North Walsham & Dilham Canal Trust CIO

Mitigation and Compensatory Group - Report for 2020

March 2021















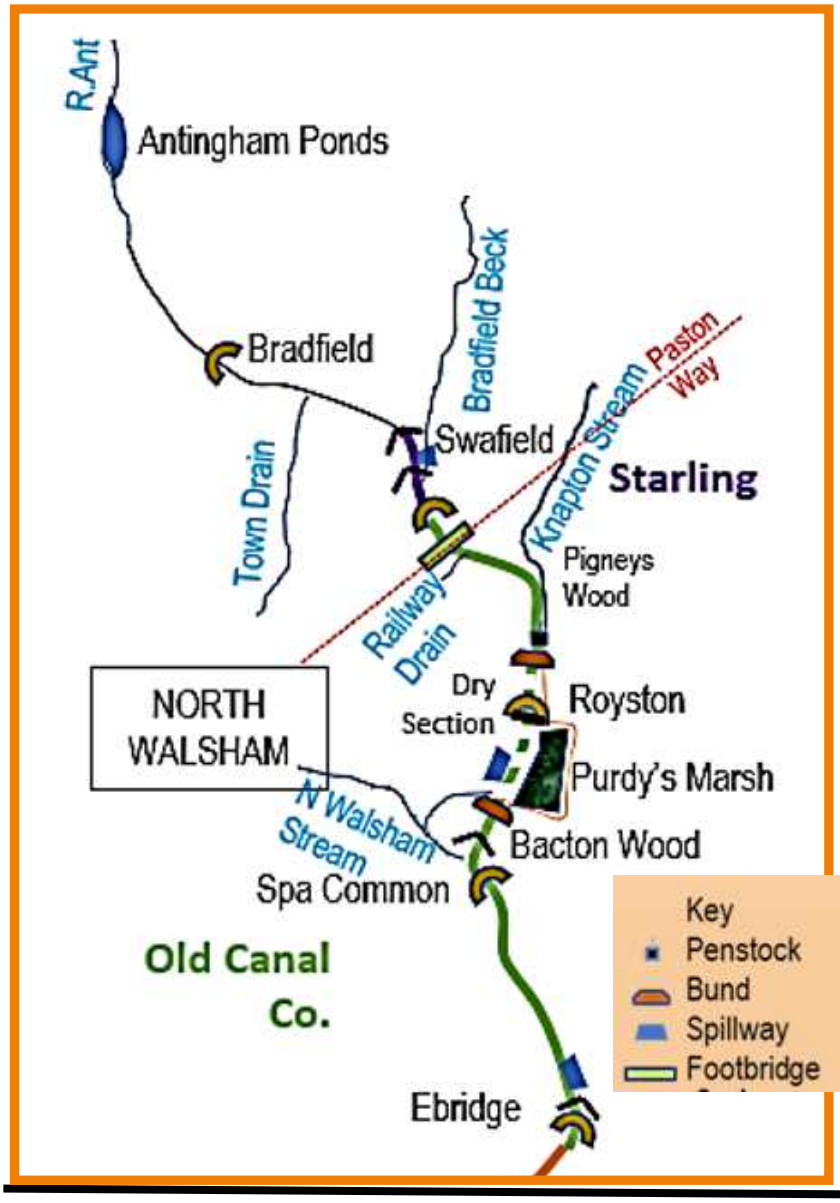


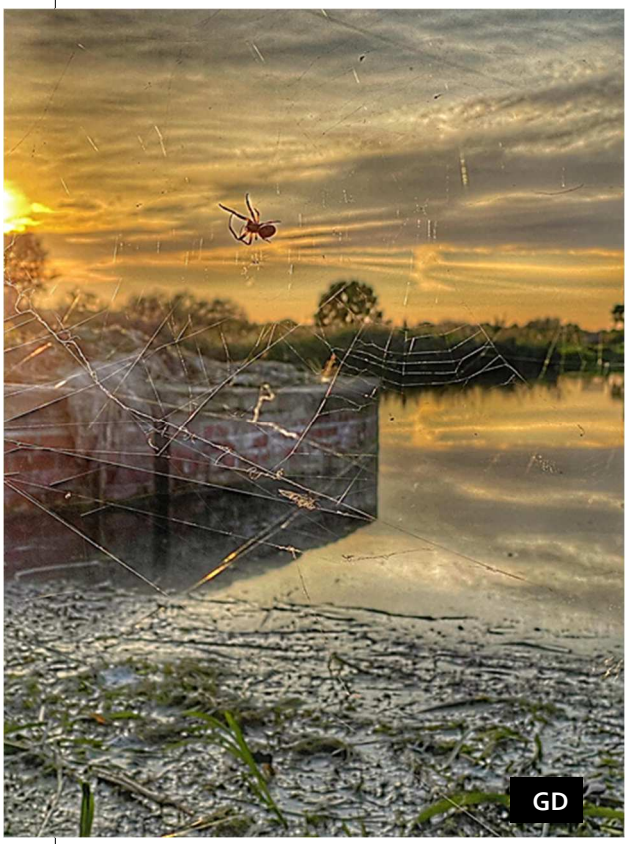




Covering that section owned by the Old Canal Company Ltd. (OCC) which runs from Swafield Road Bridge to 20m below Ebridge Lock No. 3.

Contents





With Thanks to:

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Introduction
Ivan Cane

Throughout the country, the pandemic has affected Canal Trusts in two particular ways. On the one hand, it emphasises the importance of waterways restoration societies' work to create and open up green and blue corridors, ones that can be used by the local communities; on the other, these societies have suffered from a lack of fundraising opportunities, seeking to address the maintenance needs of waterway stretches and to continue their restoration.

"...the pandemic has shown the value of the Canal's restoration..."

This has been reflected on the North Walsham and Dilham Canal, where the pandemic has shown the value of the Canal's restoration for the improved health and well-being of the local community through opportunities for exercise and recreation. The number of people using the Canal's environs, both on the Old Canal Company's (OCC) stretch and elsewhere, has increased appreciably throughout the year. Walkers, anglers, bikers, birders, picnickers, photographers, artists - and those just looking to sit by the water and enjoy the magnificent sunsets - have all benefited this year. On the water, the number of kayakers, model boaters, canoeists and paddleboarders has risen (especially the latter group, not seen on the Canal a couple of years ago). During the hot summer, youngsters were once again seen jumping and swimming at Ebridge Pond, just as their grandparents did. The Canal has likewise attracted more serious wild swimmers. Amongst the Canal's virtues, they say, is that everyone is friendly and works around one another, whether fishing, model boating, paddling or trip-boating. These swimmers are not confined to their summer adventures, going in as they also have over the Christmas period. (Section 9)

By Stephen Roper 2021

Ebridge Sept 20 GD

All this use of the Canal's waters and banks has come at a price. The curtailing of aquatic plant growth has been necessary, not only for the anglers and boats, but also to ensure the swimmers are safe. The wear and tear symptomatic of greater footfall has merited some reinforcement of the bank, especially at the dog and deer slides into the water. Car parking areas have also suffered from erosion, with some sections being fenced off. All of this has made considerable demands of the Canal Trust's maintenance teams. Despite that, the two-and-a-half miles of the OCC's Canal has continued to be a rich haven for wildlife and the natural environment, and continues to play its part as a valuable heritage asset to North Norfolk.

Ebridge Sept 20 GD

The Sunday and Thursday fortnightly work parties, and the more *ad hoc* restoration project groups, are usually busy throughout the year. These past twelve months, the lockdowns have significantly reduced the number of available dates for maintenance and restoration; more-

over, when the restrictions were lifted, the added complications of abiding by social distancing and the Trust's COVID guidelines - which limit the group sizes to six - compounded the difficulties of prioritising and managing volunteers. Despite this, as the Conservation Area Management Plan Year End report (Section 1) shows, the teams managed to complete an effective programme of work. The effects of these restrictions on the volunteers - and which must be borne in mind - include being unable to undertake work they love; the loss of the social dynamic of working as a team; the camaraderie of the work party day. Volunteering is good for the team's mental and physical health.

Ebridge Oct 2020 AB

"Volunteering is good for the team's mental and physical health."

