

# River Stour (Kent) Internal Drainage Board

## Review of Actions Taken to Implement the Biodiversity Action Plan

2015-2020



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## Introduction

Actions taken to implement the IDB's Biodiversity Action Plan are reviewed every 5 years. The last review was completed in 2015. This review of actions has been written in conjunction with a more general and thorough review of the BAP document itself, scheduled for every 10 years.

The IDB has worked with the Kentish Stour Countryside Partnership (KSCP) and Carol Donaldson Associates (CDA) to implement the BAP over the last 5 years.

Actions taken to achieve the objectives set out in the 2015 review are listed. These actions are then assessed, looking at where actions were successful, where more focus is required and what has been learned during the course of implementation. Finally, a set of recommendations is made and an amended list of objectives are presented.

## Objectives from 2015

In the 2015 review, work carried out against Section 1.8 and Objectives DC1-7 from the BAP were summarised. Successes and areas for improvement were identified, resulting in a set of objectives for the period 2015-2020, summarised below:

### 1 Ongoing survey work

To determine if changes to regular management practices and enhancement projects have had the desired outcomes for biodiversity. Also, to monitor changes in surrounding land management, pollution and invasive species. Surveys to be carried out before and after vegetation management.

### 2 Continue to review recommended maintenance

Review where changes to management practices have not been possible. Adjust recommendations following results of repeat surveys. Monitor and assess use of mechanical means vs manual vegetation control. Alter timing of cut to allow second broods of reed-nesting birds.

### 3 Enhance channels in unfavourable condition

Simple enhancements which can be implemented during desilting program. One-off projects, such as channel narrowing with woody debris and berm creation.

### 4 Engage with landowners and Council Biodiversity Officers

Discuss survey results with landowners where surrounding land management is causing environmental deterioration or flood risk, and hence higher management costs for IDB. Council Officers may be able to assist. Provide guidance to landowners on agri-environment schemes.

### 5 Improve tree management

Reduce excessive shading of channels by long tunnels of scrub. Address inappropriate planting by landowners close to channels already suffering low flows. Pollarding of mature willows as traditional landscape feature (partnership goal).

### 6 Improve flows

Stagnant, nutrient-enriched waters encourage domination by duckweed and algae. Higher oxygenation and lower pollution concentrations benefit fish and invertebrates.

### 7 Annual Update

Requested by the board to monitor progress.

## **Developments since 2015 which have affected delivery**

In 2019 the IDB took over responsibility for an additional 37km of watercourses from the Environment Agency in a process referred to as 'de-maining'. The main impact on BAP actions has been the concentration of summer surveying effort on new watercourses to ensure their management reaches IDB standards. The resulting increase in total length of watercourses managed by the IDB means that some existing IDB watercourses will now undergo vegetation management less than annually.

Since the last 5-year review was carried out in 2015, the contractor delivering work under the BAP has changed. KSCP carried out baseline surveying from 2010 to 2016. Resurveys and enhancement projects were delivered by Carol Donaldson Associates during 2016-2017. In 2018, KSCP recommenced delivery of surveying and enhancements.

## **Biodiversity changes**

The Eurasian Beaver *Castor fiber* is becoming increasingly widespread in East Kent and there is mounting evidence that the Eurasian Otter *Lutra lutra* has continued its spread eastwards across the country and is now present in the Stour Catchment. There are significant potential gains for biodiversity from both: beavers are a keystone species, maintaining wetland habitats which support many other specialist species, while Otters are apex predators which outcompete American Mink *Mustela vison*, with implications for water vole *Arvicola amphibious* populations. However, both species can also come into conflict with landowners due to damage to water-level control installations and effects on fisheries, respectively.

Recent high-profile studies have suggested that insects are in sharp decline in Europe, in terms of total abundance and dropping populations of specific species. Aquatic insects have recovered over recent decades, most likely due to water quality legislation. Terrestrial and flying insects continue to suffer though, with 10-year population declines estimated to be 9%. Declines have been especially sharp since 2005 and are thought to be due to habitat loss and fragmentation, pesticides and other agricultural chemical inputs, and climate change. Insects are the basis of all ecosystems, carrying out essential functions such as nutrient cycling and pollination, while also being the main food source for many higher organisms. Their decline is therefore a serious threat for biodiversity generally.

## **Work Carried out towards 2015 Objectives**

### **1 Ongoing Survey Work**

Resurveys of existing channels and surveys of channels 'de-mained' in 2019 using the same survey method as for baseline surveys, with some minor changes: use of electronic hand meter to measure conductivity as estimate of nutrient concentration, measurement of additional characteristics e.g. bank slope below water.

