



Ecological Survey of the Grand Canal within Offaly County

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TOBIN CONSULTING ENGINEERS



REPORT

PROJECT: **Ecological Survey of the Grand Canal within Offaly County**

CLIENT: **Waterways Ireland**

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INTRODUCTION

1.1 BACKGROUND

Waterways Ireland have retained Tobin Consulting Engineers to carry out an ecological survey of the Grand Canal in Co. Offaly. The survey is required to update previous surveys carried out by the OPW in the 1990's and provide current and detailed ecological data on habitats and species. The information gathered will be used to enhance the understanding of the ecological importance of the Canal and to inform ongoing maintenance and capital projects.

The survey area includes a 73.6km stretch of the Grand Canal Main Line from Lock 20 to the junction of the line with the River Shannon at Shannon Harbour. The survey area is predominately delineated by the canal channel with adjoining grassed towpath and boundary hedge with some other adjacent land packages. For the purposes of survey and reporting the area was divided into 45 sections ranging from 0.2 to 4.6 km in length. Sections were generally demarcated by bridges, locks or aqueducts.

The project was completed by the following ecologists: Kate Harrington MCIEEM, Roger MacNaughton MCIEEM, Noreen McLoughlin MCIEEM, Jessica Quinn ACIEEM and Sheila Murphy ACIEEM.

The report structure is as follows:

- Section 2 outlines the methods used including desk studies, field studies and consultation
- Section 3 provides an Ecological overview of the study area
- Section 4 provides the survey results for each of the 44 sections
- Section 5 describes the Ecologically Sensitive Areas (ESA's) identified.

1.2 PROJECT OBJECTIVES

The objectives of the project were to:

- Classify, map and describe habitats classified to Fossitt III and/or Annex I of the Habitats Directive as appropriate;
- Identify, map and describe Ecologically Sensitive Areas in the study area;
- Map all designated sites within 15km of the study area;
- Generate a species inventory for each section highlighting the protected status where relevant; and
- Prepare a GIS database of habitats, rare species, invasive species and other ecological and management features.

2 METHODS

2.1 DESK STUDIES AND CONSULTATION

Desktop Review

A desk-based study was undertaken to review all published and unpublished data potentially relevant to the project. This included:

- The identification of all sites designated for conservation (www.npws.ie),
- A review of data held by the National Parks and Wildlife Service (NPWS), the National Biodiversity Data Centre (NBDC), the Botanical Society of the British Isles (BSBI), Inland Fisheries Ireland (IFI), the Environmental Protection Agency (EPA) Bat Conservation Ireland and BirdWatch Ireland; and
- A review of Environmental Impact Statements (EIS) undertaken in the local areas and any other ecological reports or publications relevant to the study area (including the previous OPW surveys).

Consultation

Consultation was undertaken early in the project with the following in order to obtain information about the study area and inform the field studies and report:

- NPWS (DCO and Ranger staff for the relevant areas);
- Biodiversity and/or Heritage Officers for the relevant areas;
- IFI (Paul McLoone & Tara Gallagher);
- Bat Conservation Ireland (Tina Aughney);
- BirdWatch Ireland;
- BSBI county recorders; and
- British Bryological Society vice-county recorder.

2.2 FIELD SURVEYS

The proposed field survey methodologies are described below. Particular attention was paid to habitats and species listed on Annex I and Annex II of the EU Habitats Directive, birds listed on Annex I of the EU Bird Directive, species protected under the Flora Protection Order and Wildlife Act, and bird species of conservation concern.

Key considerations from an ecological perspective included:

- High biodiversity habitats/sites including habitats listed under Annex I of the EU habitats Directive;
- Species listed under Annex II of the EU Habitats Directive including marsh fritillary;
- Breeding and resting places for Otter;
- Badger (protected under the Wildlife Act) sett locations;
- Bat species listed on Annex IV of the EU Habitats Directive;
- Bird activity; and
- Aquatic plants.

Habitat and Botanical Survey

The canal route (both banks) was walked and vegetation was recorded within the study area corridor. Habitat surveys were undertaken following Smith *et al* 2011 *Best practice guidance for habitat survey and mapping* and habitats were described following Fossitt (2000) *A Guide to Habitats in Ireland*. Annex I habitats were identified following the EU Annex I Habitats Interpretation Manual together with classification systems described in the national grassland survey reporting (Martin *et al*, 2007; O'Neill *et al*, 2014) and national woodland survey classification reporting (Perrin *et al*, 2008).

Habitat and flora surveys were carried out in July and August 2015. Where the survey area was mainly within the canal and adjacent towpath a team of two ecologists would visit the area, with one ecologist on each bank walking parallel, and a vehicle at either end of the section. Where the survey area included adjacent landholdings away from the canal, the survey was generally carried out by two people walking the area together looping back to the point of origin, separating for periods to walk different fields. Field surveys were assisted by background mapping and aerial photography.

A detailed list of flora was compiled for each section of the study area. The locations of protected, rare or invasive species were recorded. Grapnel samples for aquatic plants were taken within each survey section. Invasive species have been marked as target notes on the habitat maps. Nomenclature for vascular plants followed Stace (2010), that for bryophytes followed Artherton *et al* (2010), and that for Stoneworts followed Stewart & Church (1992).

Mammal Surveys

All sightings and signs of mammals were recorded during walkover surveys. Evidence of otter (spraints, slides, couches, holts, feeding remains) was searched for along the canal channel and all accessible linked watercourses in the study area. Where otter or other mammal activity was noted these locations have been marked as target notes on the habitat maps. It is noted that the survey period is not ideal for assessing mammal activity due to vegetation growth making some areas inaccessible.

Bridges crossing the canal were assessed for their potential to support roosting bats with reference to Aughney (2008) *A bat survey of bridges identified by the All-Ireland Daubenton's Bat Waterway Survey as potential bat roosts*, Irish Bat Monitoring Programme, Bat Conservation Ireland.

Bird Surveys

All birds observed by sight or sound during the walkover surveys were recorded and a list of birds was compiled for each canal section. Birds were surveyed during the habitat walkover dates. The survey period was within the breeding bird season (March 1st - August 31st) although outside the peak season, and a specific breeding bird method was not followed. Bird activity can decline significantly in the summer months once breeding has occurred and the numbers of bird species encountered during this survey reflects this. In addition specific breeding bird survey methodology was not followed.

Particular attention was paid to recording species listed on Annex I of the Bird Directive, and to red and amber-listed species of Conservation Concern in Ireland/Northern Ireland (BoCCI species). Assessment of potential barn owl sites was informed by Shawyer (2011).

Terrestrial Invertebrate Surveys

Any terrestrial invertebrates (e.g. butterflies, dragonflies, bees) encountered during the site walkover surveys were identified.

3 ECOLOGICAL OVERVIEW

3.1 DESIGNATED AREAS

Designated sites include Special Areas of Conservation (SAC's) designated under the EU Habitats Directive, Special Protection Areas (SPA's) designated under the EU Birds Directive, and the nationally designated Natural Heritage Areas (NHA's) and proposed Natural Heritage Areas (pNHA's).

There are 20 SAC's, 8 SPA's, 20 NHA's and 44 pNHA's (many overlapping with SAC's) within 15km of the study area. These sites together with their qualifying interests are listed in Table 3.1 below and are shown on Figure 1.

The study area is mainly within the designated boundary of the Grand Canal pNHA, with the exception of some adjacent landholdings. The study area and pNHA boundary directly adjoins Charleville Wood SAC on the south towpath between Railway Bridge and Shra Bridge west of Tullamore for a distance of 180m. Daingean Bog NHA directly adjoins the study area and pNHA boundary on a field corner between Ballycommon and Daingean village. The River Shannon Callows SAC and Middle Shannon Callows SPA also directly adjoin the Grand Canal pNHA and study area to the west of the 36th Lock (Junction with the Shannon) at Shannon harbour.