The aquatic plant management has also continued throughout the pandemic, following the Broads Authority Environment Standard Operating Procedure 1 (ESOP1), and despite the problems caused by the substantial growth of both Elodea and Pithophora. The Trust's small team, working with *Weedeater*, has undertaken essential tasks during the year to keep the channel clear for the Canal's many users. By selective edge cutting, reed growth has been allowed to remain, letting silt be trapped and with the desired shelves at the edge starting to form on previously steep banks. (Section 2). On the Lower Canal, East Ruston Branch and the River Ant down to Stalham, floating pennywort was discovered in the late summer. This highly invasive alien plant has been found elsewhere on the Broads, and the various authorities have formed a consortium to draw up a management plan designed to lessen the further spread of the plant. On the OCC section, "Check, Clean, Dry" instruction notices have been exhibited with a view to issuing leaflets to users during the coming year, duly bringing their attention to the CCD campaign. (Section 4)

Weedeater Aug 20 GP

Plant surveying has continued along the Canal and environs throughout the year, and some twenty new taxa have been found. Some of these are very unusual, leading the Trust's Wildlife Officer to write an article for the prestigious Botanical Society of Britain & Ireland's (BSBI) newsletter on the adventives and aliens discoveries(Section 3). The Trust is also looking to compare this Canal's flora with that found at other restoration sites across the country.

Ebridge Sept Glennis Dillon

Just as elsewhere in the country, angling has been an allowable "exercise" during the pandemic, leading to increased numbers enjoying the family fishing opportunities on the Canal. This, in turn, has led to one of the best fishing seasons recorded in recent times. The specimen catches evidence the thriving ecosystem enabled

by the restoration of the Ebridge Reach over the past decade (Section 7), made even more remarkable by the fact that all fish have arrived by natural means. However, the continued ingress of silt from the North Walsham Stream below Bacton Wood Lock continues to affect the water quality of the upper reach. Regrettably, our colleagues undertaking the invertebrate surveys - ones that had highlighted the problems in 2018/19 - were held back from operating this year because of COVID. Similarly, the Trust was unable to undertake such extensive dissolved oxygen measurements as had been planned.

14lb 4oz pike TW.

Equally, the Trust has been unable to carry out full fauna and ornithological surveys during the year, depending instead upon the sightings and images discussed and featured on the Trust's Facebook page, in a bid to illustrate the Canal corridor's diversity. Over seventy species of birds have been sighted, from the Blythe's reed warbler - which attracted the twitchers - to the resident swans. (Section 6). Fauna have included foxes, deer, otters and water voles. Similarly, no detailed entomological or amphibian study has been carried out during the last year, although many varieties have been photographed along the Canal's corridor.

"This ingress continues to threaten the hopes of water quality improvement …"

The main compensatory areas for the Canal remain Purdy's Marsh, with its side-stream, along with the corner pond north of Royston Bridge and the feeder streams. COVID limitations on the voluntary work parties have meant that some of the intended projects, such as building further turf ponds, have been cancelled. However, experimental clearances of the second quarter section - with two differing methods of mechanical cutting - were undertaken. The annual Himalayan Balsam "bashing" was completed at the same time. The soke from the penstock to the Royston Bridge corner had become so blocked that the bank was being compromised by erosion during a period of higher water, and some clearances were created to allow flow over the gravel bed (probably the first for several decades). Ironically, the Trust concentrates much effort on these streams, the clear waters of which leave their jurisdiction, pass under the Canal at the south of the Marsh, only then - polluted and silt-laden - to rejoin the Canal below Bacton Wood Lock. This ingress continues to threaten the hopes of water quality improvement on the Ebridge Reach, which is expected under the WFD. However, no agency seems willing to take responsibility for the problem. The Trust continues to push for the building of siltation ponds, to help alleviate this problem (Section 8).

Purdy's Marsh July 2020 AB

Kevin Howard Feb 2021

Section 1 - Conservation Area Management Plan Year End Report 2020.

Mark Shopland

Bank Repairs . July . AB

"What has been very rewarding have been the positive comments of the general public "

Re-seeding Oct 20 AB

1 - Introduction

This document summarises the activities of the NW&DCT in mitigating the adverse effects of their restoration activities during 2020. This includes efforts to encourage indigenous species and protect those rare species that we already have; re-invigorate marshland and remove invasive species; improve water quality and develop ecology/conservation areas; whilst also improving the overall appearance and increasing the number of pollinators. It also identifies those external factors which are beyond our control and that adversely affect the hydromorphology of the area.

With the restrictions placed on us by the Covid-19 Pandemic, it has been a challenging year and at the time of writing we are entering our third lockdown period where nothing other than emergency maintenance work can be carried out. In spite of this the majority of our programme has been effectively completed due to the diligence and enthusiasm of our volunteers. What has been very rewarding have been the positive comments of the general public with the canal corridor becoming very heavily utilised both for recreation and exercise throughout these periods.

2 – Bank Tops - General

The tops were regularly mown throughout the year to keep them safe and tidy. Problems were encountered with the flail coupling to the tractor being of a non-standard design resulting in two failures. New Kubota levelling arms and link arm adjusters have been ordered and should be fitted early in the New Year which is expected to solve this problem.

3 – Bank Sides - General

We were less successful with the use of the oscillating cutter mainly due the limitations placed on us by COVID-19 but did manage several cuts in Purdy's Meadow and one cut from Spa Common to Ebridge but with the loss of three cutter teeth. Spares have been sourced and the scythe will be repaired as soon as is possible. A lot of care is needed by the operative to balance the movement of the tractor with that of the cutter bar to avoid the cutter 'digging in'.

Several work party days were utilised tidying the drain on the eastern side of the canal from the penstock, North of Royston Bridge, through the eastern side of Purdy's marsh and down to the dual culvert running under the canal at this point. At the top end several decades of neglect was leading to erosion under the Canal bank during times of high water levels, which required work to the IDB's standard, whereas alongside the Marsh a general tidy enabled a degree of habitat heterogeneity was more suited to the marsh environment.

With the help of the owner one of the culverts was repositioned to improve its flow and the drain up to the Royston spillway was also cleared ready for re-watering.

Additionally self seeded saplings were removed from the Spa Common basin, the Western frontage below Spa Common and the stretch from Swafield Bridge up to Swafield Locks. Dead and rotting vegetation was also removed from these drains so as to improve water quality.

The Norfolk Rivers Drainage Board (NRIDB) routinely clear the drains (1213, 1214, 1215 & 1216) in accordance with their map of Catchment Area 013G – North Walsham & Dilham Canal and they have been asked to clear 1214 in particular in the early New Year.

4 – Special Conservation Areas

There are a number of areas which received special treatment:

4.1 Pigney's Wood Entrance where there is a wide swath of meadow-like area between the canal-side path and the fenced entrance. This was cut with a rotary brush cutter and the arisings raked off for later disposal.

4.2 Purdy's Marsh where an experimental four year cycle of reed cutting has been introduced to re-establish a healthy reed bed. We were able to use a Mini-Digger fitted with an oscillating scythe attachment to both cut and rake off (stilled cutter bar acting as a rake) and compare it with an oscillating scythe fitted to the tractor whose arisings then had to be raked off by hand. Both methods worked well but the results from the Mini-Digger showed a more vigorous re-growth of reed, probably because the raking off was more comprehensive.

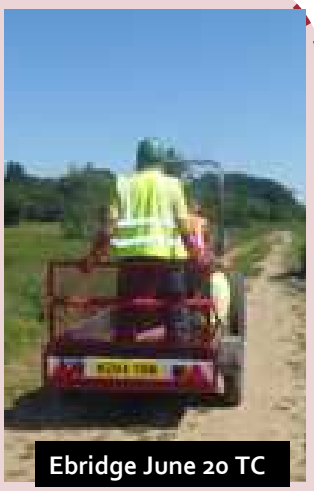
4.3 Re-built Canal Tops where sandy soil from a different area has been used. The addition of a wildflower meadow mixture of seeds for a dry loam was expected to prove beneficial, by increasing the floristic value and the number of pollinators. Unfortunately due to possible future bank raising any seeding this year was thought to be premature.

4.4 Mini-nature reserve and corner pond, NE of Royston Bridge, has now had the good bank clearance requested courtesy of the IDB and our volunteers. This area will need regular monitoring.

5 Pollution Incidents

5.1 Spa Common Basin – This basin has silted up dramatically over the last few years so much as to limit navigation to all but the shallowest draft vessels. It appears to be coming from the North Walsham Stream, which runs into the basin and because of its pitch black colour is assumed to be a mixture of asphalt and tyre debris from road run off. It has been suggested that a silt trap might be constructed on the adjoining land here to solve this problem.

5.2 Paston Way Footbridge – Sandy deposits continue to issue from the drain pipe adjacent to the Paston Way footbridge over the canal and have built up a significant sandbar at this point.



