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This issue...

We are celebrating a £2 million grant from the Heritage Lottery Fund for the Cherish Eden project. This will form a large part of our work for the next five years and will encourage local people and visitors to enjoy, cherish, and defend the River Eden.

The water friendly farming initiative at Newton Rigg College's new dairy unit is progressing well and we report on the benefits for students, local businesses and the environment.

Defra has given us the role of co-ordinating the "Eden Catchment Plan" but we can only achieve something worthwhile with your help. Please let us know how you would like to be involved.

A major restoration project is underway on the River Leith near Penrith and a weir has been removed from the nearby Morland Beck. On the Pow Beck and River Petteril towards Carlisle work is continuing to improve the water quality and wildlife interest of these two degraded waterbodies.

Hundreds of volunteers have spent thousands of hours tackling the Eden's unwanted invaders and scientists have been looking at microscopic algae to find ways of reducing pollution from agriculture.

Please tell us what you think about the new look of our newsletter and let us know if your contact details are out of date. If you would prefer to receive this newsletter electronically please email office@edenrt.org

To see the film and help save the Eden visit www.savetheeden.org



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Volunteer power!

I've said this before but volunteers are the lifeblood of an organisation like ERT. We simply would cease to exist were it not for their amazing contributions. Whether it be Board members, website maintainers, electric-fishers, crayfish surveyors, riverfly monitors, helpers at events or those removing invasive species; all of our volunteers are 'doing their bit' to look after our wonderful rivers, becks and lakes. Their support is a constant source of inspiration for us all. *By Simon Johnson, Director.*

I would like to use this opportunity to make special mention of our retiring Chairman, Robert Warburton and to acknowledge his immense contributions during his three years in the 'hot seat'. Robert is a highly respected dairy farmer and his knowledge and network of contacts have played a key role in developing our successful Water Friendly 'win: win' initiatives that work for rivers and farm businesses. I'm delighted to report that Robert will remain on the ERT Board.

As of January 1st one of our newest board members Glyn Vaughan, CBE, will be taking on the role of Chairman. Glyn brings with him a wealth of valuable river management experience, gained through a distinguished and highly successful public sector career in Flood Risk Management. We are all tremendously excited that Glyn has agreed to be our Chairman and he is already proving to be an invaluable asset to the Trust.

Lastly, I would also like to thank Janet Arnison who has been a staunch supporter of ERT over many years. In recent years she has supported the Board by taking notes at meetings and producing highly professional and accurate minutes. Janet has been one of those amazing volunteers that has always been happy to pitch-in and lend a hand whether it be balsam bashing or providing support at events. With great reluctance we have agreed to let Janet hang-up her note-book to spend more time walking in her beloved Cumbrian fells. I speak for all at ERT when I say we'll really miss you, Janet!



Volunteers surveying for native, white-clawed crayfish on the Croglin Water.

2014 will be a very big year for volunteering at ERT. Our five year Cherish Eden project will see the setting-up of a network of community based River Action Groups across the catchment to help keep 'The Eden' in the rudest of health.

Someone once said to me "Never underestimate what a dedicated group of citizens can achieve". For me, this phrase sums up perfectly the 'business critical contributions' that our volunteers (past, present and future) make in support of our mission to save the Eden!



Caldew School pupils clearing Himalayan balsam on the River Caldew at Dalston.

Water friendly farming at Newton Rigg's new dairy unit

An innovative water friendly farming initiative is being developed as part of the new £2 million dairy unit at Sewborwens Farm, Newton Rigg College, Penrith. It will include a range of equipment and practices which demonstrate how modern, commercial dairy farming can go hand in hand with protecting water quality and wildlife habitats and reducing flood risk. *By Lucy Butler.*



The project is being delivered in partnership with Newton Rigg College – part of Askham Bryan College - and two cutting edge national and international land use and water projects.