Table 3.1-1 Designated areas within 15km of the Grand Canal in Offaly

Designated Area	Site Code	Main Features of Interest
Grand Canal pNHA	002104	<ul style="list-style-type: none"> Diversity of species along its linear habitats including wintering wildfowl, the common newt (<i>Lissotriton vulgaris</i>), the protected plant opposite-leaved pondweed (<i>Groenlandia densa</i>), otter (<i>Lutra lutra</i>), white-clawed crayfish (<i>Austropotamobius pallipes</i>) and several bat species. Ecological Corridor.
Charleville Wood SAC & pNHA	000571	<ul style="list-style-type: none"> Old Oak Woodlands Desmoulins Whorl Snail
River Shannon Callows SAC & pNHA	000216	<ul style="list-style-type: none"> Molinia meadows Lowland hay meadows Limestone pavement Alluvial forests Otter
Middle Shannon Callows SPA	004096	<ul style="list-style-type: none"> Internationally important wintering wildfowl population including whooper swan, wigeon, golden plover, lapwing and black-tailed godwit Breeding waders Corncrake
Daingean Bog NHA	002033	<ul style="list-style-type: none"> Raised Bog

Designated Area	Site Code	Main Features of Interest
Carricknaghtan Bog NHA	001623	<ul style="list-style-type: none"> • Raised Bog
Clonllyn Glebe Bog pNHA	000893	<ul style="list-style-type: none"> • Raised Bog
Moyclare Bog SAC & NHA	000581	<ul style="list-style-type: none"> • Active raised bogs • Degraded raised bogs still capable of natural regeneration • Rhynchosporion depressions
Ferbane Bog SAC & pNHA	000575	<ul style="list-style-type: none"> • Raised Bog
Lough Coura pNHA	000909	<ul style="list-style-type: none"> • Fen evolved on in-filled lake
Lough Boora pNHA	001365	<ul style="list-style-type: none"> • Fen and bog species on former peatland lake-bed
Clonydonnin Bog NHA	000565	<ul style="list-style-type: none"> • Raised Bog
Clara Bog SAC & pNHA	000572	<ul style="list-style-type: none"> • Orchid-rich calcareous grassland • Active raised bogs • Degraded raised bogs still capable of natural regeneration • Rhynchosporion depressions • Bog woodland • Marsh Fritillary
Woodfield Bog pNHA	000586	<ul style="list-style-type: none"> • Raised Bog
Ballyduff Esker pNHA	000885	<ul style="list-style-type: none"> • Esker grassland
Ballyduff Wood pNHA	001777	<ul style="list-style-type: none"> • Beech woodland
Ardan Wood pNHA	001711	<ul style="list-style-type: none"> • Mature broadleaved woodland
Murphys Bridge Esker pNHA	001775	<ul style="list-style-type: none"> • Esker grassland
Daingean Bog NHA	002033	<ul style="list-style-type: none"> • Raised Bog
Kilcormac Esker pNHA	000906	<ul style="list-style-type: none"> • Esker grassland
Pallas Lough pNHA	000916	<ul style="list-style-type: none"> • Limestone lake
Screggan Bog NHA	000921	<ul style="list-style-type: none"> • Raised Bog
Clonad Wood pNHA	000574	<ul style="list-style-type: none"> • Mature broadleaved woodland
Hawkswood Bog NHA	002355	<ul style="list-style-type: none"> • Raised Bog
Clonaslee Eskers and Derry Bog SAC & pNHA	000859	<ul style="list-style-type: none"> • Alkaline fen • Geyer's Whorl Snail
Annaghmore Lough Fen pNHA	000413	<ul style="list-style-type: none"> • Alkaline fen
River Barrow and River Nore SAC	002162	<ul style="list-style-type: none"> • Extensive river site supporting terrestrial, freshwater and estuarine Annex I habitats together with several Annex II species including the Nore freshwater pearl mussel.
Slieve Bloom Mountains SPA	004160	<ul style="list-style-type: none"> • Mountain blanket bog and heath complex between counties Offaly and Laois supporting a breeding population of hen harrier.

Designated Area	Site Code	Main Features of Interest
Split Hills and Long Hill Esker SAC	001831	<ul style="list-style-type: none"> Orchid-rich calcareous grassland
Raheen Lough pNHA	000917	<ul style="list-style-type: none"> Small lake
Raheenmore Bog SAC & pNHA	000582	<ul style="list-style-type: none"> Raised bog
Cloncrow Bog (New Forest) NHA	000677	<ul style="list-style-type: none"> Raised bog
Milltownpass Bog NHA	002323	<ul style="list-style-type: none"> Raised bog
Black Castle Bog NHA	000570	<ul style="list-style-type: none"> Raised bog
The Long Derries SAC & pNHA	000925	<ul style="list-style-type: none"> Orchid-rich calcareous grassland
Carbury Bog NHA	001388	<ul style="list-style-type: none"> Raised bog
Ballina Bog NHA	000390	<ul style="list-style-type: none"> Raised bog
Royal Canal pNHA	002103	<ul style="list-style-type: none"> Diversity of habitats and species Ecological Corridor
Mouds Bog SAC & pNHA (Site Code: 002331)	002331	<ul style="list-style-type: none"> Active raised bog Degraded raised bog Rhynchosporion depressions
Ballynafagh Lake SAC & pNHA	001387	<ul style="list-style-type: none"> Desmoulin's whorl snail Marsh fritillary Transition mires Alkaline fens
Ballynafagh Bog SAC & pNHA	000391	<ul style="list-style-type: none"> Active raised bog Degraded raised bog Rhynchosporion depressions
Hodgestown Bog NHA	001393	<ul style="list-style-type: none"> Raised Bog
Donadea Wood pNHA	001391	<ul style="list-style-type: none"> Old Woodland
Suck River Callows pNHA	000222	<ul style="list-style-type: none"> Peatlands Birds
River Suck Callows SPA	004097	<ul style="list-style-type: none"> Whooper Swan (<i>Cygnus cygnus</i>) Wigeon (<i>Anas penelope</i>) Golden Plover (<i>Pluvialis apricaria</i>) Lapwing (<i>Vanellus vanellus</i>) Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) Wetland and Waterbirds
Cloonascragh Fen and Black Wood pNHA	001247	<ul style="list-style-type: none"> Fen and woodland
Lough Nanag Esker pNHA	000910	<ul style="list-style-type: none"> Esker grassland

Designated Area	Site Code	Main Features of Interest
Clorhane Wood pNHA	000894	<ul style="list-style-type: none"> Species rich hazel woodland with yew on limestone pavement
Fin Lough (Offaly) pNHA and SAC	000576	<ul style="list-style-type: none"> Alkaline fens Geyer's Whorl Snail
Mongan Bog SAC & pNHA	000580	<ul style="list-style-type: none"> Active Raised Bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion
Pilgrim's Road Esker pNHA	001776	<ul style="list-style-type: none"> Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)
Ballynagrenia and Ballinderry Bog NHA	000674	<ul style="list-style-type: none"> Peatlands
Ballynagarby pNHA	001713	<ul style="list-style-type: none"> Semi-natural dry grassland on calcareous substrates
Clonfert Cathedral pNHA	000244	<ul style="list-style-type: none"> Bat roost
Kilnaborris Bog NHA	000284	<ul style="list-style-type: none"> Peatlands
Banagher pNHA (Domestic Dwelling, Occupied)	000567	<ul style="list-style-type: none"> Bat roost
Cloghanbeg pNHA	002059	<ul style="list-style-type: none"> Unknown
River Little Brosna Callows NHA and SPA	004086	<ul style="list-style-type: none"> Whooper Swan (<i>Cygnus cygnus</i>) Wigeon (<i>Anas penelope</i>) Teal (<i>Anas crecca</i>) Pintail (<i>Anas acuta</i>) Shoveler (<i>Anas clypeata</i>) Golden Plover (<i>Pluvialis apricaria</i>) Lapwing (<i>Vanellus vanellus</i>) Black-tailed Godwit (<i>Limosa limosa</i>) Black-headed Gull (<i>Chroicocephalus ridibundus</i>) Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) Wetland and Waterbirds
Redwood Bog NHA	002353	<ul style="list-style-type: none"> Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion
Meeneen Bog NHA	000310	<ul style="list-style-type: none"> Peatlands
All Saints Bog and Esker NHA & SAC	000566	<ul style="list-style-type: none"> Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites) Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the Rhynchosporion [Bog woodland
All Saints Bog SPA	004103	<ul style="list-style-type: none"> Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)
Ross and Glens Eskers pNHA	00920	<ul style="list-style-type: none"> Esker grassland

