watercourse. Such areas create good habitat, eliminate problems of erosion through trampling and 'wetland hotspots' can provide suitable conditions for denitrifying bacteria to strip excess nutrients from runoff before it enters the river. Soil or silt, washed from ploughing or over wintering stock, may be trapped in the buffer zone and prevented from silting up the river and spawning gravels. Applied pesticides and fertilisers are much less likely to enter the water directly too.

attached to soil particles), brings further gains to both farmers and water quality.

Habitat Restoration

The maintenance and restoration of key wetlands, coupled with the development of buffer zones and the re-vegetation of ditches within farm management plans, also play an important role in trapping sediment and de-nitrification. Work indicates that the added water storage provided by these wetlands and ditches in the catchment offer measurable benefits in reducing flashy river flows.

Every bit as important, and visibly the most spectacular, are the habitat improvements brought about by fencing livestock out of the river corridor, particularly when coupled with coppicing and/or tree planting. Stretches of riverbank previously over grazed, once fenced quickly produce good vegetative growth that "armours" the bank, helping it withstand spates. This greatly reduces bank soil loss as well as providing greatly improved wildlife habitat.

Farmers have been quick to see the advantages to livestock husbandry through



Farmers are given advice on the economic and environmental benefits of excluding stock from ditches, streams and rivers, and helped with management techniques so that natural silt traps and mini nutrient stripping zones can be incorporated within efficient drainage systems.



A temporary solution to compacted fish spawning gravels can be cleansing using high powered water jets to remove excess silt at the appropriate time of the year before fish cut their redds and spawn.

fencing off the river. With the provision of alternative drinking points such as pasture pumps, they experience less 'breaking' and improved animal health and can measure the benefit in cash terms.

Summary

Farmers have responded very positively to the project's practical approach linking economic benefits to environmental improvements and tackling the causes of environmental decline as well as symptoms.

A key point being that optimising inputs provides one of the few ways to improve profitability on farms without the need for large investment. Similarly there are opportunities to improve farm capital

values through increased sporting or amenity potential. Some farmers have also used their participation in the project, together with their farm management plans, to advantage when negotiating with their bank. A larger than expected number of farmers have also grasped the opportunity to diversify into tourism or to add value to their existing tourism operations. All of this has been achieved in tandem with improving water quality, habitats and fisheries in the catchment.

Some outputs to date

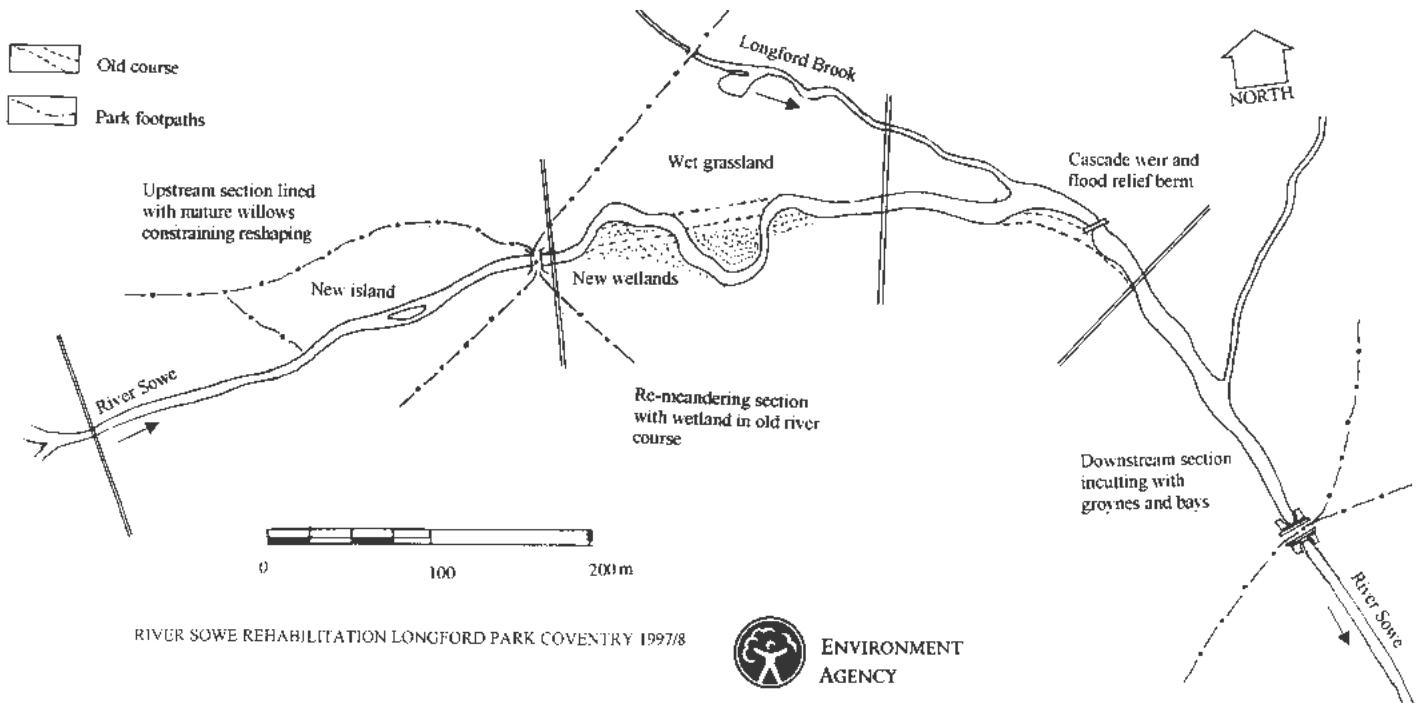
- Over 250 integrated farm management plans covering around 20,000 ha
- Over 200 kms of main riverbank surveyed plus a further 230 kms of tributaries
- Over 30 kms of riverbank fencing erected
- Over 80 sites of severe erosion controlled
- 79 spawning gravel sites de-silted
- Over 10 kms of river corridor woodland coppiced.

