



River Restoration NEWS

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November 2003

NEWSLETTER of the RIVER RESTORATION CENTRE

RRC Network Conference 2004 April 20th and 21st – University of Durham



River Wear,
Durham

The main theme of the 5th Annual RRC Network Conference will be *'The Need for a Catchment Scale Approach to River Restoration'*. The key to successful 'whole' river restoration is good strategic planning which concentrates on improving river and floodplain habitat and hydrogeomorphology. However, it often needs to consider other practical issues such as finance, flood defence, public perception and safety. Thus a range of restoration approaches and techniques will be appropriate within a catchment depending on its particular characteristics and the stated objectives.

This is the first call for papers, the usual length being 15-20 minutes. We wish to attract a diverse range of papers from across the UK and abroad. Papers might wish to identify practical solutions to practitioners' problems, outline innovative projects that have catchment restoration at their heart, explain the difficulties of implementing basin wide strategies or, identify new tools and ideas aimed at achieving best

practice catchment scale river restoration. Our audience is very wide ranging with backgrounds in conservation, fisheries, science, engineering, policy and river management.

To present a paper or poster at the conference or participate as a delegate, please register your interest to receive further details.

Presenters need only initially provide a suggested title.

A programme will be prepared and issued in the New Year along with details of the exact costs (expected to be slightly less than last year, i.e. around £200 for members as a residential participant).

As always the key to this conference is to provide a forum for networking between people from a range of disciplines and backgrounds interested in river management. We look forward to further dynamic late night debates with both 'long toothed' and 'milk toothed' delegates.

River Restoration Funding Training Course for SCOTLAND

To add to the success of the previous Funding Course (see page 5 of this newsletter), sufficient interest has been received for a course aimed at organisations based in Scotland.

The Centre will be running a course to be held in Central Scotland (venue to be confirmed) in February, supported by SEPA's Habitat Enhancement Initiative.

Places are still available to RRC members, so please contact the Centre for further details.

If you are interested in funding training days for Wales or Northern Ireland please let us know.

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Ripples of Success on the Upper Kennet

Nick Lutt and Mike Crafer from Thames Water look back at 5 years of work completed under the Upper Kennet Rehabilitation Project as part of a partnership project with the Environment Agency, English Nature, Action for the River Kennet, local landowners and river keepers. The scheme recently won a 'silver' award in the National 2002 'Green Apple Awards'.



Vegetated deflectors at Elcot, September 2003

Background

Since a first demonstration scheme in 1999 seven rehabilitation schemes have been completed on the Wiltshire Upper Kennet. This article features the 10km project reach between Marlborough and Knighton. The river here consists of near pristine reaches of chalk stream characterised by stands of water-crowfoot, but interspersed with slow moving, silty sections. The latter are a lasting reminder of past river management practices which over-widened and over-deepened the channel for mills, and in more recent times, dredged the river for flood alleviation purposes.

Sustainable Designs

Sustainability has been put at the heart of the project and has underpinned the design of all techniques used to encourage the river to repair and re-shape itself by working with nature rather than against it. For example, where a series of deflectors were installed rapid sedimentation in the slack water between the structures has encouraged the natural extension of an existing fringe of marginal water plants.

The use, and source, of materials was also a critical element of this project. Willow, alder and hazel were used in the design of many of the deflectors, a causeway and an island. Similarly, only native species (e.g. common reed and sedge) have been planted to complement natural regeneration. The practical skills and knowledge of local river keepers and landowners was a key element to guiding both the design and choice of restoration reaches.

The project has also provided an excellent opportunity to experiment with new techniques. Straw bales were found to be a cost effective infill for raising riverbed levels to compensate for past over-deepening. Completely submerged bales, covered with gravels were found to be the best solution to prevent buoyancy problems.

Protected Species

As with any river restoration project the needs of protected species are paramount. In an early demonstration scheme, a 'protected water vole margin', a gap between the edge of the riverbank and the start of in-channel works, was successfully used to protect burrow entrances.

Reporting Activities

A key objective of the project has been to act as a 'catalyst', to encourage similar projects where the river has been historically over-widened and over-deepened on the upper Kennet and elsewhere.