Designated Area	Site Code	Main Features of Interest
Woodville Woods pNHA	00927	<ul style="list-style-type: none"> • Old woodland forest (Lough Gowna)
Dovegrove Callows pNHA and SPA	004137	<ul style="list-style-type: none"> • Greenland White-fronted Goose
Birr (Domestic Dwelling, Occupied) pNHA	000568/ 000569	<ul style="list-style-type: none"> • Leisler's bat roost
Ballyduff/ Clonfinane Bog pNHA and SAC	000641	<ul style="list-style-type: none"> • Active raised bogs • Degraded raised bogs still capable of natural regeneration • Depressions on peat substrates of the Rhynchosporion • Bog woodland
Killeen Bog NHA	000648	<ul style="list-style-type: none"> • Peatlands
Nure Bog NHA	001725	<ul style="list-style-type: none"> • Peatlands
Lough Ennell SAC and pNHA	000685	<ul style="list-style-type: none"> • Alkaline fens
Lough Ennell SPA	004044	<ul style="list-style-type: none"> • Pochard (<i>Aythya ferina</i>) • Tufted Duck (<i>Aythya fuligula</i>) • Coot (<i>Fulica atra</i>) • Wetland and Waterbirds
Mount Hevey Bog pNHA and SAC	002342	<ul style="list-style-type: none"> • Active raised bogs • Degraded raised bogs still capable of natural regeneration • Depressions on peat substrates of the Rhynchosporion
Rahugh Ridge (Kiltober Esker) pNHA	000918	<ul style="list-style-type: none"> • Esker grassland
Doon Esker Wood pNHA	001830	<ul style="list-style-type: none"> • Esker woodland
River Boyne and River Blackwater SPA and SAC	002299	<ul style="list-style-type: none"> • Alkaline fens • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae) • River Lamprey • Salmon • Otter

3.2 HABITATS

The main habitats encountered during the project are described below. Reference is made to the following:

- The Towpath – A mown amenity grassland track, gravelled track or roadway;
- The Canal Verge - The habitat between the canal open water and the edge of the towpath;
- The Towpath Boundary – The habitat on the outer edge of the canal bank – either a linear habitat separating the canal from adjacent fields (hedgerow or treeline), or an area of woodland or peatland; and
- The Towpath Verge - The habitat between the towpath and the boundary (mostly typically a grassy verge or scrub habitat).

The study area broadly runs west-east and therefore for the purposes of discussing the vegetation and habitats on each bank we refer to the northern and southern towpath (even where the actual bank may be angled northwest/northwest/southeast/southwest).

Canals (FW3)

In total there was 73.6km of canal habitat in the study area extending from Lock 36 at Shannon Harbour eastwards to Lock 20 past Edenderry.

The most common submerged macrophytes were whorled water milfoil, shining pondweed, perfoliate pondweed, fennel pondweed, several stoneworts and the invasive Nuttall's waterweed. Other species encountered were spiked water milfoil, the aquatic form of bulbous rush, the aquatic form of amphibious bistort, Canadian waterweed and marestail.



Canal Habitat

The most frequent emergent macrophytes were water plantain, arrowhead, yellow water lily and unbranched bur-reed. Waterways Ireland manages macrophytes with weed-cutting boats, though avoiding sensitive marginal habitats.

Nuttall's waterweed was most abundant east of Tullamore, and in sections between Daingean and Edenderry often blanketing the base of the canal. In contrast stoneworts were most abundant in the western sections, and east of Edenderry. The larger stoneworts – bristly and rugged stoneworts – tended to form dense beds on the base of the canal where they occurred. Dense beds of stoneworts and Nuttall's waterweed did not tend to co-occur.

IFI physiochemical data classifies the water quality in the canal as 'good' status (2010-2012) for all sampling sites with the exception of the site at Daingean which has 'moderate' status. Examination of the raw data (2010-2015) indicates there are frequent elevated levels of Phosphorus and Ammonia at this location.

Towpath Mosaic

Adopting the approach used in other waterways Ireland canal surveys (Smith & Gittings, 2014); the transitional canal verge and towpath habitats were assigned to the bespoke Towpath Mosaic (TPM) category. It was developed to deal with the small-scale mosaic of habitats which on their own could not be accurately mapped. Typically reedbed at the water's edge graded into a wet grassland/marsh mosaic, and then into drier grassland habitats at the edge of the towpath. The grassland habitats varied



Towpath Mosaic Habitat

depending on management practices, levels of disturbance and soil types, but were mostly frequent consistent with either grassy verges (GS2) or dry calcareous grassland (GS1). Constituent habitats are described in the sections below.

The canal verge habitats then frequently graded into a mown amenity grassland towpath of varying widths, which frequently include areas of bare and disturbed ground. This would then grade into towpath verges usually dominated by grassy verges and scrub.

Where a roadway or gravel towpath was absent, and the towpath comprised of a mown amenity grassland track, the canal verge and towpath was mapped together as towpath mosaic.

Where a roadway or gravel path was present, this was mapped as Buildings and Artificial Surfaces (BL3), with towpath mosaic usually mapped on the canal verge.

Grasslands

Dry calcareous and neutral grassland (GS1) habitat primarily occurred as part of the towpath mosaic where it occurred on the outer edge of the canal verge grading into mown amenity grassland and/or a gravelled track or roadway. Common characteristic species were quaking grass, lady's bedstraw, red clover, yellow rattle, ribwort plantain, wild carrot, cowslip and yarrow. More species rich examples also included common spotted orchid, fragrant orchid, twayblade, yellow-wort, carline thistle, grass of Parnassus and marjoram. Some areas corresponded to the Annex I habitat orchid-rich calcareous grassland (6210).



**Calcareous grassland habitat
within TPM**



Wet Grassland Habitat

Wet grassland (GS4) occurred at part of the towpath mosaic and also within fields, particularly close to peatlands, where the study area expanded away from the towpath. This habitat overlapped with, and graded into, both reedbed and marsh habitat. Wet grassland was usually characterised by rushes (hard rush, sharp-flowered rush and variegated rush) mixed in with grasses such as Yorkshire fog, purple moor grass, reed sweet grass, reed canary grass and common reed. Broadleaved herbs were also present,

and given the narrow band of habitat in most places wet grassland and marsh occurred in such close proximity as to be indistinguishable. With marsh being separated where the percentage of herbs was greater than rushes and grasses. Common herbs included meadowsweet, wild angelica, common valerian, meadow buttercup and purple loosestrife.

In areas close to peatlands the wet grassland had a more acid-loving flora often dominated by purple moor grass but also including tormentil, devil's-bit scabious and lesser spearwort.

West of Ballycommon species-rich wet grassland was notable and graded into poor fen. Additional species here included marsh lousewort, grass of Parnassus, marsh pennywort and early marsh orchid.

