

## Catchment Restoration Fund (CRF) Project Briefing Note

### Upper Welland water Friendly Farming Project

Water Friendly Farming Project is a multi-partner national demonstration conceived by Game & Wildlife Conservation Trust and Pond Conservation. It seeks to deliver catchment scale benefits to the rural water environment, together with new information about the practical effectiveness of the measures employed in the predominantly agricultural landscape. The project focuses on three 10 km<sup>2</sup> upper catchments, and employs a Control, Impact, Before, After (BACI) approach, where two of the three catchments will receive mitigation measures, the third will act as a control. The project aims to be both innovative and robust, and over the last 3 years has worked to develop an exceptional pre-works and modelling baseline comprising:

(1) A 2+ year detailed pre-works biological (plants and aquatic macro-invertebrates) for the three upper catchments at over 200 locations across the test and control catchments, including streams, ditches and ponds, to assess catchment level aquatic biodiversity and biological status.

(2) Intensive water quality monitoring including nutrients, sediment, pesticides and hydrometry, including (a) high-frequency automated sampling

of catchment outfalls (b) 180 landscape-wide samples to identify point source pollution for a two-year period, and (iii) bi-monthly sampling of individual tributaries.

(3) Detailed investigations to identify risk and mitigation potential, including (a) modelling to characterise catchments in terms of soils, geology, land drainage patterns and runoff risk and (b) field-by field investigation of impacts and measures required.

In the current phase of the project, we build on this base, implementing diffuse and small point source pollution measures to achieve Good Ecological Status in the two test catchments (Eye Brook and Stonton Brook), and aim to reduce downstream inputs to Eye Brook Reservoir SSSI. The project also aims to provide an important national information base on the overall effectiveness of measures to control rural diffuse pollution at the catchment scale.

### Description of Works

Diffuse pollution mitigation and physical habitat measures are being put in place to provide some of the first practical evidence of the benefits of **comprehensive** application of multiple mitigation measures to control rural diffuse and point source pollution, and other stresses. The project has strong farmer support, enabling it to implement measures systematically field by field in order to address site-specific pathways. In doing so, the project will demonstrate and evaluate the potential to move from reducing diffuse pollutants in single headwater streams to bringing whole networks of 2nd and 3rd order streams up to Good chemical and biological status, an essential prerequisite to reducing diffuse pollution at wider catchment scale.

#### Key facts

<b>River Basin District</b>	Anglian
<b>Catchments</b>	Welland
<b>Outcomes</b>	Improved chemical and ecological status of upper Welland
<b>Start Date</b>	June 2012
<b>End Date</b>	March 2015
<b>Budget</b>	£957,600
<b>Project Partners</b>	Pond Conservation, York University, Oxford Brookes University, Sheffield University, Syngenta, Welland Rivers Trust, Anglian Water

The project aims to remove phosphorus, nitrogen, sediments and pesticides from catchment waterbodies through measures specifically tailored to do so, at areas of known risk. Both trial catchments have been studied and modelled to identify pollution sources. All will be mitigated, including diffuse agricultural run-off and rural point sources. Measures to address agricultural impacts include field drain interception ponds, tramline management, streamside fencing and drinking sites, and farmyard management. Domestic sources are being addressed through improved septic tank management and a campaign to increase the use of P-free washing products. Measures for the second of the



two test catchments will also include physical habitat restoration (e.g. restoring headwaters, introducing debris dams) to evaluate whether this brings additional benefits in achieving Good status. The area over which all impacts will be mitigated (two catchments, each of 10 km<sup>2</sup>) is significantly larger than any previous project, with land owners and farmers in the trial catchment areas actively participating in the project.

## What will success look like?

**Progress towards Good status:** the primary aim of the project is to make progress towards controlling diffuse pollution, and enhancing habitat, to achieve Good status. Evaluation of existing catchment conditions suggests that it will be practically feasible to improve upper catchment waterbodies in terms of phosphorus as diffuse sources are often dominant in specific watercourses, to reduce sediment loss and reduce nitrogen inputs. As phosphorus is a primary driver of macrophytes and diatoms we expect to see stream sections improving and a proportion achieving Good status in the short term for diatoms, and the medium term for macrophytes (5 years). For invertebrates and fish, improvements on 2-5 year timescales are expected.

**Enhanced biodiversity:** We expect to see an increase in plant and invertebrate species and family richness as a result of improved water quality, and physical habitat. We also expect to see increases in fish populations, specifically Brown Trout and Bullhead. The Eye Brook is also known to support European Eel, now a declining BAP species, and improvements to the catchment will benefit the freshwater habitats available for this species. Managing existing ponds, and creating new ponds, are predicted to add considerably to the robustness and diversity of aquatic biodiversity at a landscape scale, enhancing the populations of plant and animal species that are now restricted to single sites in the catchment.

<b>About the team</b>
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