A technical CD, suitable for use on a home computer, is being prepared which draws on the practical experience of the project, by using a series of narrated video clips. These explain the importance of chalk streams, the principles and benefits of rehabilitation and lessons gained from using different techniques and materials. It will be of interest to both experienced river rehabilitation practitioners as well as those new to the concept.



Deflector under construction Elcot, October 2002

The authors wish to acknowledge the role of all project partners and the guidance of Dr. Nigel Holmes (Alconbury Environmental Consultants) and Kevin Patrick (Hankinson Duckett Associates).

*For more information contact Nick Lutt at:
nick.lutt@thameswater.co.uk*

Interested in Chalk Streams and River Restoration? Details of a workshop held by the Centre in January 2001 at the University of Hertfordshire can be found at:
http://www.therrc.co.uk/themed_workshops.htm

Wild Trout Trust

Classic Malts Conservation Awards 2003



Local Community participation at Three Mile water

Allan Frake reports on this year's finalists.

The winners of this year's awards were announced at a reception in the magnificent splendour of the Scotland Office in Whitehall on 25th September. Classic Malts sponsor this event to encourage the continuation of sustainable fisheries and conservation work by awarding a monetary prize to Professional and Amateur categories.

The Amateur prize was won by the Three Mile Conservation & Angling Association of Newtownabbey, Co Antrim, who, despite an early set-back of a devastating fish mortality, tackled a number of water quality and physical habitat problems on this neglected rocky water course on the outskirts of Belfast with considerable enthusiasm and persistence. Restoring the sinuosity of the channel to improve adult fish and nursery juvenile habitats by constructing a number of impressive stone groynes and flow deflectors to retain pools and installing fish passes using volunteer labour from the local community impressed the judges.

The Upper Derwent Enhancement Project in the Forge valley near East Ayton, North Yorkshire, secured first prize for the Professional category. The partnership, consisting of the Environment Agency, Derwent Angling Club, English Nature and Scarborough Borough Council, implemented enhancements to over 8km of previously featureless and silt choked channel. Improvements included re-instating spawning areas, selective coppicing of dense tree cover to let light in, and securing the woody material to the banks and stream bed to create flow diversity, pools and riffles, as well as providing cover for trout and other fish species.

Runners up in the closely fought competition included The Ards & Down Salmonid Enhancement Association



Securing woody material, Upper Derwent

(ADSEA) who are actively promoting the ambitious Strangford Lough Sea Trout Project and the Galloway Fisheries Trust who have worked with the local landowner to clean up and protect the Grange Burn, a salmonoid spawning tributary of the River Bladnoch near Dumfries.

To enter next year's competition and a chance to win £1500 for your project, download the Entry Form and Guidance notes from: www.wildtrout.org

What has RRC been doing over the Last Year?

Jenny Mant and Martin Janes provide a brief insight

The RRC is often asked about the projects we have visited, the advice we have given for potential schemes, and our involvement in related activities. We have already reported on some of these during the course of the year, notably the workshops and annual conference, but there are many more you may not have heard about. So, where better to inform you about our recent activities, than through this newsletter? We cannot cover everything but hopefully we can provide you with a flavour of what we have been up to and the range of expertise that we have within the Centre.

Projects and Advice

Providing advice for scoping river restoration schemes remains a central role and we receive many requests for assistance from across the UK.

In May, Martin Janes spent a few days following the Highland Distillery trail in the Orkneys (number of tastings undisclosed) and prepared a series of notes providing advice for SNH on how to rehabilitate some of the main island's 'drainage ditch' burns. Enhancement suggestions ranged from extending wetlands and introducing sinuosity, to providing a recreation amenity for residents and tourists.