There was also a lot of species-poor wet grassland that tended to be dominated by Yorkshire fog, meadowsweet, marsh thistle, hard rush and soft rush.

Wetlands

Reed and large sedge swamp (FS1) occurred on the open water edge of the canal verge and was mapped as part of the towpath mosaic (see photo above). Typically it was characterised by stands of either common reed, reed sweet grass or common club rush. Other component species were reed canary grass and bottle sedge. Some sections were dominated by one of these species, while other sections included stands of all of these. Stands of reedbed usually occurred in discontinuous patches, often interspersed with areas of emergent macrophytes, rather than one single continuous linear unit.



Reedbed-Marsh transition within TPM

As described above, within the towpath mosaic wet grassland and marsh occurred in such a fine scale and narrow mosaic in many places that they were inseparable. The **Marsh (GM1)** element was characterised by abundant wetland herbs such as meadowsweet, great willowherb, wild angelica, common valerian, flag iris, water mint, marsh thistle and purple loosestrife. Less common species included greater spearwort, water figwort and marsh cinquefoil. Away from the towpath an area of marsh was mapped in the section between the Bord na Mona Railway and Daingean, just on the east side of the railway embankment.

Woodland and Scrub



Poplar treeline

Linear habitats dominated by tall trees were classified as **Treelines (WL2)**. Planted treelines were common along the towpath verge throughout the study area and were typically dominated by ash, sycamore, elm or poplar.

Hedgerow (WL1) was the most common field boundary habitat throughout the study area. The most common type of hedgerow was one dominated by willow and hawthorn with occasional ash trees. Other hedgerow species included blackthorn, elder, wild privet, dog rose and guelder rose. Trees present were usually ash or sycamore, but elm, alder and birch also occurred amongst others. Hedgerows on the towpath verge were typically unmanaged, though some hedgerows consisted just of a low bramble hedge or blackthorn hedge but these were usually in an area away from the towpath.



Typical boundary verge hedgerow

Where hedgerows were wide (>10m) they were mapped as woodland or scrub. In many cases a boundary hedge has expanded into an adjacent area of low willows, brambles and bracken which together were mapped as **Scrub (WS1)**. Where the hedge included taller trees and had expanded into an area with predominately mature trees, or two tall parallel hedgerows had merged together, this was mapped as a woodland category.

Due to the modified nature of the canal embankment, adjacent field boundaries and peatlands in the study area, frequently strips and blocks of woodland did not tend to neatly fit into any particular Fossitt category. This was particularly the case with wide strips of woodland that extended from the dry, and often calcareous, embankment onto lands below which were often more acidic or wetter. In addition, a lot of wooded strips and larger areas had been planted with non-native species such as beech and sycamore mixed in with species that aligned more closely with a Fossitt category. Categories assigned were those that most aligned with the mix of species present.



Wet willow/ash woodland



Ash-dominated woodland

Linear areas of ash and willow, that were too wide to be classified as a hedgerow, and had some wet element to their ground flora (frequently meadowsweet, reeds or flag iris), were put in the **Wet willow-alder-ash woodland (WN6)** category. Some larger blocks of this woodland were mapped at L'Estrange Bridge, Georges Bridge and in Ballycommon. The woodland at Georges bridge included abundant mature alder.

Linear areas of ash and willow, that were too wide to be classified as a hedgerow, but had no obvious wet element to the ground flora, were put in the **Oak-ash-hazel woodland (WN2)** category. Hawthorn and sycamore were also common components. The ground flora was usually quite species poor and dominated by brambles and ivy.



Bog Woodland

Areas where birch and willow were encountered on peat (including cutaway) were assigned to the **Bog woodland (WN7)** category. Gorse, heather, bracken and purple moor grass were also frequent components. The height of trees was quite variable and depended on the depth of peat. Low growing birch, willow and gorse scrub on remnant raised bog marginal habitats was also included in this category.

Scrub (WS1) was most frequently assigned along towpath verges. It often occurred as a low growing bramble and bracken mix at the edge of a treeline or hedgerow. Where wide enough it was mapped separately to the linear boundary habitat, and where narrower it was often mapped together with a hedgerow. Where areas dominated entirely by bracken were wide enough to be mapped separately then the category **Dense bracken (HD1)** was assigned. Smaller stands of bracken usually occurred as part of Scrub (WS1) or sometimes as a component of the towpath mosaic.



Scrub on towpath verge

Peatland and Fen



Raised Bog

Remnant sections of **Raised Bog (PB1)** were encountered in a few locations – particularly east and west of Pollagh, and at Toberdaly. In all cases these bogs were quite dry, with active peat cutting occurring at the bog margins. The habitat was characterised by ling, bog cotton, bog asphodel, cross-leaved heath, white-beak sedge and hummocks/mats of Sphagnum mosses.

Areas of previously worked bogs in various stages of recolonisation were assigned to **Cutover Bog (PB4)**. In places the habitat comprised almost entirely of bare peat. Where recolonisation was recent the habitat was dominated by bog cotton and purple moor grass. Areas that had been recovering for longer had a species composition more consistent with wet grassland and/or wet heath, or had been colonized by bracken, birch and willows. Where practical these habitats were mapped separately, otherwise the habitat mosaic is described in the section descriptions.



Cutover Bog



Poor fen

Poor fen (PF1) was mapped at one location - west of Daingean in the area to the south of the towpath and to the north of Daingean Bog. The habitat is characterised by a waterlogged peat-forming substrate with sphagnum mosses, together with some typical 'bog' species such as bogbean, bog cotton, bog asphodel and ling. Within a wet hollow in this area a habitat more consistent with **Transition mire (PF3)** is present, with sedges and mosses more associated with some basic influence.

Built, Amenity and Ornamental Habitats

Amenity grassland (GA2) in the study area was associated with mown towpaths and the areas around locks and bridges. Typical species were perennial rye grass, clovers, selfheal, ribwort plantain, greater plantain and creeping buttercup.

Buildings and Artificial Surfaces (BL3) was mapped where any built structures were present. Bridges and lock/harbour walls can be assigned to the **Stone walls and other stonework (BL1)** category, however the extent of these areas was too narrow to map, and bridges are usually represented as BL3 following the roadway.

Within and around private dwellings gardens and boundary hedges were frequently mapped as **Ornamental and non-native shrubs (WS3)** or **Flower beds and borders (BC4)**. Where a lawn is large enough to be mapped it was assigned to Amenity grassland.

3.3 SPECIES

Flora

A total of 278 vascular plant species were recorded together with mosses, lichens and stoneworts. As might be expected a greater number of species was recorded in the longer and/or wider sections which also correlated with the diversity of habitats encountered.

The most common species were those associated with the canal, grassy verge and hedgerow habitats and are listed below.

Table 3.3-1 Common plant species

Unbranched Bur-reed	Common Valerian
False Oat Grass	Common Club-rush
Meadowsweet	Field Horsetail
Bramble	Flag Iris
Cock's-foot grass	Knapweed
Hedge Bindweed	Yellow Water-lily
Ash	Common Reed
Great Willowherb	Creeping Thistle
Ribwort Plantain	Hawthorn
Yorkshire Fog	Lady's Bedstraw
Water Plantain	Red Clover
Arrowhead	Rusty Willow
Whorled Water Milfoil	Nettle

The rare and protected (Curtis & McGough, 1988) Opposite-leaved pondweed was located outside of the canal in Shannon Harbour. Just one small patch of this species was found. It was not found at any location within the canal. NPWS has records of this species from Shannon Harbour (1993) and Tullamore (1899), with more recent (2011-2012) records from the 'Park' townland, located to the south of the 'Clonony beg' townland within which the village of Shannon harbour is located.

