



The Eye

A publication for the Eye Brook community

Welcome

This sixth issue of The Eye is the first since the Heritage Lottery Funded 'Eye Brook Community Project' ended in 2010. There have been many developments since then, and the purpose of this issue of The Eye is to share this news. Most notably, a major research and demonstration project, 'Water Friendly Farming' has become

established in the upper Eye Brook, and in the neighbouring Stonton and Barkby brooks. Much of this issue of The Eye is devoted to this project. There is other news too though, and we would like to hear from you about anything to do with economically and environmentally sustainable use of the landscape in which we all live.



Wild brown trout being measured as part of a survey in the Eye Brook.

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The Eye Brook Community Project

What was the Eye Brook Community Project?

The project ran from 2006 to 2010 and combined the scientific knowledge acquired by the GWCT Allerton Project and its research partners with the knowledge held by the local community in and around the Eye Brook catchment. The focus was the past and present management and use of land, and the implications for future land use, given the constraints imposed by an increasing global population, increasing consumption, climate change, and depletion of natural resources. The project was based on the premise that increased awareness of land use history strengthens local identity and 'ownership' of present and future environmental problems and opportunities.

'Exploring a Productive Landscape'

As well as several events, and annual issues of The Eye newsletter, the project produced a book. One half of this was devoted to land use history, and the other to current agri-environmental issues, and implications for future land use. The book has been widely acclaimed. Here are some comments from prominent readers:

Jonathan Dimbleby, current affairs presenter, organic farmer and former president of the Soil Association and Campaign to Protect Rural England (CPRE). *"This book is a great example of the 'Big Society' in action. Skill, expertise, dedication and enthusiasm have brought together, in one small place, a host of very important issues that face the whole country."*

Mary Creagh MP, Shadow Secretary of State for the Environment Food and Rural Affairs. *"There is a growing body of evidence about the impact of climate change and human behaviour on our environment. Yet too often policy and science*

is developed at an abstract level. 'Exploring a productive landscape' provides a practical example of the benefits of involving people in the environmental decisions that affect their community, and their role in creating a sustainable future. It tells the story of how a community project in Leicestershire has responded to the challenges it faces and draws wider lessons on the issues of land management and conservation."



Sir Jim Paice MP, former Government Farming Minister. *"The Defra Business Plan recognizes that the environment is the natural foundation on which our society and economy are built and that our long-term prosperity, economic success and quality of life are enhanced by our environment. As this book highlights, if we use and manage our natural assets in a sustainable way, they will continue to meet not only our needs, such as for energy, sustenance, minerals, fresh water, clean air and fertile soils, but the needs of future generations."*

The Right Reverend Tim Stevens, Bishop of Leicester. *"This excellently produced book reveals how the farmed landscape shapes everyone's lives, despite most being far removed from that environment. It will stimulate the debate over how the farmed landscape should be used in the future."*

A free pdf of the book can be downloaded from www.gwct.org.uk/eyebrookbook

Water Friendly Farming

Nationally Important Experiment

Flooding is at the forefront of many people's minds after the past two winters. Last winter was the wettest since records began. We have also had more than our fair share of warm summer weather in recent years and the average temperature for central England in the past decade has been consistently higher than the long-term average. Exceptions seem to be becoming the norm!

It is not just flooding that results from a lot of rain. Even moderate rainfall results in soil and nutrients washing from fields into streams, clogging up ditches, reducing the storage capacity of the reservoir, and reducing the quality of the water that is pumped into Rutland Water for our drinking water supply. In addition to this of course, soil is an important resource that needs to be kept in fields to support the production of our food, not just for us, but for the next generation and beyond. It is the most fundamental asset of any farm business.

We aim to improve food production while also reducing its impact on water supplies.

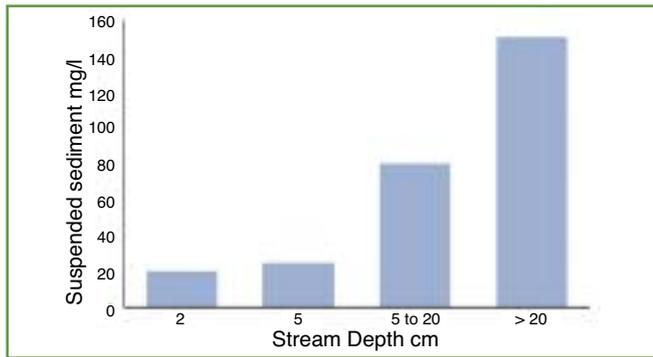
But what can be done? In the home, and when travelling, we can all do our bit to reduce the use of fossil fuels and the associated greenhouse gas emissions that contribute to climate change.