Cooksworthy fish counter trap, Devon

At the other end of the country Nigel Holmes helped the Sussex Otters and Rivers Partnership evaluate the possibility of enhancing various sites on the Rivers Ouse and Cuckmere, and Coombe Haven. Issues included, respectively, floodplain restoration, the rehabilitation of a straightened concreted channel, and the implications of restoring the original sinuous watercourse within a highly modified landscape now dominated by a complicated series of land drains and high level carriers. Equally, Richard Vivash, ever keen to promote potential restoration schemes, together with Steven Darby and Karen Fisher, used their joint engineering, geomorphological, and hydrological skills to assess the feasibility of re-instating a bypassed meander loop on the Rother in West Sussex.

In parallel with this, Richard has also been working on a number of flood alleviation and partnership schemes. These

Abandoned meander loop on the River Rother



include the well publicised Harbertonford scheme in Devon, the Brent in Wembley (as featured in this newsletter) and more recently the proposed Ripon flood alleviation scheme in N. Yorkshire. A key element of these schemes is to promote sustainable flood management solutions that are also sympathetic to a naturally functioning river system, within what are always constrained urban environments. In this way we are pushing to see the last of unsightly and ecosystem damaging 'defence' schemes.

English Nature's River Avon and Avon Valley Initiative (RAAVI) is an ambitious partnership project encompassing many partners and the entire River Avon system. It aims to provide strategic restoration across the whole catchment in Wiltshire, Hampshire and Dorset. RRC's Neil Bannister has been putting together the project and an application for EU LIFE Nature funding. Further west in Devon, Martin Janes and Jenny Mant looked into the feasibility of removing some redundant (and now hazardous to the public) fish counter traps in an otherwise mostly un-impacted river system. A site visit identified ways in which these sections could be reinstated, restoring the form and functioning of the river system, such that riparian management can be reasonably handed back to the local landowners.

In Wales, Martin was asked to advise on the potential restoration of the Teifi floodplain and old remnant meanders



An impounded reach at Seven Hatches, River Wylfe, Wiltshire

near Tregaron. The Countryside Council for Wales manages the Cors Caron Nature Reserve on the river Teifi, and has discovered an almost unique opportunity where the benefits of restoration would be tremendous; the downside has yet to be found!

Northern Ireland still has some very fine river systems, like the River Bush supplying water to one of the oldest distilleries. However, even the Bush has its share of issues. Jenny recently led a two-day 'geomorphological assessment' session for the Rivers Agency, to aid decisions on maintenance works.



River Bush, N. Ireland

Nearer to our Silsoe home, St Albans City Council and other local groups are keen to restore, what is little more than a concrete pond, back to a chalk stream. Suggestions from the Centre have been enthusiastically received and as a result the next stage towards restoring this stream is now underway.

Inventory and Audits

The projects database continues to grow and to date close to 1000 projects have been registered. The range is phenomenal from small fisheries and biodiversity initiatives instigated by local land owners, to large scale adventurous flood alleviation schemes such as the Jubilee River. Since one of the key duties of the Centre is to promote 'best practice' restoration methods, time is made to 'audit' some of these projects, so that if anyone is interested in a specific type of river enhancement we can suggest similar 'demonstration' schemes.

The Centre's Future

RRC is a not-for-profit organisation. We rely on a combination of subscriptions from core funders, organisational and individual members to ensure that we can continue to provide the level of service, information and expertise we have to date. By helping to support RRC these members are ensuring that rivers that have been damaged in the past stand the best chance of improving in the future. So please check that your subscription is up to date.

And Finally

We are always interested to hear about sites that demonstrate good innovative restoration and rehabilitation ideas. If you think you know of a scheme worthy of such an accolade then please let us know.

Funding River Restoration, Training Courses – Past and Future

Following an excellent response to the July newsletter advert, RRC arranged a one-day workshop on the do's and don'ts of fundraising and external funding sources. The lead for the day was Fabienne Poulet, an experienced funding consultant, who also provides similar events for the Environment Agency.

Key messages from the day were:

- What is fundraising, how much time does it take and the need for a strategy;
- Understanding why do donors give money, so how can you get some of it;
- Often the answer is no – but what does this really mean;
- What are the current funding sources, big and small and where are the details found?

As the day, by necessity, was mostly listening and information gathering, it was rewarding to break into small groups to use the information we had just been given to analyse previous large and small scale applications, discuss the often 'hidden' requirements of funding sources gleaned from supporting information, and to think whether this route could apply to us.