Ebridge June 20 TC

6. 2020 Monthly Work Programme

MOWN SECTIONS (Regular)	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ebridge Pound			T/F	T/F	T/F	T/F	T/F	T/F	Osc	T/F	
Ebridge West Car Park (550m²)		R/S	T/F	T/F	T/F	T/F	T/F	T/F	Osc	T/F	
Ebridge West Footpath			T/F	T/F	T/F	T/F	T/F	T/F	Osc	T/F	
Bacton Lock/Spillway West			T/F	T/F	T/F	T/F	T/F	T/F	Osc	T/F	
Royston/Paston Way West (2452m²)		R/S	T/F	T/F	T/F	T/F	T/F	T/F	Osc	T/F	
Little London Footpath			H		H		H		H		
Paston Way/Swafield West					H	H			H	H	
Ebridge East Car Park (500m²)		R/S	T/F	T/F	T/F	T/F	T/F	T/F	T/F	T/F	
Ebridge /Bacton Lock East (944m²)		R/S	T/F	T/F	T/F	T/F	T/F	T/F	R/S	T/F	
Bacton Lock/Royston East (1292m²)		R/SO	T/F	T/F	T/F	T/F	T/F	Osc	T/F	T/F	
Royston/Paston Way East (2500m²)		R/S	T/F	T/F	T/F	T/F	T/F	Osc	T/F	T/F	
Paston Way/ Swafield East	T/F		T/F	T/F	T/F	T/F	T/F	T/F	T/F	T/F	
Royston Bridge Car Park (800m²)		R/S	T/F	T/F	T/F	T/F	T/F	Osc	T/F	T/F	
CONSERVATION CUT (Single)											
Ebridge Culvert Entrance	H	H	H					H	H	H	H
H-Purdy's Marsh Section	Osc	Osc				Osc	Osc	Osc	Osc	Osc	Osc
Pigney's Wood Entrance	Osc	Osc	Osc					Osc	Osc	Osc	Osc

T/F = Tractor/Flail
Osc = Tractor/Scythe
H = By hand (using a Mower or Brush Cutter)
R/S = Re-seeding (Sand coloured paths on the maps.). R/SO = Overseeding partially grown area.

Canal Walk Oct 20 AB

Cutting can take place during any month marked in green.

XXX = One or more work days spent on site.

Where no activity has taken place it means the area is under active restoration.

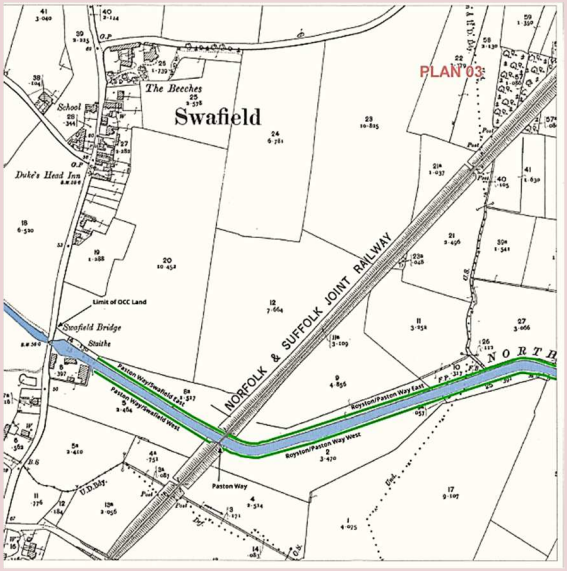
Only one area of Canal Top was reseeded, this was a 250 metre length that had recently been rebuilt on the Eastern side from Ebridge towards Bacton Wood lock. We used a General Purpose Landscape mix of 2/3rd Amenity Ryegrass and 1/3rd Strong Fescue which was purchased from www.thegrassseedstore.co.uk and sown at 35gms/m²

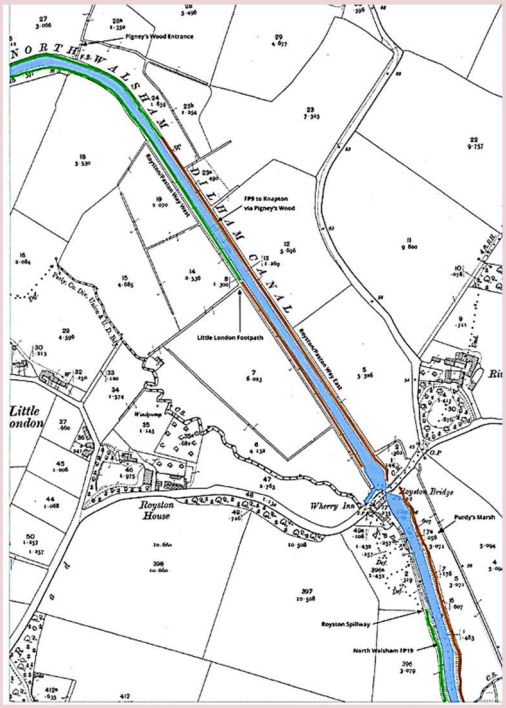
The Seasonal Sensitivity of the various cutting regimes is taken from John Pomfret's paper 'Wildlife Conservation' written for the Inland Waterways Association (IWA). A copy of the appropriate table is shown below.

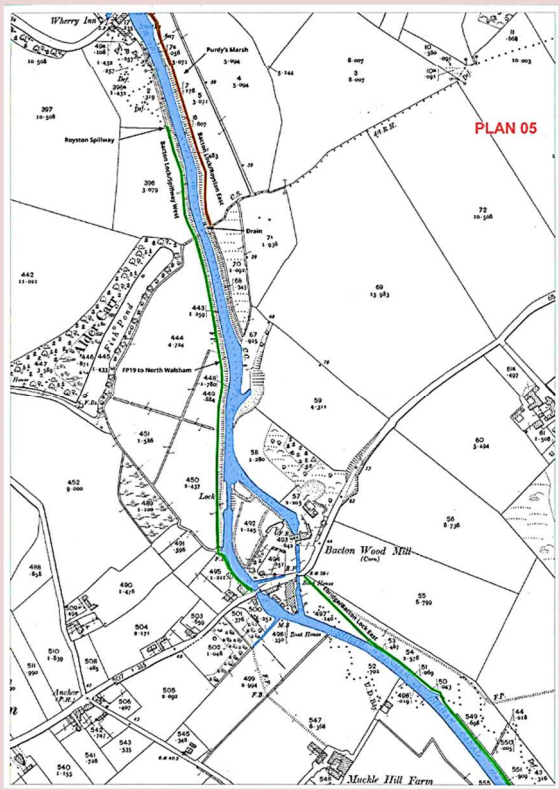
"The Seasonal Sensitivity of the various cutting regimes"

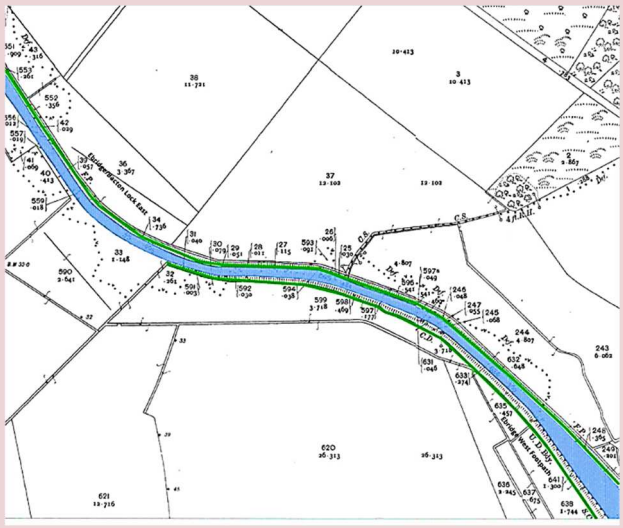
Activity	Seasonal sensitivity	Restriction
Scrub-bashing, tree felling, hedge cutting	Avoid the bird nesting season	AVOID: April to June
Hedge, shrub or tree planting	Select seasons for best survival rate	SELECT: October to November or February to March
Reed-beds	Avoid the bird nesting season	AVOID: April to June
Marginal reed cutting	Avoid the main growing season	SELECT: September to March
Reservoirs and tidal waterways	Avoid the bird nesting season and winter populations of migrant wading birds	SELECT: August to October
Mowing rough grass	Avoid mowing in late spring and summer to allow plants to flower and set seed.	AVOID: May to August
Dewatering where the plant community is of interest	Work in autumn or early winter, after plants have died back but before severe frosts	AVOID: May to August
Dredging/work on margins or in narrow waterways	Avoid fish breeding and bird nesting seasons but it may also be desirable to avoid winter when areas of plant interest may not be visible	AVOID: (December** to) March to July
Aquatic weed clearance by cutting and removal	Cut when growth is well developed	SELECT: July to November
Aquatic weed clearance by use of herbicide (contact type)	Will only be effective if applied during active growth when foliage is reasonably developed (EA must be consulted; Pesticides Regulations apply)	SELECT: May to July
Reed planting	Plant during growing season	SELECT: April to September
Work affecting bat hibernacula	Avoid winter hibernation period	AVOID: October to March

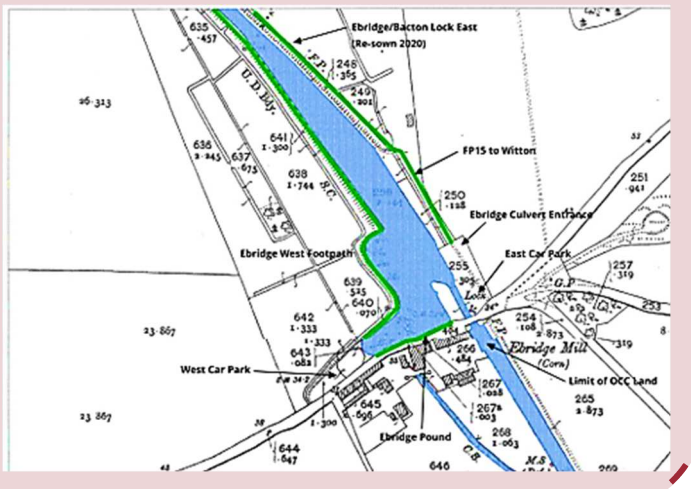
The following maps indicate the areas of the canal to be maintained (paths in green and sand) and where the removal of the two bunds, one above Bacton Wood locks and the other above Royston Bridge prior to re-watering, may prove problematic for both public and maintenance access.