Channels for resurveying were chosen according to plant richness, monitoring post-desilt, post-enhancement monitoring and time since baseline survey.

IDB196 Ware Lead Dyke was surveyed for water vole ahead of culvert and bridge maintenance/installation.

At the request of the Sandwich Bay Bird Observatory, nesting bird surveys were carried out on the Delf Stream (managed by IDB on behalf of EA) ahead of vegetation management.

Records continue to be submitted to KMBRC.

## **2. Review Maintenance**

Adjustments have been made to every management sheet following annual resurveying of channels. The W3 (50% weedcut of channel width) standard had been widely prescribed following baseline surveys, but this has been found to cause issues with dominant species (mostly common reed) in some cases. The recommendation has therefore been changed to W2 (80%) where necessary. A literature search reveals that a W2 cut is especially favourable in arable ditches, where common reed will naturally dominate due to abiotic conditions and lack of grazing pressure.

New management sheets have been created following baseline surveys of several 'de-mained' channels.

The timing of the vegetation management on The Delf Stream was adjusted to allow for 2<sup>nd</sup> reed warbler broods, following consultation with the Sandwich Bay Bird Observatory.

## **3. Enhance Channels**

Two of the enhancements which can be carried out during desilting operations - pool creation at junctions and partial desilting to create shallow margins - have now become part of standard practice for all watercourses. The creation of berms is more problematic because it requires loss of land and extensive water vole surveys. They have also become largely unnecessary due to the general adoption of 50% desilting.

A programme to eradicate invasive Parrot's Feather on two connected Wade Marsh channels, IDB142 Shuart Lead and IDB114 Wademarsh Stream, is in progress. The plant is removed manually following mechanical weed cutting. Three KSCP volunteer task days have been carried out annually during Sept-Oct for the last 3 years.

IDB7 Pig Brook. A set of enhancements is in planning and implementation:

- (i) Tree planting: postponed for 2 winters due to insufficient staff time (IDB leading)
- (ii) In-channel White Clawed Crayfish habitat: wide consultation with EA and several revisions to plans due to very high sensitivity of site (KSCP leading)
- (iii) Wetland creation and enhancement: delayed due to prioritisation of projects elsewhere

IDB111 Port Rill. Installing Small and Large Woody Debris to reduce channel width, thus increasing scouring of silt to reveal gravel bed and hence improve habitat for fish. SWD also acts as refuge for small fish and aquatic invertebrates. LWD obtained from felling mature tree to improve access. Completed 2018. Engagement with local landowners and CSF officer to modify surrounding land-use causing excessive topsoil runoff and nutrient levels.

IDB25 Buxford Stream. Two projects to be completed around time of writing: (i) bank modifications on straightened section through Buxford Meadow to create sinuosity and increase

silt scour (ii) installing cattle drinks and regrading bank in areas of excessive erosion caused by livestock poaching.

IDB170 Poulders Dyke. Further work on the channel narrowing completed in 2016: plug-planting of back-filled post-and-faggot revetment by KSCP volunteers.

IDB34 Sturry Road. Planting wetland plants to improve diversity and reduction of hedge to increase light reaching channel and therefore increase herb cover.

**Partnership Projects:**

- Barn Owl nest boxes in the Lower Stour. KSCP obtained funding from National Grid (linked to Richborough Connection) to install 20 new barn owl boxes in the Lower Stour Marshes. The IDB contacted rate-paying landowners on behalf of KSCP to request locations for boxes and there was a very positive response. Boxes were installed summer 2019.
- KSCP have installed 16 mink rafts at various locations throughout the Lower Stour Marshes in an ongoing project funded by the EA. Rafts are located at Stourmouth, Ash Levels, Grove Ferry, Seaton Lakes, Minster/Monkton Marshes, St Nicholas, Wade Marsh, Reculver and Chislet, on Main Rivers and IDB watercourses. Rafts are monitored by IDB staff, landowners and KSCP. Mink signs have been reported at 8 of these site sites since 2018. Mink are probably the main threat to water vole in the Lower Stour Marshes, which is a nationally important area for this protected species.
- Matthews Close – KSCP carried out bank reprofiling, removal of a wall and pool creation on an urban channel which is now managed by the IDB on behalf of Dover District Council .
- IDB 304 South Stream and IDB 305 North Stream. Prior to de-maining, KSCP installed fencing and cattle drinks on the North and South Streams to reduce poaching. Funded by EA.
- IDB193 Rubery Drove. Crassula treatment by repeated herbicide spraying (KSCP)
- IDB 308 Lampen Stream. The IDB, KSCP, NE, EA and adjacent landowners are collaborating to improve the channel for fish and reduce nutrients entering Stodmarsh NNR. Still in its early stages, the project will involve water quality monitoring and changes to surrounding land management.
- KSCP's White Clawed Crayfish Strategy for East Kent is currently under development. This project will involve habitat management, species reintroductions, monitoring and landowner engagement on several watercourses suitable for WCC, including some managed by the IDB.
- The RSPB have undertaken a large-scale project at their Lydden Valley Reserve near Worth. It involves the creation of a mosaic of wetland habitats such as grazing marsh and reedbed and required the redirection of an IDB channel around the edge of the reserve.