All 15 places at Reading were filled [thanks to the Environment Agency for hosting the day] and the feedback from the group was very positive, with many now wanting more detailed information on specific funding routes and application form filling; potentially an option for a further more focused day!

RRC will be running further funding training days next year. If you are interested in attending please contact us to add your name to the waiting list. A minimum of 15 is required to keep costs down. Dates will be set once numbers are confirmed.

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The River Brent Enhancement Project

Susie Tudge (Project Manager, Environment Agency, Thames Region) and Helen Dangerfield (Geomorphologist, Babtie Group) outline the design of the Brent scheme and its success to date.

In June this year, an Open Day was held to celebrate the completion of Phase 1 of the River Brent Enhancement Project in Wembley, London.

Extensive works were undertaken in the 1940's and 1970's to alleviate flooding problems at the point where the River Brent flows through Tokyngton Park, Wembley. The river was straightened and encased in concrete and the park acts as a flood storage area in periods of high flow. The river divided two diverse communities, was little known or liked by park users and had poor wildlife habitat.



Tokyngton Park before the restoration works

In 1999, the Environment Agency (EA) and the London Borough of Brent (LBB) formed a partnership, with the aim of carrying out improvements in the park, particularly rehabilitation of the river. LBB commenced consultation by commissioning a Planning for Real™ exercise and the results showed that the local community was in favour of improvements being carried out.

The Design

Historic maps showed that the river originally meandered through the park, inspiring the design of the new channel. Plan and cross-sectional form were designed in relation to the flow regime of the river and local constraints. The flow regime is artificially regulated by the Brent Reservoir upstream of Tokyngton Park and this, together with a flashy catchment response to rainfall events, results in considerable variation in water levels. The new planform was constrained by a long culvert and old filter beds on the left bank and the reluctance of residents to have the river too close to their houses.

The outcome is a channel that varies continuously in shape and depth in relation to its meandering alignment. A pool and riffle sequence was initiated through the design of varying bed levels and in relation to

channel meanders. The flat compound slopes on the inside of meander bends give safe access to the waterside. The channel was designed to accommodate both low flows and storm spates. The low flow channel was left unrevetted to allow a degree of morphological adjustment but natural migration of the newly created meanders could not be accommodated in this urban situation and hence required revetment at critical points as follows:

Revetment type A was placed on the apex of the meanders, where flow velocities are highest. The revetment was designed to be flexible, allowing some natural adjustment, whilst preventing channel migration. It comprises a crushed concrete toe under water using recycled material from the demolished channel banks, to prevent scour. Above this is a layer of gravel with willow poles laid across, covered by wire netting. The willow poles have started to grow, and are beginning to stabilise the bank, disguising the underlying concrete and creating a habitat for wildlife.

Revetment type B is a transition between revetment type A and the natural bank, where erosion would be likely to occur if the bank were not protected. It again consists of a hidden concrete toe, with a coir roll placed on top, which provides further protection to the lower bank, and marginal habitat. Behind the coir roll is a plant pallet providing additional stabilisation, and coir matting has been placed to the top of the bank and planted with wildflowers and grass.

The supply of sediment to the channel was assessed through a geomorphological baseline survey of the River



Meander showing revetment A in the foreground and revetment B behind



Tokyngton Park after the restoration works

Brent catchment. The presence of original fluvial gravels eliminated the need to import bed material and provides an ideal in-stream habitat.

A Thames Water outfall is located at the downstream end of the channel, and this otherwise unattractive feature was incorporated into the design through the creation of a backwater. The gravel berm is covered with water at high flows thus providing a flushing flow through the backwater. It has been planted with reeds, creating an alternative habitat and area of refuge in times of flood or pollution events.

Community involvement

Local community involvement was managed by LBB and maintained through the issue of progress leaflets, local meetings and presentations, site visits and the formation of a Community Steering Group. Groundwork West London was able to involve local children in various projects including a river themed mural to cover graffiti and a pebble mosaic. Dissemination of water safety information was undertaken by the Lea Rivers Trust who have formulated an ongoing programme of children's water safety lectures. A "Friends of Brent River Park" group has now been established by LBB to act as future custodians for the park.