The European funded Adaptive Land use for Flood Alleviation (ALFA) project is contributing over £100,000 of funding to the Sewborwens project. It will be used to give students the opportunity to work with the latest farm technology and machinery for managing soils, water runoff and nutrients. Wetland habitats that will store and clean water are also planned as part of the project which students and apprentices will be able to manage for wildlife as part of their studies.

The Defra funded Eden Demonstration Test Catchment Project is a national project looking at ways of improving farms and farming practices to reduce water pollution from agriculture. It is bringing leading scientists from the field

of river catchment management to the farm. They will be using state-of-the-art monitoring equipment to demonstrate the impact of practices at Sewborwens on water quality.

Newton Rigg College are installing guttering, storage tanks, ponds and drainage around the new farm buildings designed to capture and store rainwater which falls on the new roofs. This harvested rainwater will be used on the farm, for example, for washing and cleaning in the dairy helping to reduce the farm's reliance on abstracted borehole or mains water supplies. This system will also help keep clean rain water away from dirty cattle yards, slurry and silage stores while also capturing any contaminated water.

Examples of technology and machinery that will be made available to students to use around the farm include an aerator, a subsoiler and a tractor mounted global positioning system or GPS. The subsoiler

and aerator help to break up compaction of the soil and allow water to infiltrate the ground more easily. This improves soil structure, slows the flow of storm water across the land and lessens the amount of soil, manure and fertiliser which runs off into rivers. The GPS ensures that fertilisers are applied to the correct areas of the land, avoiding unnecessary and costly over-application.

The initiatives at Sewborwens Farm reflect many of the projects that we are carrying out with farmers throughout the Eden Catchment to improve the environment, rivers and streams. This fantastic collaboration with Newton Rigg College will help us to create a powerful education resource for local farm businesses and students to demonstrate these initiatives and show first hand how modern farming and environmental management can work together for mutual benefit.



Constructing the new dairy unit at Newton Rigg College.

Catchment based approach

We urgently need to work together to safeguard the future of the Eden. Defra has charged Eden Rivers Trust with the task of coordinating the "Eden Catchment Plan". This will involve local people, communities and organisations in ensuring that the river is clean, healthy and beautiful now and in the future.

We laid out our aspirations in the "Save the Eden" campaign and invited all those with an interest in the river to join us. We cannot achieve everything on our own and believe that by working together we will be able to meet the objectives of many people and organisations much more efficiently and effectively than by any of us working alone.

The aim of the Plan is to:

- Involve all those influencing the river;
- Ensure a coordinated approach;
- Make investment work better;
- Provide straight answers to questions;
- Set tight targets and milestones;
- Be accountable, transparent and inclusive;
- Add to and not duplicate other work;
- Make a measurable difference to the river environment.

This will be achieved through the "Saving Eden Catchment Coalition". It will draw upon the right people at the right time to do the right job! These may be people from local communities, planners, politicians, farmers and other land owners. It will also involve government agencies, scientists, commercial companies and other investors.

The Coalition will share knowledge and encourage others to take part. It will co-ordinate actions to achieve the following seven "Big Outcomes":

1. A water-friendly planning system;
2. A resilient network of habitats;
3. A dynamic and more natural river system;
4. A river for people: accessible, fun and culturally vibrant;
5. A water-friendly farming catchment;
6. A knowledgeable and water-friendly end-user community;
7. Joined-up thinking and investment at a catchment scale.

Funding to support this process has been provided by Defra, the Environment Agency and United Utilities to produce a final Eden Catchment Plan by December 2015. It will be a twelve year commitment for the benefit of the landscape, people and wildlife of the whole Eden catchment.

Cherish Eden

We have received a grant of £2 million from the Heritage Lottery Fund (HLF) for the Cherish Eden project. The £2.5 million project aims to encourage local people and visitors to enjoy, cherish, and defend the River Eden in Cumbria. The application was made by the Trust in partnership with a range of other local organisations.