THE RIVER SOWE REHABILITATION LONGFORD PARK, COVENTRY

Liz Galloway, who led the project for the Environment Agency with Coventry City Council's project officer and a team of external consultants, reports on not just the achievement, but the lessons learnt in an urban river restoration project.

Background: In early 1997, the Environment Agency was approached by Coventry City Council with proposals to improve Longford Park for the local community. It formed an urban 'lung' for an immediate catchment of some 6000 dwellings and badly needed rehabilitation. The River Sowe had once meandered through a natural flood plain but had been straightened in 1943 into a trapezoidal channel with attendant loss of habitat and visual character.

The Project: The Environment Agency undertook to rehabilitate the River Sowe and its tributary stream, the Longford Brook which were central features of the park as part of a four year collaborative project. £100k became available in early May 1997, to be spent by the following March. Feasibility had been explored by Coventry City Council and Planning Permission gained. The Agency managed the project, using landscape consultants to execute the design and supervise the contract for works. Construction was planned in the low flow months of August and September.



Objectives: The rehabilitation project needed to address not only the re-creation of a natural channel with its associated wetland diversity, but also the recreational, functional, visual and educational needs of an urban community. Consultation with local residents was vital to its success and changes clearly needed to be in keeping within the heavily used urban landscape in which sports pitches, play areas, dog walking routes, and the water itself were all well established features. The downstream weir was a focal point and gathering place.

Constraints: Being an open space in a densely built up urban area, the park also accommodated many underground services, including power cables, sewers and a high pressure gas main, all running close to the riverbank. Another ominous note was struck when a local asked, "Did you know, they used to call this part the bottle bank?" A few trial holes established that, not only had much of the park been tipped, but around the river channel extensive patches of industrial contamination were found. Two additional river crossings suddenly appeared at low flows meaning that the bed could not be lowered above the downstream weir. The 1.7 metre fall could now no longer be used to improve the gradient through the planned meanders upstream. Apparently, none of this information had ever been recorded.

Risks: As it developed, the project was seriously threatened by a plethora of issues which could not have been anticipated, but the attendant risks could have been dramatically reduced by an extended lead time into the project. The team learnt that flexibility and the ability to respond to the need for change were vital! Several



Where the channel has not been moved, bays have been dug downstream of groynes to encourage the river to use its own energy to create meanders.



The cascade weir after construction - it is built of red sandstone blocks reminiscent of a derelict local mill.

significant issues arose because residents who had signed up to the benefits of change became increasingly anxious when site works started. Consultation had been full and thorough, thanks to the tireless efforts of Coventry's project officer, but this type of project is vulnerable to public opinion and particularly so around the time of local elections!

Design: Changed flow characteristics meant that it was no longer possible to return to the pre-1943 channel and for this reason, a simpler meandering channel was modelled hydraulically for the central section. By placing groynes in the deeply incised downstream section, the river's energy was used to create its own meanders. For the remainder of the Sowe and the smaller Longford Brook, techniques were mixed and in all, 1.4 kilometres of channel were treated. Vitality in channel character was achieved, through riffles, pools, and variations in width, depth and bank profiles.

The Cascade: The re-design of the downstream weir was critical to maximise the effect of low flows whilst also coping adequately with flood conditions, but early designs were rapidly dismissed as 'over-

engineered'. A supply of local sandstone blocks was available but how could they be assembled in a sound but aesthetically sensitive way? The final cascade weir resulted from a concept drawing produced by the project manager in a moment of both inspiration and desperation! This was then worked up by a landscape architect and validated structurally by an engineer. The enthusiasm of the Agency's construction team in hand-placing each stone produced a magnificent cascade effect with tumbling water, even in low flows.

Stones unturned!: The original objectives of the rehabilitation were realised and more. The re-meandered river and wetland section has established well and the richness of species and opportunities arising out of the new landscape are diverse. The changing channel profile and patterns of erosion and deposition will be monitored regularly, as will the site's ecological development. Many other attributes will be followed-up too, including the educational opportunities for local primary and secondary schools which were designed into the works with the help of local education advisors. The cascade weir will require careful monitoring since there has been an attempt to recreate a natural feature in the place of a simple engineered structure. On balance, however, the new channel is an outstanding success. The sight, sound and interest of being close to water attracts people: it has become a newly valued part of their environment.