As a result of research carried out by the Allerton Project at Loddington, and by other research organisations elsewhere, we also now have a suite of land management options at our disposal to apply on farmland to reduce the movement of soil and nutrients to water. What we don't know is how much improvement there would be if we applied these in combination at the landscape scale across several farms. So, in a nationally important experiment, that is what we are doing. The project will be a valuable reality check for researchers, farmers and policy makers alike.

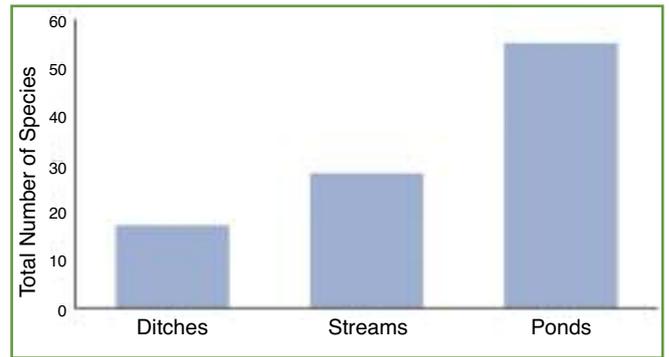


The Upper Eye Brook is one of the three agricultural headwater catchments involved in the Water Friendly Farming project.

Water Friendly Farming



Suspended sediment concentration in relation to stream depth associated with rainfall



Total number of plant species in Eye Brook ditches, streams and ponds

The Experiment

The Water Friendly Farming project covers an area of nearly 30Km², including the headwaters of the Eye Brook and neighbouring Stonton Brook, and an adjacent catchment, the Barkby Brook, which is part of the Soar river basin. The Barkby Brook forms the 'control' for the experiment, with no changes in management, while we are currently introducing a range of measures in the Eye and Stonton catchments. In the past three years, comprehensive data have been gathered at the base of each of the three catchments, and at about 250 sites across the study area. These represent a valuable baseline against which to monitor future change in response to the measures being introduced.

The aim of the project is to find out to what extent it is possible to move towards government targets for water quality by applying a range of measures at the landscape scale. Although research at Loddington and elsewhere provides evidence of the performance of individual measures,

remarkably little is known about what can be achieved if they are applied together at the landscape scale.



Water samples are collected and sent off for laboratory analysis

What are we measuring?

We are gathering detailed data on stream flow, sediment, nutrients and pesticides at the base of each of the three catchments. This provides a reliable measure of the amount and quality of the water discharged from each of the three areas of farmland. We are also carrying out less intensive monitoring of water quality in each of the small tributaries in each catchment. Then, at about 250 sites across the study area, we are surveying the aquatic invertebrates and plants in ditches, ponds and streams. Some water quality data are also available for these sites. This provides exceptionally detailed information on the variation in water quality and ecology within each of the three catchments. For example the data highlights the importance of ponds for wetland plants, and the increase in sediment in the stream when it rains. Fish have also been surveyed across thirty sites.

The loss of soil from fields is visible in the stream when it rains



Water Friendly Farming

Bringing in the changes

The project funding enables a wide range of measures to be introduced on farms that would otherwise be unable to implement them. The Barkby catchment remains unchanged, while in the Eye Brook and Stonton Brook catchment several approaches to reducing the impact of farming on water are being implemented. Having identified additional discharges of nutrients from domestic septic tanks and sewage treatment works, most notably at Tilton, we are also addressing this issues as far as possible. In the Stonton Brook catchment, additional habitat is being created for aquatic wildlife.

Ditch dams, flood water ponds and field drain interceptor ponds are designed to act as silt traps to capture sediment and nutrients once they have left fields. Surveys of soil structure result in targeted advice to farmers on soil management to prevent soil leaving fields in the first place. Mapping of variation in soil type and soil nutrients across fields enables farmers to plan their soil management and fertiliser applications according to the varying needs of different parts of the farm. These last two measures help to ensure that soils and fertilisers are managed more efficiently, with benefits to food production and farm businesses as well as to watercourses. We hope to develop this work in future. As well as improving water quality we also expect silt traps and better soil management to help reduce future flood risk in the lower catchments.



A ditch dam holds back water and traps soil washed from arable fields.



Field drain interceptor ponds have been created to trap sediment and nutrients before they enter the stream.