**4. Engage with Landowners and Council Officers**

KSCP engaged with Ashford Borough Council officers over proposals for river restoration on Buxford Stream at council owned Buxford Meadow. A long-standing relationship between KSCP and Godinton Estate helped to facilitate tree management (see below) and cattle drink installation.

Beavers are becoming increasingly widespread in East Kent and the IDB are members of the East Kent Beaver Advisory Group alongside Kent Wildlife Trust, the EA and others.

There has been some engagement with landowners following surveys of channels to point out where changes to land management could improve channel ecology.

### ***Partnership Projects***

KSCP officers have so far delivered six talks to landowners funded by the Our Stour Project over the last 3 years. Topics have included ditch vegetation management for wildlife, American mink, and water quality issues.

## **5. Tree Management**

Flailing of hedge causing 'tunnel' effect on IDB25 Buxford Stream at Godinton Estate. Crown reduction of mature trees shading IDB2 Pumping Station Dyke.

### ***Partnership Projects:***

- IDB staff advised landowners adjacent to IDB25 on their responsibilities regarding flood risk from fallen trees. The owners subsequently decided to partially remove a row of Leylandii which were causing heavy shading on the watercourse.
- Mature willows on Buxford Stream near the railway line have been pollarded by the Godinton Estate. KSCP made suggestion to Godinton Estate about coppicing along edge of willow bed to reduce shading and felling was subsequently carried out by the Estate with help from KSCP volunteers.

## **6. Improve Flows**

Watercourse management sheets include instructions to flush channels which suffer from blankets of duck- and gutweed and this is carried out wherever possible by IDB staff to improve oxygenation and in-channel plant/invertebrate diversity.

***Partnership Project:*** KCC Flooding and Water Management Team are currently setting up a trial scheme to allow trading of surplus volumes from abstraction licenses.

## **7. Annual Update**

Presentations were made at each autumn board meeting. Monthly written work summaries were provided.

## **Partnership Actions 2010 to present**

In the 2015 Review of Actions, it was recommended that a thorough review of Partnership Actions should be carried out covering the 10 years since the creation of the BAP. Time constraints have meant that only a limited review has been possible. Partnership Actions from the last 5 years are listed above, under the relevant section. Other significant partner projects since 2010 are listed below:

Shining Ramshorn Snail Survey – carried out by KWT in 2012, covering Main Rivers, IDB channels and OWCs of the Lower Stour Marshes. BAP Code: SR4.1, SR4.2

Biodiversity Opportunity Areas and Kent Habitat Survey 2012 – published online by the Kent Nature Partnership. BAP Code: FW4.1

Wetland creation in the Lower Stour – various schemes along both sides of the Stour on Minster/Monkton Marshes and Ash Levels. Private landowners have created scrapes and put land into conservation grazing, with support from NE and EA. BAP Code: FW4.2

Plant surveys – County Recorder Sue Buckingham carried out surveys of botanically diverse IDB channels in 2014. BAP Code: VP5.1

## **Evaluation of work carried out against Objectives**

### **Successes**

Routine maintenance operations as specified in individual Management Sheets continue to be carried out to a high standard. These management changes bring many benefits for wildlife, including more emergent vegetation, more habitat for aquatic invertebrates, greater in-channel plant diversity and maintenance of bank plant diversity. Measures taken will benefit many of the species covered by SAPs, such as dragonflies and water vole.

Several one-off enhancement projects have been carried out, funded directly by the IDB, and valuable experience has been gained by staff. This experience is being applied to projects currently underway.

Surveying has been carried out each summer, including to monitor the effects of management changes. Modifications to management continue to be made, following learning gained from experience and from research literature.

Several Partner Projects have been carried out by KSCP with support from the IDB which have the potential for significant contributions to BAP Priority Species Objectives, such as Barn Owls, White-Clawed Crayfish and Water Vole. KSCP are now involved in several overlapping areas of concern for the IDB and are in a good position to provide expert input e.g. Natural Flood Management, sustainable farming practices, facilitation funds, White-clawed Crayfish.