SECTION 2 -AQUATIC PLANT MANAGEMENT REPORT

GRAHAM PRESSMAN

Last summer, the significant growth of both Elodea and Pithophora led to *Weedeater's* team spending up to four days a week cutting weed on the Ebridge pound, during the growing season. No cuts were made outside of season. The Broads Authority Environment Standard Operating Procedure 1 (ESOP1 - below) was the basis of the work undertaken.

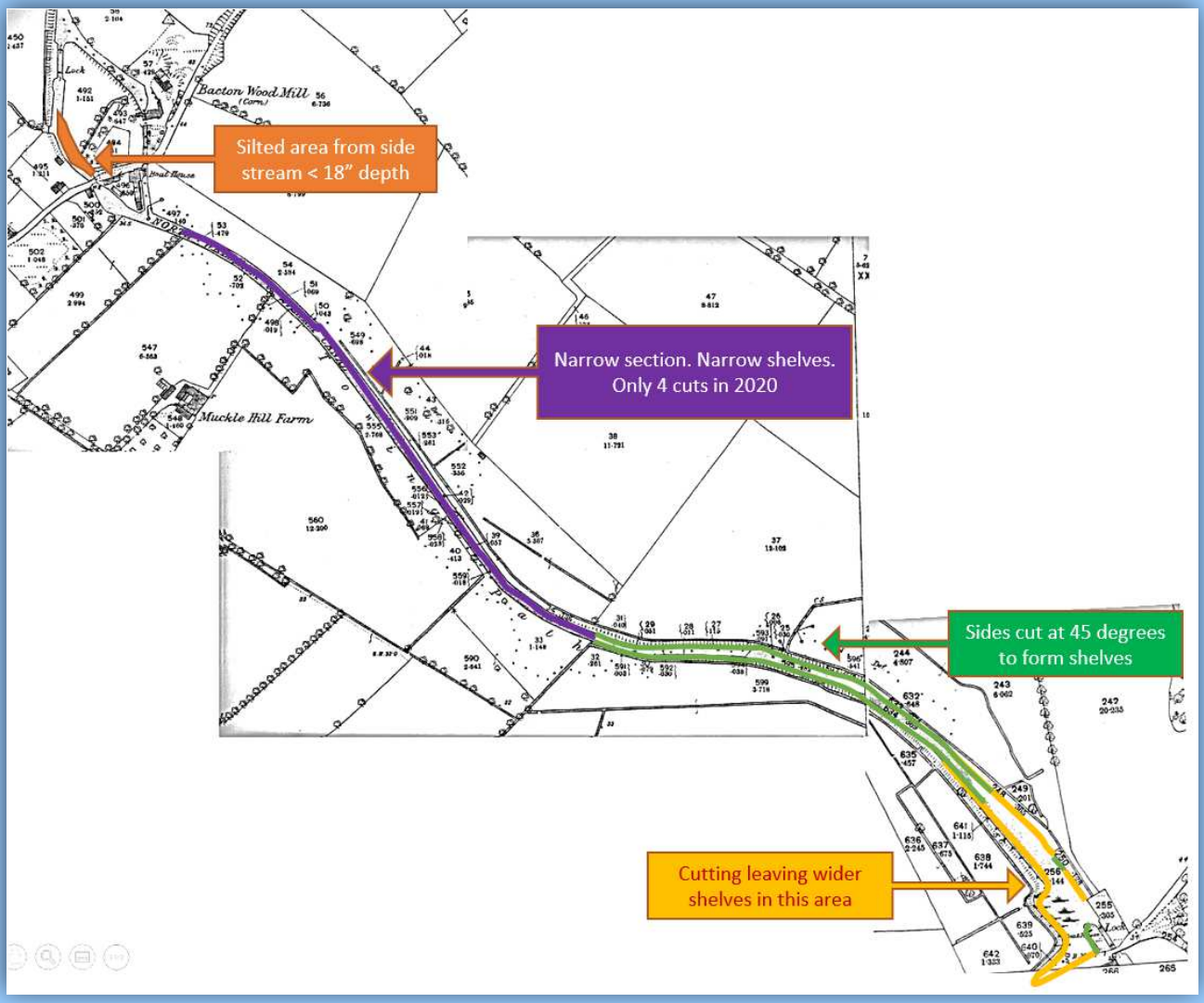
Procedures
Follow ESOP 1 Cutting Water Plants
Key information: A minimum cutting height of 1' above canal bed; and A minimum 2' of uncut margins when channel is <20' wide. A minimum 3'3" of uncut margins where channel is >20' wide. A minimum of uncut margins from bank of 6'6" when channel is >40' wide Monitor water depth quarterly. Cutting should proceed with caution if water depth is <3' and should not proceed if water depth does not exceed 1'6".

The work which was undertaken followed the following guidelines:

Impact	Likelihood	Mitigation
Introducing invasive non-native species to other sites on machinery / equipment	High	Refer to Biosecurity ESOP – assess risks on site by site basis & mitigate accordingly.
Heaps of decaying cut material deoxygenating the watercourse	High	Cut heaps to be 2 to 3 m from water's edge, or half way between channel and soke dyke
Removal of invertebrates	High	Disposal of cut material to allow proximity to waterway (as above)
Uprooting of plants in windy conditions	Medium	Avoid windy conditions
Cutting or damaging rare/protected aquatic plants	Medium	Raise cutting height; pre-survey for such species
Disturbance of silt substrate	Low	Monitor water depth regularly
Creation of floating material	Low	Small cut fragments that escape the harvester to be collected

Weedeater's cutter blade was run at an angle of around 45° to the water level, enabling shelves to slowly form as silt is trapped in the plant stalks. Usually, cuts were made further from the banks in the wide sections, such as the mill pond, and closer in the narrow sections. A few inches were left at the bottom (in the channel), at approximately 3'6" to 4' (deeper in the mill pond), as per the plan. It was seldom necessary to cut from the narrows north (four cuts in the year).

Weedeater's crew would like to thank the most contented and helpful fishermen they have ever met on Britain's canals. No whinging or moaning, and frequent expressions of gratitude. The same can be said of small-boaters and swimmers.



SECTION 3 - FLORA REPORT
SUKI PRYCE

Plant Recording Along the Canal

Plant surveying continued during 2020, with the addition of some welcome expert help from the Norfolk Flora Group. Twenty new taxa were found (listed below), bringing the Canal plant total up to 410.

Muscari armeniacus

Diplotaxis tenuifolia Perennial Wall-rocket
Elodea canandensis Canadian Waterweed
Epilobium montanum Broad-leaved Willowherb
Erodium moschatum Musk Stork's-bill
Fumaria officinalis Common Fumitory
Geranium lucidum Shining Crane's-bill
Hyacinthoides hispanica Spainish Bluebell
Lathyrus latifolia Broad-leaved Everlasting-pea
Leucojum aestivum Summer Snowflake
Matricaria chamomilla Scented Mayweed
Medicago arabica Spotted Medick
Muscari armeniacum Grape Hyacinth
Myosotis laxa Tufted Forget-me-not
Potamogeton crispus Curled Pondweed
Primula veris Cowslip
Salix x smithiana Broad-leaved Osier
Sidalcea malviflora Greek Mallow
Verbascum densiflorum Dense-flowered Mullein
Veronica anagallis-aquatica Blue Water-speedwell
Vulpia bromoides Squirrel-tail Fescue

"Twenty new taxa were found, bringing the plant total up to 410"

The Canal's Environs: 2020 Survey of Adjacent Land.