Poor soil structure results in reduced crop yields as well as runoff and erosion



Reducing soil disturbance improves soil structure and function

Water Friendly Farming

Less work is being done on livestock farms, but the work that has been carried out includes fencing animals away from streams, and diverting storm water away from slurry storage tanks. A waste water treatment reedbed is being reinstated for a group of eight houses, and guidance on septic tank management has been issued to the more isolated houses in the catchments. Some septic tanks have also been emptied.

Habitat creation in the Stonton Brook catchment includes creation of new ponds in sites that are not affected by agricultural inputs, and the management of existing ponds that have become overgrown and silted up. Permeable woody debris dams in woodland ditches provide new habitat for aquatic insects, while also helping to improve water quality.

The next steps

Although most are now completed, we still have some work to do to introduce various management options across the two catchments. We will be supporting farmers to continue their Environmental Stewardship agreements, when the latest changes come into force next year. We also hope to provide more support for farmers to improve the efficiency of soil and nutrient management. And of course, we will keep monitoring.

We will continue to share our results so that future catchment management policy and practice can be practically grounded as well as scientifically based. To keep abreast of developments, visit the Allerton Project research blog at www.allertonresearch.blogspot.co.uk

Acknowledgements

The widespread support and participation of farmers in this project is testament to the willingness of the local farming community to address the issues that affect the whole country, but also reflect their increasing interest in management practices that improve efficiency and secure the long term future of food production.

We are also grateful to our research partners, most notably the Freshwater Habitats Trust, and to our major funders, the Environment Agency, Chemicals Regulation Directorate, and Syngenta.



A little spade work reveals compaction problems in some arable fields



Soil sampler mounted on a quad bike

Soil map for a single field



Allerton Project eco-build visitor centre

In 2012, the Allerton Project built a new visitor centre at its research and demonstration farm at Loddington. The building seats up to 90 but can be divided into three separate rooms for smaller events. The building incorporates a well-equipped kitchen and also contains the project's new laboratory. What really marks the building out though is its environmental credentials which won the Leicestershire Property & Construction Award for 'Sustainable Building of the Year'. The visitor centre has straw bale insulation and lime render, with sheep's wool insulation in the roof. Rainwater is harvested for the toilets, and photo-voltaic panels provide electricity. Heating for the building is provided

by wood chip from the farm's own woods. The permeable parking area, and the fencing around it, are made from agricultural recycled plastics.

The visitor centre reflects the environmental ethos of the Allerton Project as a whole and is available for local community use, as well as for the on-going programme of events held by the Allerton Project itself. Contact Katy Machin on 01572 717220 or allerton@gwct.org.uk if you are interested in using this new local resource.



The visitor centre is in regular use by visiting farmers, farm advisors and others



The visitor centre under construction



The visitor centre is also used by local community groups

Local News

Welland
Rivers
Trust



Welland Valley Partnership

The Welland Rivers Trust was established in 2010 and chairs the Welland Valley Partnership, a collaboration involving partners such as the National Farmers Union, Game & Wildlife Conservation Trust, Anglers Trust, Environment Agency, Natural England, Anglian Water, Rutland County Council, Harborough District Council and others. As such it is fast becoming a prime example of effective partnership between statutory agencies, NGOs and industry.

The Partnership co-ordinates one-to-one advisory visits and workshops for farmers, and capital grants to enable them to implement measures to improve water quality. It also raises wider public awareness of issues associated with the aquatic environment, most recently the management of household septic tanks. Research carried out at Loddington, and in the Water Friendly Farming project, helps to inform these practical activities.



For more information on the Welland Valley Partnership, visit the Welland Rivers Trust website at www.wellandriverstrust.org.uk.

Our plan for the river basin and our guidance for septic tank management are available there as PDFs. You can also find details of WRT activities and volunteer to help.

Renewable Energy

Harvesting energy locally, on a small scale, without reliance on fossil fuels is key to energy security and mitigating climate change, but at the time of the last issue of The Eye it was confined to a very few wood fuel heating systems and photovoltaic panels. Now household photo-voltaic panels have proliferated, solar thermal panels have started appearing, and larger scale photo-voltaic systems are appearing in fields and on barns. The first farm scale wind turbine has been erected at Skeffington. Each of these contributes to local renewable energy generation with minimal loss of land for food production.



Field corner scale solar panels on a local farm



'The Eye' is designed and printed locally on Evolution Silk (100% recycled) paper. New native woodland has also been planted to replace the carbon dioxide emitted in the production of the paper.

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