Cherish Eden is a five year plan to help local communities look after their local river, provide an apprenticeship scheme for Cumbrian youngsters, promote a series of walks and cycle rides in the Eden Valley and establish a media project about the River Eden.

The River Eden and its tributaries form a significant part of the landscape and beauty of the Eden Valley. They are of national and international importance for their wildlife and also of major economic importance to the area, providing drinking water, supporting agriculture and drawing locals and tourists alike to visit and undertake recreational activities.

The first part of the project aims to get local people actively involved in looking after the river where they live. Examples of activities include removing invasive plants, surveying river wildlife, helping to prevent pollution, protecting river banks and planting trees. It will be the community groups and volunteers who make a real difference, supported by ourselves, the Environment Agency and the Cumbria Freshwater Invasive Non-native Species Initiative. Those involved will enhance their environment, learn new skills and improve their own health and well-being. Other organisations with these objectives will also be involved.

The apprenticeship scheme is aimed at teaching young people about rivers and their importance to man and the environment. It will enable them to pursue careers in river conservation or other related occupations. The core teaching will be provided by Newton Rigg College – part of Askham Bryan College – and will also involve other neighbouring Rivers Trusts.

Several walks and cycle rides associated with the River Eden will be established as part of the project. These will create some beautiful new ways of exploring the Eden Valley countryside. They will also tell people about its violent, historical invaders as well as its less violent, but still dangerous invaders of today – invasive animals and plants which are threatening our wildlife!

The walks and cycle rides will enable individuals, families, groups and schools to learn more about their local environment whilst enjoying the outdoors. Cumbria

County Council Environment Team will be working with us, along with the Environment Agency and the Cumbria Freshwater Invasive Non-native Species Initiative.

A media project will consider all the activities associated with the river and come up with fresh, modern ways of telling people about them. Local people will be able to contribute their thoughts, ideas and feelings about what the river means to them and this will be showcased through a range of media including a series of short films, a book and an exhibition at Tullie House Museum.

There will also be a touring exhibition throughout the five year project which will show the progress of the project and enable people throughout the catchment to submit their contributions. The aim is to enthuse local people about the river in a partnership project with Carlisle College, Tullie House Museum and Art Gallery Trust and Cumbria County Council Carlisle Archive Centre.



Inspira summer youth programme litter picking in Appleby.



Investigating Eden stream ecology with a toothbrush!

The Eden Demonstration Test Catchment (DTC) project is studying the effect of agriculture on water quality and looking for ways of reducing pollution from farms. *By Maria Snell, EdenDTC, Lancaster University.*

The Eden has its origin in the small streams that drain the uplands. These dynamic headwaters respond rapidly to rainfall on their small catchments which washes sediment and nutrients into the stream. Headwater stream ecosystems are composed of a relatively simple assemblage of algae, invertebrates, higher plants and fish. Through the Eden DTC project we have been investigating each of these groups with particular attention to diatoms, a type of freshwater algae which is found within the slimy brown film that covers cobbles on the streambed.

Diatoms serve as a valuable indicator of environmental condition as they respond

directly and sensitively to physical, chemical and biological changes in their environment, such as the concentration of phosphorus and nitrogen. Collection of diatoms is done by brushing the cobbles using a toothbrush. They are then identified under the microscope by their ornate silica shells. In our study we have been collecting monthly diatom samples to understand relationships between land-use, physical and chemical changes in streams, and impact on diatom communities.

We have found that diatoms vary over short timescales and between seasons. They also differ between catchments

helping us fingerprint diffuse pollution sources. Riffle and pool habitat provided by stream morphology is also important for diatom diversity. The diatom data suggest that water quality deteriorates in the wetter winter period. This should help farmer's better time the application of fertilisers to maintain high ecological condition all year round.