KSCP were able to bring the IDB together with KCC's Flooding and Water Management Team to trial a new abstraction trading scheme. This came about as a result of KSCP's involvement in the ProWater project, which aims to increase recharge of aquifers for drinking water.

### **Where more work is needed**

As part of the BAP process, the start of annual vegetation management was changed from June, for the earliest cuts, to mid-July to benefit nesting birds. Further network-wide delays to weed cutting are not possible due to the requirement to maintain the core drainage function of channels. However, it may be possible to delay management operations on specific channels where operational considerations allow.

Maintaining flows and water levels will become an ever-greater challenge throughout the region due to climate change and new housing developments. Solutions will require partnership working and the IDB are well-positioned to link farmers and other landowners with sources of funding to modify their own land management.

More time could be spent on engaging with landowners over issues identified during surveying. Timing of engagement should ideally be soon after surveys but surveying broadly coincides with crop harvesting so farmers may be unavailable. The mowing of banks by landowners left uncut for biodiversity aims is an issue in some areas. Councils have been going through an intense period of change brought on by severe reductions in funding, so it has been unrealistic to enlist officers in helping to effect change in land management.

Tree work to reduce shading is recommended for several watercourses, mostly in the Ashford Area. This work is carried out within the general tree work budget, so is completed when budget allows.

## What has been learned

### Survey method:

- Some aspects of the survey are subjective and open to interpretation – particularly estimation of DAFORN scale e (Dominant, Abundant, Frequent, Occasional, Rare and None) and the level to which plant species are distinguished (due to time constraints). This may cause inconsistency between data from different surveyors.
- The breadth of work expected from ecological consultants and timescale of projects means that any contract for BAP actions needs to be long-running and/or better documented.
- The suitability of one-off measurements of nutrient levels to assess water quality is questionable; different survey methods would give a more accurate picture but would also be more time-consuming.

### Choice of correct enhancement technique for channel conditions:

- IDB170 South Poulders Dyke – plant growth has been limited due to shading.
- IDB111 Port Rill – small and large woody debris (SWD/LWD) may not be sufficient to produce scouring given the scale of silt input. Efforts may be better directed at the source of inputs i.e. by influencing adjoining land management. SWD has been difficult to spot during annual operations and so some has been destroyed, with risk of damage to equipment.
- IDB34 Sturry Road Dyke – plug plants have been mown over by riparian owner and there has been no assessment of effect of hedge reduction. Proximity to a very busy existing road and proposed route of the new Sturry bypass probably makes this channel a lower priority.
- IDBs 303 & 304 North & South Streams – fencing and cattle drinks (Partner Project) – despite an agreement to do so, fencing was not maintained by the grazier or landowner and so was destroyed by cattle. Installation of fence line on richly vegetated dredged silt led to shorting of electric fence.
- IDB114 Wade Marsh Parrot's Feather - three years of clearance is having an impact but review of the project may be required, with better measures taken to prevent recolonization of cleared stretches and alternative/complementary approaches considered. Parrot's Feather is a notoriously difficult species to eliminate.

Engaging with external partner organisations helps to identify, prioritise and design appropriate enhancement projects e.g. with EA officers at Buxford Stream.

Wider visibility and understanding of the IDB's role are still reasonably low. Partnership projects rely on external organisations being aware of the IDB's operations and successes.

Operational limitations (access, machinery) mean regular maintenance operations can diverge from prescriptions. For example, 'Alternating Bank Cut' (M5) often becomes 'cut same bank each year' – the resulting scrub development on the uncut bank may help to prevent spray drift in some cases, but at the cost of losing plant diversity.

A 50% Weed Cut (W3) should mostly be avoided in arable drainage ditches with steep banks and little flow, due to the likelihood that Common Reed will dominate.

A scalloping desilt (ADA CL1) does not work in low-lying marsh ditches lacking flow as the remaining silt banks collapse.

## **Recommendations for future work**

**Changes to Survey Method** – Add guidance on hard-to-distinguish plants and animals which only have to be identified to genus/family level. More detail on using DAFOR(N) scale. Reassessment of water quality measurements, including replacement of separate nitrate/phosphate tests by conductivity, occasional use of aquatic invertebrate surveys on high value watercourses, especially pre- and post-enhancement. Evaluation of other parameters currently measured e.g. ‘Tangledness’.

**Allocation of time** – Better focussing of surveys. Assessment of survey requirements in light of new BAP guidelines from ADA requiring more quantitative data. Pre- and post-enhancement project surveys need not be full BAP surveys, but targeted at project outcomes e.g. silt scouring, juvenile fish.

**Targeting reductions in regular management** - Use ecological assessments of drainage channels to assess which channels would benefit most, or suffer least, from reduced management following demaining project.