The NPWS have records of serrated wintergreen and Rannoch-rush at Pollagh Bog (N22) from the 1950's. This species was not encountered in the peatlands either side of Pollagh. There are also records of Green-winged orchid from Shannon harbour from the 1990's; these are associated with callow lands which were not in the study area. Data provided by the BSBI highlighted areas of botanical interest around Gallen and Ballycommon, with bee orchid amongst the species found at these locations.

Mosses were not the subject of a detailed survey. Common wall mosses such as *Tortula muralis*, *Grimmia pulvinata* and *Homalothecium sericeum* were associated with the bridges and lock walls. In grassland areas *Rhytidiadelphus squarrosus* and *Calliergonella cuspidata* were frequently encountered. In peatlands sphagnum mosses were an important component, together with lichens (*Cladonia* spp.). Other peatland mosses recorded were *Hypnum jutlandicum* and *Leucobryum glaucum*.

The NPWS have a record for *Weissia controversa* var. *densifolia*, a rare/threatened bryophyte from 2005 just south of the Grand Canal at Shannon Harbour. The British Bryological Society provided records for locations where bryophytes were recorded on or near the canal and these have been included in the relevant section descriptions.

Four charophyte species were recorded, with bristly stonewort the most frequent.



Stoneworts

Mammals

Late summer is not the ideal time for surveying mammals in that their resting/breeding places can be inaccessible due to overgrown vegetation. However clearly many mammals use the towpaths as a wildlife corridor and therefore signs of activity were frequently recorded. This was particularly evident in areas where the towpath comprised of mown amenity grassland and was not subject to frequent traffic or walkers.

The species of mammal recorded during the survey were Irish Hare, Brown Rat, Red Fox, Pine Marten, Irish Stoat, American Mink, Rabbit, Badger and Otter.

Otter activity was concentrated in the sections west of Tullamore between Henesy's Bridge and the Huband Aqueduct. Otter spraints, couches, slides and paths were found throughout this area.

Otter signs (spraints, paths and slides) were also found:

Between Rhode and Trimblestown Bridges;

- At Toberdaly Bridge;
- Between 25th and 24th Locks;
- Near the new Tullamore bypass, east of Tullamore, linking a drain/stream to the canal;
- Between Derry Bridge and the Bord na Mona Swivel Bridge; and
- Between Judges Bridge and Belmont Bridge.

There are records of otter on the NBDC and NPWS databases throughout the study area; however many are historical records from the 1980's. The more recent records have been extracted and are listed below:

- N403196 Clonony Bridge (2005)
- N298252 Ballycowan Bridge (2014)
- N1716022670 Turraun (2009)
- N327248 Tullamore River – south of WwTP west of Tullamore backing onto Canal (2012)
- N440276 Derrygreenagh – Bord na Mona Light Railway west of Daingean (2012)

Badger activity was noted in the following sections.

- A badger sett was identified in scrub woodland at the edge of an agricultural field between Macartney aqueduct and Derry Bridge. Badger signs (scats, snuffle holes, paths) were noted in and around the towpath within this section, and in the section to the west (Armstrong Bridge – Maccartney aqueduct).
- Between Henesy's and Becan's Bridges in Rahan - Badger activity was also obvious along the towpath in this section, and although no sett was located it is very likely that there is a sett in the hedgerow along the northern towpath verge, or in the fields behind it.
- Chenevix Bridge, Ballycommon – Bord na Mona light rail bridge.

There are records of badger throughout the study area on the NBDC database.

American mink, a high-impact invasive species¹, is present along the Grand Canal in Offaly. A mink was sighted east of Killeen Bridge, Daingean, and signs of mink (scats, paths) were found throughout the study area.

Pine marten scats were found at one location along the northern towpath to the east of Pollagh, close to areas of cutover bog and birch woodland. NPWS hold records of Pine marten from the Turraun area (2009 and 2011).

Data for bat species was obtained from Bat Conservation Ireland's database is included as a layer in the geodatabase for the project. Daubenton's bat has been recorded at a number of locations in the study area, and there is a known roost site for this species at Belmont Bridge in the west of the study area. Data provided by Bat Conservation Ireland indicates there are roost sites for Soprano pipistrelle, Brown long-eared bat and Natterer's bats within Charleville Demesne, and a roost site for Daubenton's bat at Rahan Bridge on the Clodiagh River.

Birds

A total of 47 bird species were recorded in the study area including 2 red-listed species of conservation concern, and 11 amber-listed species of conservation concern (Colhoun and Cummins, 2013). The study was not undertaken during the peak breeding season, nor was a breeding bird survey methodology or other species-specific survey methods followed. It is therefore likely that some species may have been under-recorded.

Notable birds in the study area included the red-listed yellowhammer and meadow pipit, the amber-listed and Annex I Bird Directive-listed species Kingfisher, and the amber-listed common sandpiper, goldcrest, greenfinch, house martin, house sparrow, kestrel, mistle thrush, spotted flycatcher, starling and swallow.

NPWS hold records of barn owl from Belmont and Charleville from 2009. There are a number of suitable barn owl roost locations throughout the study area. In particular the buildings around Shannon Harbour have potential to support this species.



Heron on canal towpath

Wetland species, and those associated with watercourses, included heron, reed bunting, sedge

¹ <http://invasivespeciesireland.com/toolkit/risk-assessment/prioritisation/recorded-species/>

warbler, moorhen and grey wagtail. Meadow pipit was associated with the peatland areas. The other bird species recorded were typical countryside hedgerow species.

Birdwatch Ireland have IWeBS records for Turraun nature reserve. No other sites are monitored for wintering birds in the vicinity of the Grand Canal in Offaly, although an aerial survey of the Shannon callows is carried out. The latest count season data available for Turraun is from winter 2013/2014 where teal, mallard, lapwing, snipe, curlew and black-headed gull were recorded. In previous winter seasons migratory swans and geese have been recorded at this site – maximum counts were 118 (Whooper Swan 2008-2009), 1 (Pink-footed goose 2007-2008) and 19 (Greylag Goose 2007-2008).

Amphibians and Reptiles

The common frog was recorded in 10 sections, and was mainly found in wet grassland or peatland habitats off the towpath. The canal itself does not provide suitable breeding habitat for frogs due to high levels of predation, however adjacent habitats supported this species. No smooth newt or common lizard were recorded.

There are records of common frog on the NBDC database throughout the study area. There are no records for common lizard in or near the study area; however this species is likely to be found in peatland habitats within the study area.

Fish

According to information provided by IFI the Grand Canal in Offaly supports important coarse and pike fisheries. The fish species found are– roach, perch, pike, rudd, tench, bream, bream hybrids, gudgeon and eel. Roach is dominant in terms of both biomass and numbers. Roach is a recent coloniser to the part of the Grand Canal west of the summit at Lowtown, having been largely absent during the period 1990-1995 when a large scale fish stock survey programme was undertaken. Pike and Perch are also found throughout the canal. Bream are locally abundant and a very important angling species, however numbers have decreased as a result of the Roach invasion. Brown trout and lamprey have not been recorded in IFI surveys on the Grand Canal in Offaly, but have been recorded elsewhere on the Grand Canal where they are typically associated with incoming streams. Salmonids require clean aerated gravels in which to spawn, high oxygen levels and good water quality. The canal is therefore unsuitable habitat for salmonid species. Eel were observed in the canal at Colgans Bridge in Edenderry (G.Smith, *pers. comm*).