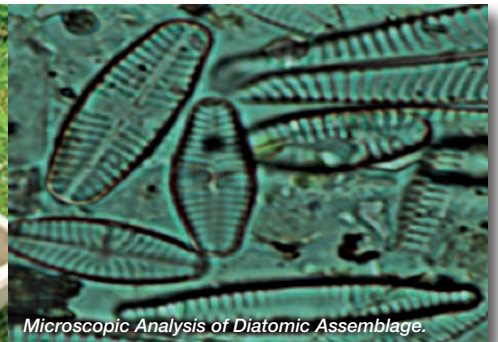
It is important that we understand what the composition of their individual communities is telling us about multiple system pressure in these flashy headwater environments. If we can deliver cleaner more diverse headwaters, the benefits will be felt throughout the Eden.



Identification of Sample Location



Sample collection.



Microscopic Analysis of Diatomic Assemblage.

Removing a weir and a ford

A ford and a weir have been removed from two rivers in the Penrith area to restore them to a more natural state and improve them for wildlife. Fish such as salmon and trout will now be able to move more freely in these rivers and make use of the areas that have been opened up to them. *By Joanne Backshall.*

The ford was removed from the River Lyvennet near Cliburn Mill and the weir from Morland Beck near Crossrigg, Cliburn. The work was carried out with the permission of the landowner and with the appropriate consent from the Environment Agency.

Removing man-made barriers from rivers has multiple benefits. All rivers naturally move stone, gravel and silt along their bed and the pattern and amount of material moved depends on the strength of the flow. Man-made obstructions in rivers alter the flow and hence the movement of material, causing problems for wildlife and people.

Removing these barriers is part of our partnership work with the Environment Agency to make the Eden and its tributaries meet the strict requirements of the European Water Framework Directive. This legislation aims to improve the water

quality and wildlife of British rivers and the work is funded by Defra's Catchment Restoration Fund.

Weirs and other man-made structures in rivers are one of the reasons why rivers are considered to be in poor condition. They also require constant maintenance to prevent them from deteriorating. Taking them out altogether removes the need for maintenance as well as the burden of responsibility for the land owner.

On the Morland Beck the landowner, Mrs Priscilla Henley of Crossrigg House, Cliburn, said she was unenthusiastic about having the weir removed because it had been there for such a long time and was thought to be beneficial. However once ERT had explained the advantages of its removal she regretted not having had it removed sooner. The finished result of removing both the weir and ford is now definitely seen as an asset.



Morland Beck weir – before removal.



Morland Beck weir – after removal.

River Petteril Project

This summer we have worked with 14 farms and the Environment Agency to carry out improvements which will benefit the River Petteril. *By Alison Reed.*

This has included fencing over 2.5 km of river bank and planting 750 trees and 50 m of hedging. A new farm bridge has been installed to keep cattle out of the river and cut logs and branches have been used along 300 m of eroding river to stabilise the banks and create ideal conditions for wildlife.

On many of the farms we have helped to improve their yards and buildings in a way that reduces pollution in the river. For example new roofs have been built over manure stores and farm yards where cows collect to reduce the amount of dirty water reaching the river. Cement yards, drainage channels and guttering have all been installed to divert clean rain water away from dirty yard areas and to collect contaminated water so that it does not end up in the river.

We have developed an extensive list of farms to work with along the Petteril during 2014. The current funding for the project is due to come to an end in March 2015 but there is still much work to be done.

Our work with farmers not only involves helping to improve the infrastructure on the farm but also assisting with the development of a long term plan which will benefit the environment, animal welfare and the farm business.

Higher rainfall and flood events are becoming more frequent, creating problems with more water on the land and in the farm yard. This often needs a more focused investigation. We have worked closely with the Catchment Sensitive Farming Scheme to produce surface water plans which identify measures to tackle some of these problems.

Many of the tributaries of the Petteril such as Blackrack Beck are also prone to the build up of sediment in the river which makes it difficult for fish to live and breed there. We are carrying out a walkover survey of the beck and investigating where the sediment is coming from. This will enable us to start working with the landowners to try to solve the problem and hopefully reduce the amount of sediment in the river. Some landowners are already keen to tackle the problem and are looking at ways of improving the beck, for example by moving fences further away from the river, re-meandering the beck and planting trees. We will also be investigating the possibility of installing sediment traps at specific sites.