**Improving Flows and Maintaining Water Levels** - Opportunities to flush certain channels to improve oxygenation, reduce salinity and remove smothering blankets of algae or duckweed have been identified. Biodiversity in arable ditches benefit from higher and more stable water levels, together with wetting of side channels. Influencing farmers to reduce abstraction is a substantial task requiring suitable mechanisms to be identified – most likely achieved through forthcoming ELM measures.

**Annual Maintenance Schedule** – Delaying cutting times to late summer/early autumn to allow reed-nesting birds to raise second broods is highly problematic for practical reasons, as noted in BAP. Identify a set of sites where most benefit could be brought through manageable changes in the cutting programme. Management prescriptions have now been in place for a minimum of 5 years on all WCs so adherence to these prescriptions by operators needs to be checked periodically.

**Maintenance recommendations** - A W3 (50%) weed cut should be used sparingly in low-lying arable ditches lacking gradient. Scalloping desilt should only be used where there is flow and where vegetation growth is naturally creating a meandering channel. Management recommendations should continue to be reassessed following periodic repeat surveys.

**Targeting enhancements** – Develop a system for prioritising channels based on current ecological condition, potential for improvement and proximity to other high-quality habitats. Better choice of intervention will come from wider consultation and from gaining further experience in implementation.

**Best Practice** - Keep apprised of current recommendations for ditch maintenance through published literature and training. Technology for surveying, data recording and transfer could enable greater efficiency. Such technology continues to become more widely available, easier to use and more affordable e.g. handheld meters with data storage, iRecord.

**Engaging with landowners** - especially in tackling problems at source. More use of other overlapping projects: District Level Licensing for Great Crested Newt ponds, Natural Flood Management, Catchment Sensitive Farming. Engage with landowners soon after surveys but allow for farmers’ busy seasons. Landowners other than farmers could be contacted immediately after surveys. Projects such as the ‘Our Stour’ talks can be used to identify sympathetic land managers to focus further engagement activities.

**Visibility** - Continue working to improve wider awareness of the work the IDB is doing, both in its core role and work to improve biodiversity.

**Tree planting** - on watercourses where shade is lacking and where it will not interfere with access for weed-cutting operations. Focus on areas where there is most benefit for birds and invertebrates e.g. close to designated sites

**Major Invasive Non-Native Species Project** - aim to eradicate invasive species in the catchment, especially Azolla, starting in isolated systems such as Hacklinge Marshes. Requires feasibility study, mapping of current extent and coverage, working with external partners and attracting funding.

## Updated Objectives for 2020-2025

### 1. Surveys

Concentrate on baseline surveys of 'de-mained' channels and, if time allows, channels where enhancement projects have been carried out, where significant management changes have been introduced, or channels with high plant diversity.

### 2. Review Management

Create new Management Sheets for de-mained channels, covering regular maintenance operations and one-off enhancement projects.

### 3. Enhance Channels

Create new system for prioritising channels for enhancement projects. Identify, plan and carry out suitable projects.

### 4. Engage with External Bodies: Council Officers, Landowners, partner organisations

Many of the largest factors in IDB channel health are beyond the direct control of the IDB. However, the IDB can advise others and link organisations to carry out projects to improve the environmental condition of channels.

### 5. Tree Management

Continue working to manage trees and scrub to reduce overly shaded channels. Seek opportunities to plant trees where they are severely lacking to provide shade and improve habitat for birds and insects.

### 6. Improve Flows and Maintain Water Levels

Wherever possible, ensure that landowners are aware of the importance of maintaining water levels in channels. Identify funding mechanisms and assist partner projects to aid landowners in achieving this.

### 7. Communication

Continue to produce quarterly updates and an annual report for the Board. Look for further opportunities to promote the IDB's work to improve biodiversity throughout its network.

## Summary

A great deal of work has been carried out against the BAP objectives, including resurveys of watercourses and baseline surveys of demained channels. Enhancement projects on several channels have been completed, while more are currently taking place. Invasive species management is ongoing at Wademarsh Stream and Shuart Lead Dyke.

Several significant partnership projects have taken place or are in progress which directly benefit IDB channel biodiversity and water quality.

During the preparation of this review, ADA released new BAP guidelines and a template. The IDB have decided to adopt the new format. Material will be copied from the old format into the new, with changes made reflecting the updated guidance.

It is possible that wider changes in national conservation-related legislation - including Brexit, an environmental bill, an agricultural bill, ELM – will start to have an impact during the coming 5-year period. Payments to farmers are likely to be based entirely on land management benefitting biodiversity and ecosystem services.