The future

In the past few months, the new channel has developed favourably and monitoring of the geomorphology, invertebrates and river habitat will be undertaken to assess the achievement of the initial objectives. In addition, a maintenance plan has been drawn up to ensure the site is sensitively managed.

The partners are currently putting together bids to secure a further £1.5M to implement Phase 2 of the project, which will see similar improvements being undertaken in the north of the park. To date the project has been a great success, immediately evident from the number of people now using the river for recreation and hopefully in the longer term providing an important habitat for wildlife.

***The project team:** The EA (project manager), LBB (fund manager and community liason), Halcrow (design team), Richard Vivash (RRC), Helen Dangerfield (Babtie, Brown and Root), The LBB Landscape Design Team, Edmund Nuttall Ltd, Alperton Millennium Volunteers, Groundwork, Lea Rivers Trust.*

***Funded by:** London Development Agency, EU Objective 2, London's Waterway Partnership SRB, Neighbourhood Renewal Fund, LBB Section 106 and Capital Works Programme, Environment Agency.*

For further information please see the project website: www.brent.gov.uk/riverbrent.nsf

RRC's experience gained during the EU-LIFE River Skerne restoration project (1995) proved most helpful in the design of this project even though the Brent is a more steeply graded, faster flowing river than the Skerne. The RRC's Manual of Techniques, parts 1 and 4 may prove a useful appraisal reference for the techniques described.

News and Events

A New Staff Member for RRC

We would like to welcome Laura de Smith to our team. She will be working for RRC part-time whilst studying for an MSc in Environmental Water Management at Silsoe over two years.

Prior to this she completed her degree in Geography at Birmingham University with a dissertation on River Restoration schemes in Urban Rivers.



Publication

Guidebook to Applied Fluvial Geomorphology

On the 9th September those present at a Cranfield University conference at Silsoe on 'Soil Erosion and Sediment Redistribution in River Catchments' were able to preview the new guide to Fluvial Geomorphology. This book aims to foster an interest and understanding of geomorphology in rivers and provides an overview of different methods that can incorporate geomorphological science into river engineering and management principles. It also provides guidance on when to seek expert advice and where to find it.

Copies will be available shortly from the Environment Agency's R&D Dissemination Centre.

Website: <http://www.eareports.com>



Conferences

3rd ECRR International Conference on River Restoration in Europe

River Restoration 2004; principles, processes and practises. Zagreb, Croatia 17-21 May 2004

For further information visit <http://www.ecrr.org>

Freshwater Biological Association, Annual Scientific Meeting

Plymouth 21-23 July 2004

Call for Papers and Posters

For further information email info@fba.org.uk

The Role of Vegetation in Environmental Protection: Theory and Best Practice

Cranfield University at Silsoe 24th – 26th March 2004

For further information:

http://www.silsoe.cranfield.ac.uk/rpm_conference.pdf

Royal Geographical Society - Institute of British Geographers (RGS-IBG) Conference

The RGS-IBG international annual conference was held in London at the beginning of September. Of particular interest to all involved in River Restoration were the sessions that concentrated on the geographical contributions to solving UK flooding problems, and perspectives on the implementation of the EU Water Framework Directive (WFD).

Questions were raised about the under-estimated impacts of flood events, policy response, recommendations for defending properties and the promotion of sustainable flood alleviation schemes using River Restoration Centre examples.

The implications of the WFD for River Restoration also became evident as delegates heard about the conflicting demands on water use and the requirement to enhance and protect ecological status. Papers provided a snapshot of the different approaches being implemented across Europe aimed at delivering the WFD.

The afternoon ended on a very positive note with a presentation from the River Restoration Centre about how river restoration can help meet the needs of both the WFD and flood defence.

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RRC is most grateful to all those who have contributed text or photos for this Newsletter

The following statutory organisations provide Core Funding for the River Restoration Centre and their Representatives form the Advisory Board who together with RRC's Directors make up the RRC Council.