Lamb Beck before and...



after the installation of a new bridge and fencing.



Using cut logs and branches to stabilise banks and create habitat for wildlife.

River Restoration Project

Major restoration has begun on the River Leith near Penrith to reverse historic straightening and widening, and return the river to a more natural state. It is a partnership project between ourselves, the Environment Agency and Natural England as part of the River Eden River Restoration Project, and has been made possible by the generous support of the tenant farmer and land owner. *By Gareth Pedley.*

The first phase of work involved excavating the river's original winding channel adjacent to the straightened section of the River Leith where it runs alongside the railway line at Thrimby Hall, south of Penrith. The river will be diverted into the restored channel next summer.

Artificially straightened, widened and deepened channels can all have a negative impact upon a river and can lead to greater levels of erosion and sediment deposition, which can damage habitats and also increase flooding downstream. This work will tackle these issues on the River Leith by re-creating natural meanders that allow the river to function more naturally, benefitting local wildlife and people.

The work will reinstate a more natural gradient and meandering channel to the river. Meanders are beneficial because they increase the diversity of flows within the river

and alter the way it moves stones, gravel and silt along its length. This will recreate a variety of features that are currently lacking from the straightened river. Examples include pools and riffles capable of supporting a range of fish species, shallow margins where freshwater plants can establish, shingle banks which are important for insects, and gravel beds where fish can lay their eggs.

Through this project, the land owner is gaining environmental benefits such as entry into a Higher Level Environmental Stewardship Scheme, more natural, stable river banks with less erosion, and new riverside fencing incorporating trees. Richard Gordon who farms at Thrimby Hall is very enthusiastic about the plans to restore the River Leith where it flows across his land. He says he would like his own children to see and enjoy the river the way it once was.



Creating the new channel for the River Leith at Thrimby Hall near Penrith.

Volunteers battle invaders

A large increase in volunteer numbers in 2013 has seen 500 people spend more than 2000 hours helping to battle against invading non-native species like signal crayfish and Himalayan balsam. Without their help these invaders would go unchecked, causing problems for the animals and plants that naturally live in and alongside rivers and lakes. *By Paul Greaves.*

We are very grateful for all the volunteer contributions, as they have assisted us in:

- Clearing 16 miles (26 km) of riverbank and lakeshore of balsam, along with 11.5 hectares (28 acres) of adjoining land;
- Managing 1,100 m² of newly discovered Japanese knotweed;
- Continuing the management of Japanese knotweed at sites managed in 2012;
- Removing 899 signal crayfish;
- Eradicating 300 giant hogweed plants which were sprayed, injected or dug up and composted.

The project has been funded by the Environment Agency and Natural England and we look forward to carrying on the good work in 2014.

Many of the volunteers this year have been under 18 years old and it has been a fantastic opportunity for them to learn about invasive species and how they are introduced and transported, as well as some of the simple biosecurity steps that can be taken to reduce the chances of it happening. As introduction is often through hitchhiking on equipment or clothes, when people move from one water body to another, the Checking Cleaning and Drying of equipment is essential to minimise the risk of carrying seeds, plant fragments or animals themselves to where they shouldn't be.

Not all invasive species are introduced unintentionally, some are still sold in garden centres and escape from the gardens that they are planted in. One such plant is American skunk cabbage which has a large yellow flower, a pungent smell and can dominate wet boggy areas. This plant has been identified in several areas locally this year and chemical treatment has been carried out to prevent it taking over, as it has done in other parts of the UK. Please bear this in mind when next buying plants for your garden or pond. If any advice is required please get in touch, or look at the Be Plant Wise campaign on the internet.



Blue Badge Tourist Guides removing Himalayan balsam along the River Eden at Ousenstand, with giant hogweed in the foreground.