Beyond the back sokes, the Canal is bordered by a wide variety of habitats, most of which have developed on land not in active agricultural use. A survey undertaken by SP in 2020 revealed how much of the Canal does in fact border semi-natural/unmanaged land – probably over 95%. The site is therefore almost entirely enclosed in and buffered by zones of 'wilderness' of various widths, and this obviously enhances its already considerable potential as a refuge and corridor for wildlife. Habitats on these unmanaged zones include areas of woodland, tree belts, well-grown hedges, scrub, reedbed, tall herbaceous vegetation, rough grassland, wet meadow, and scattered mature trees and shrubs. Adjacent to this is mainly farmland – a mix of arable and pasture, with woodland on much of the higher ground beyond.

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Primula veris

The following short piece is to be published in the April *Newsletter* of the prestigious Botanical Society of Britain and Ireland (BSBI):

THE NORTH WALSHAM AND DILHAM CANAL: A FRUITFUL PLACE FOR ADVENTIVES AND ALIENS

The North Walsham and Dilham Canal (NWDC) is a partly-restored canal in the North Norfolk area, cutting through what was once the meandering course of the upper River Ant. Despite – or even because of – the restoration, the Canal corridor is surprisingly rich in different habitats, biodiversity, and plants. I began plant-recording there in 2017, and since then (and helped with IDs and surveying by members of the Norfolk Flora Group) nearly 400 plant taxa have been found in the approximately 4 miles of the restored area. These include many intriguing 'out-of-place' plants, and it has seemed worthwhile to wonder how these arrived at the Canal.

Substrates Most of these adventives occur on the sides and shoulders of the embankments which enclose both the canal bed and also the ditches ('back sokes') on their outer sides. The embankments have been built up using a wide range of imported fill, over a period of several years. To serve its engineering function as a reasonably stable, self-binding but also free-draining medium, this fill mostly comprises light, sandy/gravelly loams. The fill is mainly supplied by a local skip-hire

Balkan Spurge

firm, and judging by the taxa which have been found along the Canal, it seems that many of them have come from gardens, farmland, wasteland, industrial, urban, or coastal areas. Table 1 shows the adventives found so far, and attempts to group them according to the likely source of the substrate in which they arrived.

Effects of Management on Habitats The tops of the embankments are regularly mown and provide a fairly short-sward habitat which may extend to the 'shoulders'. The *Anemone blanda, Limnanthes douglasii* and *Lathyrus latifolius* were found in this sort of habitat. The inner (canal) sides are rough-cut around 2-4 times per year, resulting in a medium height (typically up to 60-100 cm) habitat which seems to favour a very wide range of taxa which can tolerate a certain amount of competition. Interesting perennial aliens persisting in these sorts of areas include *Euphorbia oblongata*, *Geum quellyon,* and *Sidalcea malviflora.*

Red Maids

The soke bank sides are cut less frequently (from once a year to once every four years), and provide a more tall-herb habitat where substrates are richer. Where they are poorer, this habitat resembles that of the inner canal banks, and the *Allium trifoliatum*, for example, was found in this sort of spot.

Ongoing maintenance work such as reprofiling the embankments, desilting sokes, removing woody plants, plus natural phenomena such as bank slippages, create occasional disturbance which must also help the growth of new adventive propagules. (Perhaps the strangest of these was a single tiny small-leaved hard-to-determine specimen on a gravelly ditch-side slippage site. Many of us tried and failed to ID it, but it was our VC Recorder Bob Ellis who suggested *Lysimachia maritima* Sea Milkwort. By what route did this coastal plant arrive in the Ant valley, one wonders?)

Now You See Them . . . The Canal embankments are still being built up sporadically, so new fill - with all its unknown propagules - is still being introduced to the corridor. But even in the fairly stable, undisturbed areas, new taxa seem to appear out of the blue, may disappear in a year (*Calandrinia ciliata*, *Anemone blanda*, *Limnanthes douglasii)*, may persist, and then again may reappear after a year or two's absence. For example, what seemed to be a well-established patch of *Galega officinalis* some 30 square metres in size on a ditch-side in 2019 had disappeared without trace in 2020. Yet a patch of *Potentilla argentea* has survived since I've known the site on a quite competetive 'shoulder' location, despite being pretty out-of-place there. And the solitary patch of the annual alien *Absinthia artemisiifolia* found in 2018 didn't reproduce itself in 2019: instead a single specimen was back in 2020, but 200 metres away from its predecessors. Finally, how do perennials I've never seen in previous years, such as *Primula veris*, *Leucojum aestivum*, and *Anemone x hybridus*, suddenly appear - apparently out-of-the-blue - as well-established clumps in undisturbed areas? I have suspected guerrilla gardening, but no-one has owned up to it . . .

Conclusion How long this wealth of adventives will continue to appear once the sections of Canal involved are fully restored, and the substrates settle down, we don't know. But for now, the site continues to be a treasure trove for fans of adventives and aliens.

* * * * *

Troublesome Aquatic Plants In The Canal

Elodea – particularly *E. nuttalliii* Nuttall's Waterweed – and *Pithophora* Horse Hair algae each in turn became rampant and choking in the watered section of the Canal over the summer. However, since then, the highly invasive alien Floating Pennywort *Hydrocotyle ranunculoides* has overshadowed these troublesome but perhaps ephemeral 'weeds' by appearing in late summer 2020 between Honing Lock and Tonnage Bridge. (Section 4)

Ceratophyllum

Pithophora

Section 4 - Invasive Species
Suki Pryce & Alan Bertram

"In short, much work done on Himalayan Balsam clearances... "

HIMALAYAN BALSAM REPORT (AB)

Royston Bridge – small outbreak immediately north of bridge and alongside car park in edge of canal. Pulled several times over the season, hopefully will see a good reduction next year. Not aware of any HB upstream of this point.

Purdy's Marsh – mechanical cutting of worse areas in association with the general cutting on the Marsh, as reported earlier. In addition, hand pulling of the remainder of the Marsh undertaken by a willing group of volunteers. The whole marsh was covered at least once, and some parts hand-pulled a second time up until quite late in the season. General impression was that there was nowhere near as much on the marsh as previous years, possibly some of this is due to climatic factors (drier marsh in 2020 generally) and well as due to our previous work. Area of infestation to the east of the back-soke (not in canal ownership) has had a little work done, but access difficult so the work has generally concentrated on main area – need to do more work on this in 2021.

Bacton Wood Lock – area on west side sloping away from canal and beyond hand-pulled on a couple of occasions, but access difficult to reach some of the plants which were tantalisingly beyond reach.

Ebridge Lock – area on east side below bridge cleared on two or three occasions, hopefully will be much reduced in 2021. Carrying on downstream on the east side (plus adjoining field margin), there is a long length of HB which has not had much work done on it as the land is in different ownership.

In short, much work done on Himalayan Balsam clearances at Royston Bridge, Purdy's Marsh, Bacton Wood Lock, and Ebridge immediately below bridge during work parties.

FLOATING PENNYWORT *Hydrocotyle ranunculoides* (SP)

This highly invasive alien has appeared in late summer, 2020, between Honing Lock and Tonnage Bridge. (Luckily there is no evidence of it being present in the restored section of the Canal between Ebridge Mill and Swafield). FP is an extremely fast-growing plant which can readily be washed many kilometres downstream of its original location, and even small fragments can remain viable and readily re-establish themselves. The FP issue - which threatens the whole Broads system - is now being tackled by a consortium of interested parties headed by The Environment Agency (EA), Natural England (NE), Anglian Water, the Internal Drainage Board (IDB), Norfolk Non Native Species Initiative (NNNSI), the Broads Authority (BA), and the Water Management Alliance (WMA), and is being coordinated by Kate Warwick of the EA. The situation in Jan '21 is as below (summary by Kate Warwick):

Short Term – Until April 2021: Funding secured from the NNNSI to pay for a Specialist contractor Paul Simms (Native Landscapes), who has been on site with EA and IDB officers to give advice and draw up a management plan. IDB ecologist have already carried out a survey of the known distribution of the pennywort. As a result of the meeting, the IDB started carrying out a machine clearance and removal of the accessible patches of floating pennywort between Honing lock and Tonnage Bridge (W/C 7/12/20). Hand netting by IDB or contractor was carried out following the machine cut to remove of smaller cut sections. This work will be paid for from NNNSI budget this financial year, which will also cover the contractor to survey and remove any small patches

over winter and into spring 2021.

The Broads Authority is leading on a publicity campaign. Abigail Leech is taking over from Jonathan Cook at the BA. An article in the local press was be re-issued and made available for use in other publications. Leaflet drop for boatyards and signage at portage points to raise awareness. Key message for the public remains - *to report any sightings via iRecord or to NNNSI via email, not to disturb patches.*

Actions:

- BA article to be forwarded for distribution in other publications (JC/ AL).