Invertebrates

The data below was provided by IFI and is from their 2013-2014 survey of macroinvertebrates in the Grand Canal. The sampling locations were as follows:

- GCW6 – West of Edenderry (Rathmore-Georges Br Section)
- GCW8 – East of Rhode Bridge (Rhode Br-Trimblestown Br Section)
- GCW12 – West of Daingean (Light Rail Br Section - Molesworth Br, Daingean)
- GCW16 – Tullamore (Bury Br– 26th Lock Section)
- GCW18 – West of Tullamore (Huband Aqueduct – Ballycowan Br Section)
- GCW20 – Cornalaur (Cornalaur Br – Ballincloghan Br Section)
- GCW22 – Turraun (Light Railway Swivel Br – Pollagh Section)
- GCW24 – Ferbane (Gallen Br – Macartney Aqueduct Section)
- GCW27– East of Shannon Harbour(Clonomy Br – L'Estrange Br Section)

Notable records include Duck mussel (*Anodonta anatina*) and zebra mussel (*Dreissena polymorpha*) at Turraun. Macroinvertebrate ecological potential was classed as Good/Max at most sites with the exception of sites 12 and 16 which were classed as Moderate. These sites lacked the same number of species as other sections (see total at bottom of table) and included less mayfly and dragon/damselfly larvae compared with the other sites. Furthermore site 12 was assigned a lower water quality status which aligns with the macroinvertebrate status.

Table 3.3-2 Grand Canal Macroinvertebrates

			GCW 6	GCW 8	GCW 12	GCW 16	GCW 18	GCW 20	GCW 22	GCW 24	GCW 27
Crustaceans	Asellidae	<i>Asellus aquaticus</i>	13	17		17	154	113	103	79	31
	Crangonyctidae	<i>Crangonyx pseudogracilis</i>	46	12	2	20	173	81	116	156	125
	Corophiidae	<i>Chelicorophium curvispinum</i>							1		
Water Bugs	Gerridae	<i>Gerris lacustris</i>						1			
		<i>Gerris argentatus</i>	1								
		<i>Limnoporus rufoscutellatus</i>	1								
	Corixidae	<i>Corixidae</i>	1								
	Notonectidae	<i>Notonectidae</i>	1	2							
		<i>Notonecta glauca</i>	1				2	2		1	
Mayfly	Caenidae	<i>Caenis horaria</i>	16	17	3		2	1	40		62
		<i>Caenis luctuosa</i>	14	27			2	5	46		41
	Baetidae	<i>Cloeon simile</i>	102	1				4	1	1	2
		<i>Centroptilum luteolum</i>						1			2
Alderfly	Sialidae	<i>Sialis lutaria</i>	4			1		1	3	4	1
Caddisfly	Limnephilidae	<i>Limnephilidae</i>		2			32	31	7	4	10
		<i>Limnephilus lunatus</i>	4	1	2	6	14	8	2		

			GCW 6	GCW 8	GCW 12	GCW 16	GCW 18	GCW 20	GCW 22	GCW 24	GCW 27
		<i>Limnephilus marmoratus</i>		2	2	6	6	11	11	3	5
		<i>Anabolia nervosa</i>			8	2	1				
		<i>Halesus radiatus</i>		3		3		1	8		
	Leptoceridae	<i>Leptoceridae</i>	1				3	2			3
		<i>Mystacides longicornis</i>					1				
		<i>Triaenodes bicolor</i>		4							
		<i>Athripsodes aterrimus</i>	2	1				2			1
		<i>Athripsodes cinereus</i>									1
		<i>Oecetis furva</i>	1								
	Polycentropodidae	<i>Polycentropodidae</i>						1			
		<i>Cyrnus flavidus</i>						1			
		<i>Cyrnus trimaculatus</i>		1							
	Ecnomidae	<i>Ecnomus tenellus</i>		1					1		
Damselflies	Coenagrioniidae	<i>Coenagrioniidae</i>	24	3	1		3	1		2	2
		<i>Ischnura elegans</i>	36	7				2			3
		<i>Enallagma cyathigerum</i>	6					1			
		<i>Coenagrion pulchellum/puella</i>	3					1			
Dragonflies	Aeshnidae	<i>Brachytron pratense</i>		1							
		<i>Aeshnidae</i>								2	
		<i>Aeshna grandis</i>	1	1					3		
	Libellulidae	<i>Libellula quadrimaculata</i>									1
Gastropod Molluscs	Bithyniidae	<i>Bithynia leachii</i>	15	1		1	208	27	5	2	
		<i>Bithynia tentaculata</i>	13	1		1	35	12	3	2	
	Physidae	<i>Physa fontinalis</i>						1			
		<i>Physella acuta</i>					3				
	Lymnaeidae	<i>Lymnaea stagnalis</i>		2		1				1	
		<i>Radix auricularia</i>								1	
		<i>Lymnaeidae</i>							1		
	Planorbidae	<i>Gyraulus albus</i>	2								
		<i>Planorbis carinatus</i>	20				27	5	2	5	
		<i>Planorbarius corneus</i>								2	
	Succineidae	<i>Succineidae</i>		1		3		2	2	1	
Bivalve Molluscs	Sphaeriidae	<i>Sphaerium corneum</i>	3	1	1			1	3	3	1
		<i>Pisidium sp.</i>		3	2	8	13	5	16	6	4
		<i>Pisidium amnicum</i>				4					
		<i>Pisidium henslowarum</i>		3	1	2		2	5	1	
		<i>Musculium lacustre</i>			1						
	Unionidae	<i>Anodonta anatina</i>							1		
	Dreissenidae	<i>Dreissena polymorpha</i>							1		
Beetles	Helophoridae	<i>Helophorus sp.</i>	1	1							
	Dytiscidae	<i>Hyphydrus ovatus</i>	1						2	1	1
		<i>Hygrotus inaequalis</i>	2								
		<i>Dytiscus marginalis</i>									1
		<i>Dytiscus sp larva</i>								2	
	Noteridae	<i>Noterus clavicornis</i>							5		
		<i>Noterus crassicornis</i>						1			

			GCW 6	GCW 8	GCW 12	GCW 16	GCW 18	GCW 20	GCW 22	GCW 24	GCW 27
	Halplidae	<i>Haliplus confinis</i>	2								
		<i>Haliplus obliquus</i>	2								
		<i>Haliplus flavicollis</i>	2					1			5
		<i>Haliplus ruficollis</i> group					1	1			
	Chrysomelidae	<i>Donacia</i> sp					1				
		<i>Donaciinae</i> sp						3			
		<i>Galerucinae</i>							1		
	Gyrinidae	<i>Gyrinus aeratus</i>						3			
	Elmidae	<i>Limnius volckmari</i>									2
	Staphylinidae	<i>Staphylinidae</i>		1							
Leeches	Glossiphoniidae	<i>Alboglossiphonia heteroclita</i>				1					
		<i>Glossiphonia complanata</i>						1			
		<i>Helobdella stagnalis</i>						1			
		<i>Hemiclepsis marginata</i>							1		1
Mites/Spiders	Hydracarina	<i>Hydracarina</i>							1		
	Limnocharidae	<i>Limnocharidae</i>			1						
	Argyronetidae	<i>Argyroneta aquatica</i>	1	1					1		1
Fly Larvae	Limoniidae	<i>Limoniidae</i>	1	1			1	1			
	Chironomidae	<i>Chironomidae</i>	16	27	12	25	23	40	54	34	
	Ceratopogonidae	<i>Ceratopogonidae</i>		8					1		
Moths	Pyalidae	<i>Pyalidae</i>	4	2			6	3		1	
Worms	Oligochaeta	<i>Oligochaeta</i>	1		1	1				1	
		<i>Spirosperma ferox</i>							2		6
		<i>Limnodrilus</i> sp				2					
Total No. Sps			36	32	13	18	22	39	32	24	24

Duck mussel was recorded from dredge spoil between Ballycommon and Daingean.

A range of common butterfly, dragonfly, damselfly and bumblebee species were recorded during the canal survey. No rare or red-listed (Fitzpatrick *et al*, 2006, Regan *et al*, 2010; Nelson *et al*, 2011) species were recorded. The NBDC has records of a number of dragonfly and damselfly species in the section of canal between Belmont and Noggus Bridges – brown hawkler, hairy dragonfly, variable damselfly, common blue damselfly, blue-tailed damselfly, four spotted chaser and large red damselfly.