Lessons learnt: Although most of the community is delighted with its new river environment, vandalism has been a serious problem. Bio-engineering bank protection was destroyed and 3 cwt stones from the cascade weir dislodged within 24 hours of installation; a willow sculpture created by an artist working with local children was similarly destroyed overnight. This vandalism is a minority response, but it needs to be managed so that the benefits to the majority are not lost.

Conclusions

Overall, the new channel is an outstanding success, attracting people to the water in all its different forms; it has become a newly valued part of the environment. For the Environment Agency, the experience of this project has stimulated collaboration with other local authorities and many rehabilitation projects are currently underway or complete.



On meanders pools, riffles and wetland features have been constructed - the wet ledge is now a riot of waterside plants.

INSTITUTE OF FISHERIES MANAGEMENT ANNUAL STUDY COURSE

On the 14-16th of September the Institute of Fisheries Management held its 30th Annual Study Course at Sparsholt, on ‘Habitat Management of River’s and Lakes’. The first day was dedicated to rivers and restoration, with many well-respected speakers. Nigel Holmes represented RRC and gave the Menzies Memorial Lecture in which he extolled the values of river restoration works that were ‘exclusive’ - those that bring economic, ecological, fishery and aesthetic benefits. There were talks from Martin O’grady and Simon Cain on the experiences of river restoration, driven primarily by degradations to previously renowned fishery interests of Ireland’s rivers and chalk streams. These, and many presentations about fishery management throughout the three day workshop, stressed the contribution to overall environmental river quality that river restoration works increasingly play.

Announcements

The Wise-use of Floodplains Project is a major 3 year initiative to help restore floodplains that has just received LIFE Environment funding. It will demonstrate how agencies can use floodplains and their associated wetlands to help meet the requirements of the proposed Water Framework Directive. The new Directive will require member states to meet new ecologically based water quality objectives. These objectives recognise the inextricable link between rivers, wetlands and the overall quality and balance of water resources. The project will provide new techniques to plan and evaluate floodplain restoration proposals in river basins. It will trial different levels of public participation, and provide an appraisal framework which incorporates environmental, social and economic factors.

The project is an exciting partnership between environmental agencies, the water industry and NGOs in 5 countries. The main partners include the Environment Agency, SEPA, Environment and Heritage Service (NI), DANI Rivers Agency, Agence de l'Eau, Ministry of Environment (France), English Nature, Institute of Hydrology, Thames Water, WWF, BirdWatch Ireland, LPO and the RSPB. The project will trial the planning techniques in 6 project areas. These are the River Forth in Scotland, the cross border River Erne in Ireland, the Charente in western France, the Somerset Levels and Moors, the Fens and the River Cherwell in England. *Further information from Russell Cryer, Project Manager, c/o RSPB, The Lodge, Sandy, Bedfordshire, SG19 2DL.*

The European Centre for River Restoration (ECRR) also successfully bid for LIFE funding to facilitate networking of knowledge and experiences of river restoration. It is hoped that this will enhance the extent, and effectiveness, of rehabilitation investment in rivers and riparian areas throughout Europe. Its third

newsletters can be downloaded from the web (www.ecrr.org). For a hard copy, or more information about how you can participate in networking facilitated by the European Centre, contact ECRR c/o NERI, Vejlsøvej 25, PO Box 314, DK-8600 Silkeborg, Denmark, or visit their web site for information. *A complete listing of the other successful Life bids can be obtained from: <http://europa.eu.int/comm/life/envir/press99.htm>.*

As part of WWF's European Freshwater Programme 'to conserve and restore the functions and integrity of freshwater ecosystems' it has produced an excellent document entitled *Europe's Living Rivers - an agenda for action*'. In Edinburgh, on October 22nd, this initiative was launched with a 'Call to Action for Scottish Rivers'. This outlined the changes that would be necessary to implement the EU Water Framework Directive and set out a challenge to a range of sectors, including the new Scottish Parliament.

Meeting Announcement

In April RRC will be organising a 2 day meeting to encourage networking between people and organisations working on river restoration activities. It is planned to be in NW England so that we have access to several excellent and varied urban projects. Sessions will include a series of short presentations and structured discussions on topics such as 'urban watercourse rehabilitation', 'floodplain restoration', 'river restoration and fisheries' & 'sustainable land and river management'. If you are interested in participating in any way, contact the Centre.

Features included in the next issue:

Bush River Rehabilitation Project

Rebuilding Sugar Brook

Soft engineering on a wild Welsh river

Innovation in fish pass design - Penton Hook

RRC is most grateful to all those who have contributed text or photos for this Newsletter
This edition of River Restoration News has been edited, on behalf of RRC, by Brian Smith, Project Manager, Medway River Project.

The following statutory organisations provide Core Funding for the River Restoration Centre and their Representatives form the Board of Management alongside RRC's Directors.



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