NE to flag the threat for deterioration to designated sites downstream (AG)

Medium Term – May to June 2021: further surveys 2-3km upstream and downstream of Honing Lock – Tonnage Bridge section, including connecting dykes, ditches and ordinary watercourses. Contractor has quoted for survey and removal (approx. £6K?). NE drone may be used to assist with surveys (pending approval). Currently looking at funding options which could include WEIF bid match funding, Anglian Water Invasive species fund or Angling Trust. Broadland Environmental Services Ltd (BESL) has offered £5k partnership funding, BA is also likely to have some money available.

Floating Pennywort near to Hundred Stream Junction. *A.Bertram*

Actions:

- All partners to raise profile of the FP issue within their organisations.
- Option for obtaining and managing £250k budget to be investigated (GB).
- EA to look at WEIF funding, and other options. (KW/ TH/ RS)
- WMA/ IDB to raise issue to Norfolk Rivers/ Broads Board meeting (CL, GB)
- Volunteer surveyors to assist with reporting sightings via NNNSI/ iRecord (SP)

NNNSI to forward Native Landscapes management plan to EA/

Long Term – This will depend on the success of the first round of removal, and outcome of the survey work which will provide information on how far the pennywort has spread. Surveys will ultimately inform the scale of the response going forward. It is likely to take several years to eradicate the pennywort from the current known extent, and efforts may well need to be escalated if the plant has already spread further.

The current action being undertaken by the Trust regarding the Floating Pennywort on the OCC Section is:

1) Ask users to stay vigilant for Pennywort anywhere on the Canal, dykes and ditches nearby (or indeed any other Broadland waterways or water bodies). Sightings to be submitted via the iRecord app or to NNNSI@norfolk.go.uk

2) Biosecurity will be essential with the Check-Clean-Dry protocol re. equipment, machinery and clothing when moving within or between watercourses, and this is being promoted to the public.

3) Trust Canal Ranger and Fishing Officers to distribute leaflets to users and notices placed on the Trust's notice boards at Ebridge, Spa Common and Royston Bridge.

Remember, always CHECK - CLEAN - DRY.
Check your RODS, boats, board, paddles, and kit for fragments or creatures that have used your kit to make a new home.
Clean your equipment by the side of the water you've just been using if you can.
Dry your kit thoroughly before going on another waterway.
We all need to do our bit to stop the spread.

Section 5 - Fauna, Amphibians & Entomology

Unfortunately the Trust does not have specific observers for this section, so we have relied of the many Facebook followers who have supplied the following images over the year. Our thanks in particular to: Kevin Howard (KH), Trevor Hipperson (TH), James Emerson (JE). Ann Mason (AM), Alex Martel (AML), Stuart Buck (SB), Samantha Dory King (SDK), Paul Biggs (PB), Em Bee (EB)

Roe deer AM

Fox Sept KH.

Water vole July AM

Fox Jan 2021 SB

Yellow Brain Fungus SB

Common toad Feb 21 AML

Elver April EB

Male banded demoiselle AM

Grass snake, July PB

Norfolk Hawker AM

Red-eyed Damselfly June TH

Female banded demoiselle AM

Peacock butterfly SDK


Small tortoiseshell AM


Peacock? caterpillar AM


Emperor Dragonfly TH


White tailed Bumble bee AA


Norfolk Darter June TH


Speckled Wood AM


Female long-winged conehead Sept JE


Coremacera marginate JE

Melanagromyza moatesi

In mid December 2020 Graham Moates, a renown Agromyzidae expert, contacted the Wildlife Officer, Suki, expressing an interest in leaf-mining insects " saying that "Careful examination of the characteristic patterns caused by the feeding larvae can reveal the causer often to species level". One particular stem-boring genus (*Melanagromyza*) can frequently be found in the winter as puparia within the stem. In early 2019, Graham was examining stems of hemp agrimony for the fly puparia known to utilise this plant (*Melanagromyza eupatorii*) and remarkably, came across a different puparia which happened to be a species new to science (*Melanagromyza moatesi*). The species has since been found at multiple other sites in East Anglia.

Suki found some decently large stands of Hemp Agrimony (*Eupatorium cannabinum*) near Bacton Wood Lock, and gathered about 30 stems from three of these to send to Graham. She was then delighted to be told that he had found a total of 32 puparia within these stems (roughly evenly split across the three collection points), all of which turned out to be *Melanagromyza moatesi* with no *Melanagromyza eupatorii* present. Up to four puparia were found in a single stem, and Graham will 'rear them through' (hatch them) to see if any flies or parasitoids (usually wasps) emerge.

So another rarity has appeared within the Canal's environs.


c. Suffolk Wildlife Trust

Section 6 - Birds on the Canal
Stu Buck

The Canal and neighbouring marshes, meadows and woods are great places for birds any time of the year. Wildlife oases in the barren deserts of arable fields. It may seem quiet in these winter months, but actually there's plenty going on.

On the Canal, you'll see the resident mute swans and moorhens. Little grebes and cormorants will be diving for fish. Greylag and Canada Geese and mallard ducks may make an appearance, along with the occasional tufted duck. I even saw a wigeon recently.

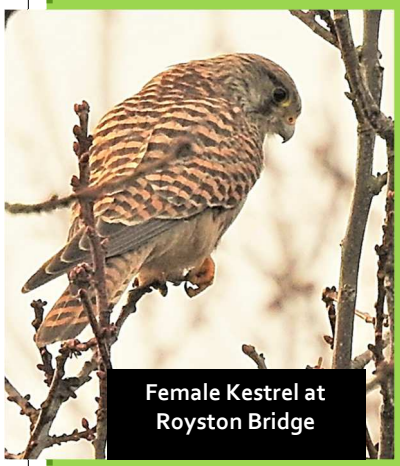

Common Buzzard

From the banks, watch for a beautiful kingfisher as it whizzes by or drops from a twig or reed to catch a fish, and the magnificent grey heron as it stalks its prey along the waters edge. I have seen a little egret in the past in the reeds. At Ebridge, you may see a grey wagtail feeding at the spillway, and look out for pied wagtails there, too.


Male Stonechat

In the bushes and trees that line the Canal and nearby fields - and in Pigneys Wood - look for birds you may ordinarily see in your garden, such as chaffinches, blue tits, great tits, dunnocks, robins, wrens and the like, along with long-tailed tits, coal tits, goldfinches and goldcrests, and maybe a treecreeper or nuthatch. Listen out for squabbling jays and hopefully see them as they fly through the woods. Count the magpies in the fields and hedges and recite the old rhyme. There has been a noisy flock of the small but lovely siskin near Pigneys Wood, often settling in the large lone tree over the opposite bank. Finally you may see a pair of stonechats along the backsoke footpath.

Winter has seen an influx of thrushes from the continent, and they have stripped the berries from the hedgerows. Our resident blackbird, song thrush and mistle thrush numbers are swelled by continental birds, and large numbers of redwings and fieldfares also come to winter in the UK.


Female Kestrel at Royston Bridge

Look for soaring buzzards and hovering kestrels anywhere along the Canal, and over the fields and woods. You may even be lucky enough to see a barn owl as it hunts by a meadow, or a sparrowhawk as it chases unwary prey. In the fields, you'll see crows, rook, jackdaws, pheasants, woodpigeons, stock doves, starlings and gulls. Woodpeckers may be seen and heard, with great spotted woodpeckers drumming for food in a tree, and green woodpeckers searching for food on the ground when their summer diet of ants is hard to find. Sometimes, hundreds or even thousands of pink-footed geese may be seen and heard flying high overhead in their typical v-shaped formation.

So winter isn't as quiet as it may at first seem. About 35 species of bird can be seen fairly easily in the winter months along the canal and in the woods - with another 20 or so being a little harder to find - plus the occasional rarity for good measure. A water rail has been spotted by others over the past weeks. A couple of winters ago we even had a dipper on the canal, an altogether rare visitor to Norfolk.


Great Spotted Woodpecker at Spa Common Bridge

As we move into spring and summer these will be accompanied by the sight and sound of even more species as our summer migrants join us. The reed beds will come alive with reed and sedge warblers, and a few grasshopper and the rare cettis warblers will join them. The sky will fill with swifts, swallows, sand and house martins, which will drop down over the Canal to feed on insects. Chiffchaff, common whitethroat and blackcap will frequent the woods and bushes. We will hopefully see lesser whitethroats, garden warblers and brambling, too. Meanwhile, of course, the quintessential bird of spring the cuckoo will arrive with its familiar song. Who knows, we may even see some more true rarities such as the Blythes reed warbler of last spring. Over a year, you could easily see 70 species of bird, plus a rarity or two. Take a walk or two and see what flies by. ***Reprinted from Quagmire 5.1 Feb 2021***

Section 7 - Fishing Report
Tom Webster


Glennis Dillon Oct

We have had record catches of roach, rudd, bream, tench, pike, perch and dace, in what has been the best fishing season of recent times, records showing a 17% p.a. increase in species

Its very pleasing to report the numerous catches of sizable bream to add to our records along with plenty of specimen roach, rudd and tench, all thanks to the thriving ecosystem that restoration of the Ebridge section has made possible. The increased size of the fish generally, is also an indicator that they are now reaching a later stage in their adulthood life cycle. Considering that no fish existed on this empty length in 2008, and none have been deliberately stocked - but all found their way by natural means - it has been an amazing recovery to the fishery found in the last century.