While devil's bit scabious was quite frequent, no significant areas that might be considered suitable marsh fritillary sites were identified. The NBDC holds no records of marsh fritillary along the canal. The closest record is ca. 1km to the south of Glyn Bridge in Cush East Bog (N094217). There are other records ca. 3.5km south of Tullamore at Cloonagh East, and at Lullymore Bog in Kildare ca. 3.5km to the south of Lock 20.

The NBDC database holds records for some threatened, vulnerable and endangered non-marine mollusc species (Byrne *et al*, 2009) in the study area.

- Duck mussel (vulnerable) - Shannon harbour, east Pollagh and east of Tullamore.
- Globular pea mussel (near threatened) Shannon harbour and east of Pollagh.
- Pygmy pea mussel (endangered) - Shannon harbour.
- Ear pond snail (vulnerable) - Shannon harbour, west of Toberdaly.
- Moss bladder snail (vulnerable) - near Daingean.

IFI recorded white clawed crayfish at Charlestown (Macartney) Aqueduct on the 32nd level of the Grand Canal (213818 221647) during a fish rescue operation in October 2014. They note that this is currently the most westerly record for crayfish on the Grand Canal. Prior to this, the most westerly record was from a site immediately west of the 19th lock at Robertstown in 2012 (c.70 km to the east). They further note that it is possible that other populations of crayfish are associated with similar structures in the canal.

There do not appear to be any other records of crayfish from within the Grand Canal in Offaly; however there are numerous records from the rivers and tributaries crossing the canal throughout the study area (NPWS and NBDC). In particular there are records for the Brosna and Clodiagh and Tullamore rivers and their tributaries.

Invasives

High-risk invasive species encountered during the study were American mink, Japanese knotweed and Rhododendron.

Amber-listed invasive species², or those which have the potential to represent a significant impact on native species or habitats causing significant decline or lost, included Sycamore, Beech, Montbretia, Snowberry and Sitka spruce. Amber-listed species of uncertain risk were Travellers-joy and Butterfly bush.

Sycamore and beech are long established planted tree species and were not treated as invasives for the purposes of this study. The occurrences of Montbretia, Travellers-joy and Butterfly bush were generally



Knotweed west of Toberdaly Bridge

² <http://invasivespeciesireland.com/toolkit/risk-assessment/amber-list-recorded-species/>

associated with garden planting. While currently not growing away from property boundaries, they were considered potentially invasive as there is a risk that they might spread in the future.

Snowberry was the most common invasive plant species encountered. It spreads through the towpath verge hedgerows or treeline understoreys, usually in areas of the canal close to bridges and dwellings. Japanese knotweed was found at a number of locations between Killeen Bridge and Trimblestown Bridges. Occurrences of knotweed and Himalayan balsam on the north bank near the bridge in Daingean could not be relocated and appear to have been successfully eradicated.

Invasive species are highlighted in bold font within the individual section species lists.

There are records of zebra mussel throughout the canal from a survey undertaken by E. Moorkens and I. Killeen in 2003. They identified zebra mussel at the locations listed below.

- N036192 Shannon harbour
- N046196 34th Lock
- N059205 L'Estrange Bridge
- N095228 Glyn Bridge
- N103228 Noggus Bridge
- N168237 Turraun
- N209263 Pollagh
- N257250 Corcoran's Bridge
- N296252 Ballycowan Br
- N352255 East of Tullamore
- N354255 East of Tullamore
- N391254 29th Lock
- N421257 Join of Kilbeggan Branch
- N447276 West of Daingean
- N490289 Killeen Bridge
- N501304 East of Killeen Bridge
- N525312 Toberdaly Bridge

IFI also have a record of this species from the canal near Turraun.

Hydrological and Geological Setting

The study area is within three river basin districts - the Shannon RBD (Shannon Harbour to Ballycommon), the south-eastern RBD or Barrow catchment (Ballycommon to Rhode) the eastern RBD or Boyne catchment (Rhode to Edenderry). As noted earlier, the water quality in the Grand Canal in Offaly is classified being of 'good' status (2010-2012) for most of its length.

Geologically the study area is a mix of mineral soils and peat soils/subsoils. Shannon harbour is predominately underlain by limestone till, with some cutover peat. Between Ballingowan and Glyn Bridges subsoils are gravels derived from basic igneous rock. Moving east the study area is underlain by cutover peat with some alluvial deposits (Silver River) and a small patch of limestone till at Pollagh. Then soils and subsoils are predominately derived from limestone from Ballincloghan to Tullamore. East of Tullamore the study area intersects areas of both limestone till and cutover peat, with cutover peat the main geological feature east of Ballycommon.

4 SURVEY RESULTS BY CANAL SECTIONS

4.1 36TH LOCK, JUNCTION WITH SHANNON-35TH LOCK

Map 1, Section length – 0.4km

Habitats and Flora

A gravel path runs along the southern towpath in this section with a low hedge (WL1) on the towpath verge dominated by bramble, hawthorn and ash. A narrow strip of tall wet grassland (GS4) occurs to the south of the hedgerow with reed sweet grass, reed canary grass, great willowherb and false oat grass common. South of this there is a drainage ditch which has been colonised by willow. The towpath mosaic incorporates stands of reed and large sedge swamp (FS1) dominated by reed sweet grass and common club rush, and the typical marsh (GM1)-wet grassland (GS4)-dry grassland (GS1) habitat transition.



36th Lock, south towpath, view east

The northern towpath consists of a gravel path for most of this section. The towpath verge consists of an area of dry grassy verges (GS2) which transitions into an area of willow scrub dominated by rusty willow and white willow. Toward Lock 35 the willow scrub merges with a boundary row of ash trees at the base of the canal embankment. This area of scrub and woodland has been mapped as wet willow-alder-ash woodland (WN6).



North towpath, view east

The canal verge vegetation was species poor in comparison to sections further east. On the northern towpath boat moorings are frequent with wooden poles provided at the canal edge.

Aquatics included the typical emergent species – water plantain, arrowhead and yellow water lily while Canadian waterweed was the dominant submerged plant.

Table 4.1-1 Habitats recorded from 36th Lock to 35th Lock

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN6	Wet willow-alder-ash woodland

Table 4.1-2 Plant species recorded from 36th Lock to 35th Lock

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Ivy	<i>Hedera helix</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Knapweed	<i>Centaurea nigra</i>
Ash	<i>Fraxinus excelsior</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Nettle	<i>Urtica dioica</i>
Blackthorn	<i>Prunus spinosa</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Bracken	<i>Pteridium aquilinum</i>	Red Clover	<i>Trifolium pratense</i>
Bramble	<i>Rubus fruticosus agg.</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Coltsfoot	<i>Tussilago farfara</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Smooth Sow Thistle	<i>Sonchus oleraceus</i>
Common Valerian	<i>Valeriana officinalis</i>	Timothy	<i>Phleum pratense</i>
Corn Mint	<i>Mentha arvensis</i>	Tufted Vetch	<i>Vicia cracca</i>
Crack Willow	<i>Salix fragilis</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Creeping Thistle	<i>Cirsium arvense</i>	Water Figwort	<i>Scrophularia auriculata</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Water Mint	<i>Mentha aquatica</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Field horsetail	<i>Equisetum arvense</i>	White Clover	<i>Trifolium repens</i>
Great Willowherb	<i>Epilobium hirsutum</i>	White Willow	<i>Salix alba</i>
Greater Plantain	<i>Plantago major</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Hard Rush	<i>Juncus inflexus</i>	Wild Angelica	<i>Angelica sylvestris</i>
Hawthorn	<i>Crataegus monogyna</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

This short section is easily accessible from Shannon Harbour and used for boat moorings. There was no evidence of mammal activity and only a small number of common bird species were recorded.