Inspira summer youth programme clearing Himalayan balsam along the River Caldew at Cummersdale Holmes, Carlisle.



Rock Youth Project from Carlisle removing Himalayan balsam along the Eden at Lazonby.



Before (left hand image) and after (right hand image).

Pow Beck Project by Chris West

What a difference a year makes! We are one year into the delivery of the Pow Beck project and how different a year it is proving to be. After last year's extremely wet weather, this year's good summer led to the Pow Beck almost drying up. Although providing its own challenges for the beck, this extended dry spell was a relief for the farming community in the area.

Dry conditions are also needed for our new compaction busting equipment which has been recently purchased for farmers to use free of charge in the Pow catchment. An aerator and subsoiler are available to alleviate compacted soils, allowing more water to infiltrate into the soil rather than quickly running off over the surface. Evidence shows that this infiltration, temporary storage and slow release of water contributes towards river base flows which maintain water levels in rivers during dry periods and also reduce flood peaks during wet periods. All this whilst improving soil conditions for crop growth.

Multiple benefits will also be achieved through the infrastructure improvement works which are being installed. For example the roofing of dirty areas to send rain water, in increasingly unpredictable volumes, to clean drains. This works for the farm and the environment in a number of ways, both directly by reducing the volume of slurry to store and spread and indirectly by reducing the need for and damage caused by winter slurry spreading. It also improves the efficiency of slurry nutrient use and reduces fertiliser dependency. These projects fit into a wider farm plan and are delivered by the farm business assisted by ERT and Catchment Sensitive Farming to allow maximum improvement. The Pow Beck project is funded by Defra's Catchment Restoration Fund.

Although this year has been kind, we can only hope that work being done, such as relieving compaction and improving infrastructure, will help build more resilience into our systems to cope with future years.



Subsoiler in operation at Buckabank, nr Dalston.

Eden Rivers Trust Auction

A total of £57,000 was raised at our fund-raising auction at Carlisle Racecourse in October. This fantastic amount is thanks to the very generous support of our sponsors and bidders, to whom we are extremely grateful. *By Simon Johnson.*

The money raised will further the Trust's work in restoring habitats, researching the health of the river and educating people about the importance and benefits of a healthy river system.

The Auction is just one of a number of fundraising initiatives we have in place to provide match funding for our five year Heritage Lottery Funded "Cherish Eden" programme.

A pair of life-size swimming otters worth £15,000 was just one of the extraordinary lots on offer. Everything from exquisite sculptures to exclusive experiences in the British countryside was auctioned.

The Trust produced a stunning catalogue of 65 rare and exciting lots ranging in value from just £40 to £45,000. Lord Inglewood, Deputy Lord Lieutenant of Cumbria, Eden Valley based and internationally renowned sculptors David Williams-Ellis and David Cemmick both supported the auction. David Williams-Ellis donated a stunning life-sized solid silver trout which sold for £9,500. David Cemmick's numerous lots

include a pair of life-size red grouse in flight and a stunning sculpture of two life-size swimming otters chasing a salmon, two of which sold for £15,000 each. Other lots included exclusive horse racing, shooting, fishing and experience days in Cumbria and throughout the UK.

ERT does not receive any direct core funding or support from Government sources. To date we have undertaken projects on a staggering 200km of river and we have engaged and educated over 15,000 people. Every pound we raised will be made to work hard for the Eden. We keep overheads and red-tape to a bare minimum and we strive to 'gear' donations by a factor of at least 4:1 to maximise their impact.



'Silver trout' by David Williams-Ellis.



'Two against one' by David Cemmick.



Seb Wylder, Artist, Henley-on-Thames, David Cemmick, Artist, Milburn.
Photo: D&H Photographers/Cumbria Life



David Williams-Ellis at work.

We would like to thank everyone who has supported us in our work in 2013, both financially and in kind. We would not be able to do it without your amazing help!



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