I am concerned at the silt levels and the causes of silt at Spa Common. This presents a significant danger to the canal ecosystem, and I really support the Trust in working to resolve this ongoing problem as a matter of urgency.

Membership amongst our regular anglers is increasing and I will continue to build on this. COVID-19 has prevented me from inducting our new fisheries assistant (Keith), although I intend to do this as soon as practicably possible.

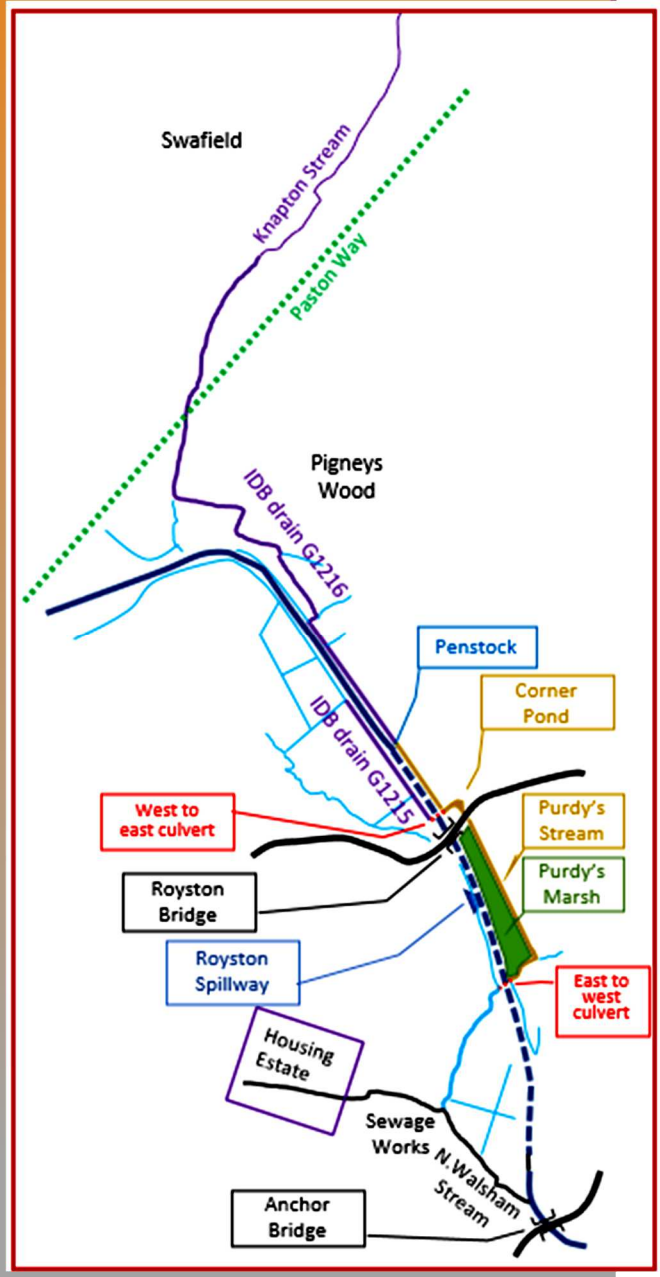

Steven Reynolds with a lovely canal pike 14lbs 4 oz.


Jamie Shields' slab of a Rudd weighing 1lb 10 oz.

Section 8 - Purdy's Marsh & Stream

The main compensatory element of the Trust's work is based on Purdy's Marsh (part of County Wildlife Site 1173), the Corner Pond and related feeder streams and sokes.

As part of the 1812 Act, all streams within 1000 yards were re-aligned so as to either feed the Canal, or move waters to the next, lower, section. The plan shows the various feeder streams and sokes (light blue), IDB drains (purple) - along with the soke and Purdy's Stream - that the Trust maintains (yellow) for the mile of Canal above Bacton Wood Lock.



Purdy's Stream has three sources. The main feeder is the stream from Knapton - plus feeders - that flows under the railway embankment , through Pigneys Wood, to become the east soke of the Canal down to Royston Bridge. This is maintained for most of its length by the IDB (G1216). The second source comprises the streams and sokes on the west of the Canal. These are fed into the west soke, which is also maintained by the IDB (G1215). The waters then flow under the Canal in a culvert just north of Royston Bridge, before joining the east soke. Originally, the Canal's waters from Swafield did not feed Purdy's Stream, instead flowing directly to the Mill or lock for navigational use. Any surplus water in the Canal would have flowed over Royston spillway into the east soke, down to the stream after it had passed through the east to west culvert, and therefore via the sewage works to re-join the Canal below Bacton Wood Locks. However, c.1955, three lads decided to enlarge a small hole in the east bank above Royston Bridge. The trickle became a stream. Later - March, 1969 - the Canal was fully breached at this point, possibly to allow the builders lowering the bridge to work in the dry. Although the new culvert was built with a flow in mind, the breach was not closed until the OCC installed the penstock in 2014. The penstock marks the change in jurisdiction for maintenance of the soke from the IDB to the OCC.

As part of the mitigation plan, the intention is to continue feeding some water from the Canal, by cracking the penstock and/or a "bleeder" spillway. Use of the sonic water height recorders, already in use, elsewhere on the Canal, can help to monitor flows.

At the west end of the lower culvert, the stream from Purdy's Marsh will be joined, after re-watering, by water flowing over the Royston Spillway. By the North Walsham sewage works, a stream that is mainly fed by road gulley drains in the Alder Country Park and surrounding roads joins the main stream. Various pollutants enter the stream from this length, which are then deposited in the Canal below Bacton Wood Lock. These pollutants, plus field run-offs, have led to such silting that the water depth is now less than 18"; additionally, the number of invertebrates here have been shown to be considerably lower than elsewhere on the Ebridge pound. Ironically, the Trust's work on the Stream at Purdy's Marsh is compromised by other feeders lower down, in turn jeopardising the legislative requirements of the Water Framework Directive to prevent deterioration of the existing habitat.

Ivan Cane

The Trust's Chair reports:

"The build up of siltation since March 2020 has been attributable to two main sources:
The first source has been the erosion of top soil from a field awaiting cultivation immediately to the east of the green penstock on the east bank of the canal approximately 400M north of Royston Bridge. (The Environment Agency have identified this source). The top soil has washed into the back soke fed by canal water from the penstock. The back soke is part of the Mitigation and Compensatory Plan and, in part, an IDB drain G1216. The water feeds Purdy's Marsh along its eastern boundary.

The second source combines with the first approximately 120M above the discharge point into the Canal.

The second source is one of the town's surface water drains which takes water from private premises, gulleys on public highways and public hard standing. The silt which is carried by the surface water is likely to comprise hydrocarbons and rubber dust from road vehicles, grit, road surface wear residue and whatever private owners put down it.

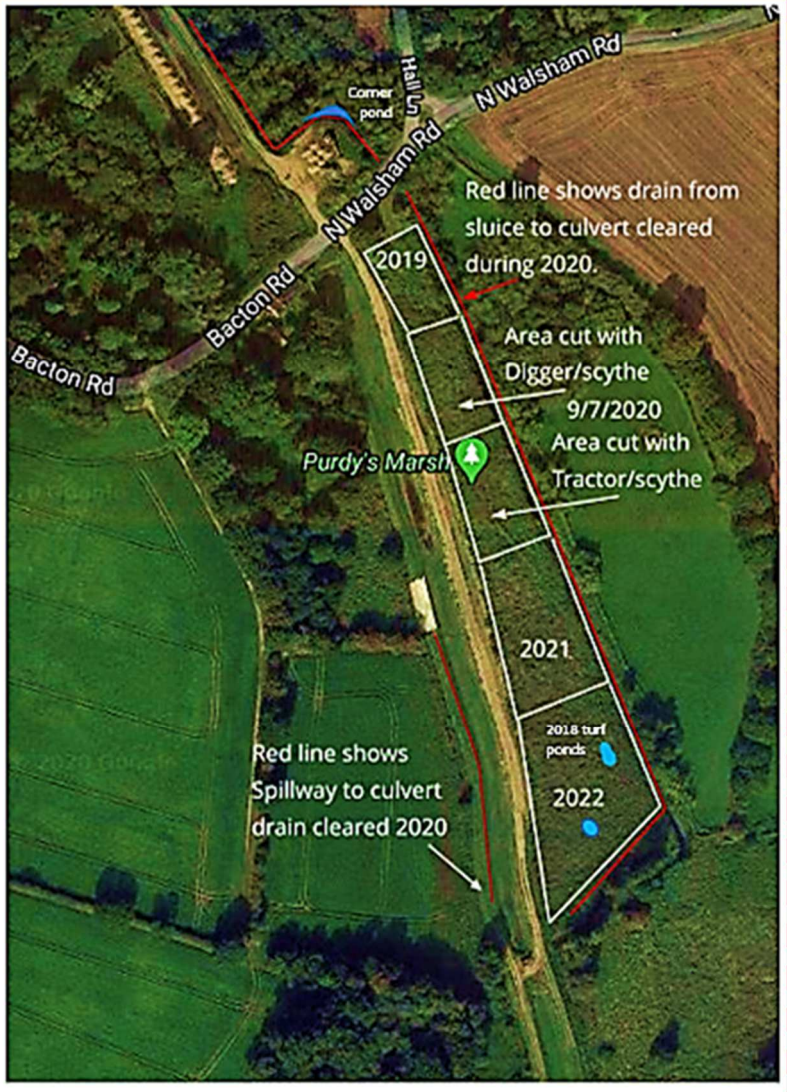
The Environment Agency is prepared to take issue with Anglian Water regarding the discharge into the canal of contaminants carried by surface water from the town drain. An approach has been made for an independent appraisal of silt constituents ,before Anglian Water is approached to stop this pollution. Ultimately the appraisal and report will be at the expense of Anglian Water on the basis that ' the polluter pays'.

Landowners who might be able to release land for the construction of a settlement pond, have indicated that they would be willing to discuss a scheme to be carried out and maintained by Anglian Water. There are several grants available to the authorities for such work to be undertaken."

Tom Carr

Current Position on Purdy's Marsh

This report is based on the personal views of Chris Heath, Volunteer, Alan Bertram, Work Party Leader, Tom Webster, Fishing Officer, and Suki Pryce, Wildlife Officer. It does not necessarily represent the NWDCT's official view.



Is Purdy's Marsh (PM) a reed bed?

PM is a County Wildlife Site (CWS), and its management is therefore guided by Norfolk Wildlife Trust (NWT). In the last few years NWT has encouraged the Canal Trust to manage PM as a reedbed – initially cutting a third of it annually, and removing arisings (raking off and burning, mainly). Since 2019 cutting was changed to a quarter annually. The marsh has a fundamental issue in that it is not really a reedbed any more (if it ever was one). Over all, it is gradually drying out, and increasingly grows agricultural weeds (nettles, thistles, dock, bindweed etc) rather than reeds. The Trust's Wildlife Officer estimates that on average there is only a cover of 25-35% reed now, with much less in places. The side-stream which contains PM to the east is at usually at least 1m lower than the Marsh, so can't help raise the water table; although leaving some minor tree branch fall will help to slow the flow and build height, hence adding to the habitat heterogeneity of the site.

Although we don't have records of its earlier land use, the Wildlife Officer's personal view is that this was probably never a reedbed managed as such, but is just a former water meadow alongside the stream, which began to grow some reed when grazing stopped. It is therefore really just neglected fertile agricultural land. She therefore feels that efforts to 'maintain' it as or make it into a reedbed are inappropriate, as well as being very onerous on NWDCT volunteers and other resources.

Nevertheless, so far, the Trust has followed NWT's suggestions regarding ways to encourage reed growth. In particular, NWDCT has been encouraged to carry out various trials to experiment with methods which might increase reed growth. These have been as follows.

Cut and clear* versus *Cut and leave: In both 2019 and 2020 the Trust tried to both cut the marsh vegetation and clear it, and to simply cut it and leave the arisings. CH considers that it's too early to say what the effects of these methods are, but preliminary results look as if it's worth clearing arisings to encourage reed growth.

Clearing all surface debris: in 2019, a trial area was cleared to see if removing all the surface debris left after reed cutting, down to bare soil, encouraged reed growth and discouraged weed growth. This appeared to have little effect.

R**educing marsh surface level**: it might be possible to make PM into a real reed bed by stripping off and completely removing the top layer of soil, but this would be a massive exercise, and very expensive to do as contractors would be needed. There would therefore have to be really sound ecological reasons for doing this (we don't think there are), plus funding would be needed. The Trust did carry out a small-scale trial in 2019 in which the level of a small area was reduced by about 200mm. However, after two seasons the area is still predominantly reed rather than weed.

Grazing? A recent suggestion is the idea of **grazing** rather than cutting PM. A local stockholder is keen to help, using his own stock, fencing, time and expertise. In liaison with NWT, we are currently investigating this idea, which appears to have several potential advantages, particularly if management objectives for PM are changed (away from encouraging a reedbed, and towards encouraging a reed marsh).

Other Experiments

Turf ponds Under the guidance of NWT, NWDCT has also carried out some further experiments in order to create more topography on the Marsh, and so help increase its biodiversity. It has therefore dug two turf ponds in the southern quarter of PM to a maximum depth of about 500mm. These tend to dry out in the summer but fill up in the winter, and have had predominantly reed growth in them since their excavation. It is proposed to dig several more ponds across the Marsh – including some with deeper areas than have been tried so far – in order to create slightly different habitats. Several shallow scrapes have also been created in places.

Himalayan Balsam (HB) There is a serious HB problem on PM, particularly at the northern end. Various methods (mainly hand-pulling) have been tried to control it, but it is hard work in the thistly, nettle conditions on the Marsh, made worse by the presence of wasps nests.

Balsam Bashing July AB

In 2019 NWDCT therefore experimented with **cutting** the worst areas as a means of controlling the HB; and to this end the annual rotational quarter-cut was moved from winter to summer in order to see if cutting before the HB seeded would help curb it. The experiment seemed to be successful, as there was much less HB in 2020, but it is probably still too early to say if this was due to the cutting regime or other factors such as a dry summer.

Section 9 - The Community
Ivan Cane

During the pandemic, the community has made the Canal its own. Amidst the heat of summer or the snow of winter, it has contributed to many people's well-being.

Most days, Facebook has carried images and stories of people enjoying wildlife, walking, model boating, fishing, paddle-boarding, swimming... Pleasingly, as this report has illustrated, those using the Canal have respected one another's needs.


Ebridge August TC

The Trust has worked with the different groups, giving advice on Facebook, its notice boards, or from its volunteers and officers on site. For example, the Fishing Rules, the Swim Safe leaflet and the Check, Clean, Dry campaign have been publicised.

HAVE FUN IN THE WATER AND STAY SAFE:

Spot the dangers – look before you leap in!
- Find where you will get out before getting in.
- Before jumping in, check it is deep enough and that there are no rocks or branches or other people in the way.
- Get used to the cold before jumping. Get out before you get too cold.
- If you get into weeds, swim slowly out, don't panic

Advice – follow safety advice and read signs

Friend – swim with others.
- Supervise non-swimmers, weak swimmers or young children

Emergency – if someone is in trouble, shout for help, call 999, ask for Fire & Rescue service, throw a rope or similar
- Only go in to rescue them if you are trained (as a drowning person can pull you under with surprising strength).
- If you fall into the water or feel panicky, turn onto your back and float, shout for help.

For more advice about safety, see www.outdoorswimmingsociety.com/10-tips-for-summer-swim-safety/

Be a responsible swimmer and user of the canal. Take responsibility for your own safety – all activities are at your own risk.

North Walsham & Dilham Canal Trust nwdct.org 07585 160 772

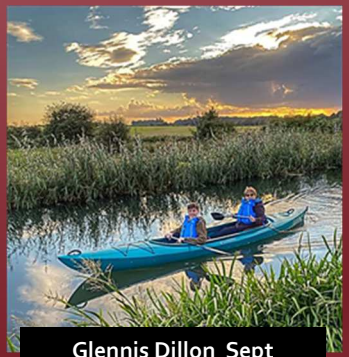
The increased use of the Canal's corridor has led to more wear and tear, but the Trust's volunteers have kept note of this, and made amends as soon as possible. They've done this with great discipline, whether building up eroded dog slides, checking on fish remains, aquatic plant management, bank maintenance, water level control during heavy rain or archival advice.


GD

It should be remembered that this facility would not be here without the generosity of the Old Canal Company, opening up a mile of navigable canal and five miles of canalside walks. Thanks, too, for the many hours of volunteer labour that the members of the Trust and community have put into ensuring the Canal corridor remains a place where nature and people can exist side by side, in spite of the pandemic.


Stu Buck Feb 21


Ice swimming Feb 21 Em Bee


Glennis Dillon Sept


Colin Wright Feb 21

North Walsham & Dilham Canal Trust CIO

Mitigation and Compensatory Group - Report for 2020

March 2021

Glennis Dillon