Table 4.1-3 Animal species recorded from 36th Lock to 35th Lock

Common Name	Scientific Name
Birds	
Robin	<i>Erithacus rubecula</i>
Jackdaw	<i>Corvus monedula</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Blackbird	<i>Turdus merula</i>
Starling	<i>Sturnus vulgaris</i>
Goldcrest	<i>Regulus regulus</i>
House Sparrow	<i>Passer domesticus</i>
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Invertebrates	
Peacock	<i>Aglais io</i>

4.2 35TH LOCK-GRIFFITH BRIDGE

Map 1, Section length – 0.6km

Habitats and Flora

The study area includes a property to the north of lock 35th, this property is bounded by an inner ornamental hedge and an outer mature ash treeline. The northern towpath is gravel with a narrow amenity grassland edge alongside a stone/walled canal edge where boats are moored. On the towpath verge there is a treeline including a row of poplar trees together with mature hawthorn, elder, ash, hazel, birch, sycamore and lime. Some invasive species occur towards Griffith Bridge – cherry laurel, travellers joy and snowberry. There was no evidence of Japanese knotweed (previously recorded here by IFI).

To the south of the canal the landholding includes much of the village of Shannon Harbour. Much of this area has been designated as an ESA. There are a number of disused old buildings which have become overgrown with tall grasses, herbs and willow scrub. Common species include false oat grass, spear thistle, creeping thistle, ragwort, common bent, grey willow, hedge bindweed and great willowherb. On the walls ivy-leaved toadflax, maidenhair spleenwort, wall rue, ivy, travellers joy and western polypody occur.

There are fields to the south of the landholding east and west of an abandoned building. The fields to the east comprise of a species-poor wet grassland (GS4) bounded by drainage ditches and grazed by horses. The drainage ditches have been colonised to varying degrees with willows. The field to the east has been partially reclaimed as a yard with a loose stone surface which has been mapped as BL3. The rest of the field is a overgrown wet grassland with species including wild angelica, great willowherb, false oat grass, Yorkshire fog, reed canary grass, reed sweet grass, flag iris and common bent. Sections of hedgerows/treelines (WL2) occur along the roadways bounding these fields and are dominated by birch, rowan and Scots pine.



Wet grassland south of Shannon Harbour



Opposite-leaved pondweed

Of note is the presence of the rare and protected Opposite-leaved pondweed in one of these drainage ditches. Other aquatic species present in the drainage ditch network include frogbit, duckweed and Canadian waterweed.

Table 4.2-1 Habitats recorded from 35th Lock - Griffith Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
WS3	Ornamental/non-native shrub
WD5	Scattered trees and parkland
GS4	Wet grassland
WL1	Hedgerow
WL2	Treelines

Table 4.2-2 Plant species recorded from 35th Lock - Griffith Bridge

Common Name	Scientific Name
Vascular Plants	
Ash	<i>Fraxinus excelsior</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Catsear	<i>Hypochaeris radicata</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>

Common Name	Scientific Name
Common Bent	<i>Agrostis capillaris</i>
Common Lime	<i>Tilia x europaea</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum agg.</i>
Downy Birch	<i>Betula pubescens</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>

Common Name	Scientific Name
Great Willowherb	<i>Epilobium hirsutum</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hybrid Black Poplar	<i>Populus x canadensis</i>
Ivy	<i>Hedera helix</i>
Ivy-leaved Toadflax	<i>Cymbalaria muralis</i>
Knapweed	<i>Centaurea nigra</i>
Maidenhair Spleenwort	<i>Asplenium trichomanes</i>
Marsh Ragwort	<i>Senecio aquaticus</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Nettle	<i>Urtica dioica</i>
Opposite-leaved Pondweed	<i>Groenlandia densa</i>
Osier	<i>Salix viminalis</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>

Common Name	Scientific Name
Silver Birch	<i>Betula pendula</i>
Silverweed	<i>Potentilla anserina</i>
Snowberry	<i>Symphoricarpos albus</i>
Softrush	<i>Juncus effusus</i>
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Sycamore	<i>Fagus sylvatica</i>
Traveller's-joy	<i>Clematis vitalba</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Western Polypody	<i>Polypodium interjectum</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Bryophytes	
Moss*	<i>Pseudocrossidium revolutum</i>
Moss*	<i>Syntrichia montana</i>
Moss*	<i>Bryum pallescens</i>
Moss*	<i>Bryum pallescens</i>
Moss*	<i>Orthotrichum diaphanum</i>
Moss*	<i>Pseudocrossidium revolutum</i>
Moss*	<i>Syntrichia montana</i>
Moss*	<i>Weissia controversa var. densifolia</i>

*BBS Record

Fauna

This short section is within Shannon Harbour and therefore subject to ongoing human disturbance. There was evidence of fox in the rank grassland to the south of this section, and a small number of common and widespread bird species were recorded including the red-listed meadow pipit. The disused buildings have significant bat and barn owl potential.



Shannon Harbour buildings

Table 4.2-3 Animal species recorded from 35th Lock -Griffith Bridge

Common Name	Scientific Name
Mammals	
Fox	<i>Vulpes vulpes</i>
Birds	
House Sparrow	<i>Passer domesticus</i>
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Meadow Pipit	<i>Anthus pratensis</i>
Robin	<i>Erithacus rubecula</i>
Jackdaw	<i>Corvus monedula</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Lesser Redpoll	<i>Carduelis cabaret</i>
Great Tit	<i>Parus major</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Large white	<i>Pieris brassicae</i>
Brown hawker	<i>Aeshna grandis</i>

4.3 GRIFFITH BRIDGE-CLONONEY BRIDGE

Map 1-2, Section length – 1.4km

Habitats and Flora

A road runs along the southern towpath with TPM mapped on the canal verge, GS2 on the towpath verge and hedgerow (WL1) or treeline (WL2) mapped on the towpath boundary. The section of TPM closest to Griffith Bridge/Shannon Harbour is low in diversity and trampled/cut in areas particularly around boat moorings, with marginal vegetation much reduced. Floral diversity and the abundance of marginal vegetation increases towards Clononey Bridge as boat activity lessens. TPM



South towpath, view west

habitats include stands of reed-like plants such as club rush (FS1), and the typical transition from wet to dry grassland (GS1). Species include meadowsweet, meadow buttercup, rough hawkbit, selfheal, common spotted orchid, square-stemmed St John's wort, agrimony, wild carrot and devils bit scabious. A small patch of *Montbretia* was notable. Typical marginal plants included water plantain, arrowhead, and yellow lily. Submerged macrophytes were abundant and included dense areas of Canadian waterweed together with perfoliate pondweed, shining pondweed, whorled water milfoil and fennel pondweed. Bristly stonewort was abundant in areas.

The northern towpath is predominately mown grass. There is a short section of roadway near Griffith Bridge and Snowberry and Travellers-joy occur at the base of the sycamore-ash treeline along the road edge. The northern section is mapped mainly as TPM which comprises the transitional canal marginal habitat which merges with an amenity grassland mown path (GA2). The TPM includes reedbeds (FS1) dominated by stands of club rush, reed canary grass, reed sweet grass, common reed or bottle sedge.



North towpath, view east

It also included marsh (GM1) and wet grassland (GS4) species such as water mint, great willowherb,

purple loosestrife, wild angelica, common valerian, Yorkshire fog and sharp-flowered rush; and dry grassland species (GS1/GS2) such as red clover, field horsetail, ribwort plantain, false oat grass, timothy and cock's foot grass.

On the towpath verge the amenity grassland grades into a grassy verges habitat which (GS2) with typical common species including cock's-foot grass, meadowsweet, false oat grass, great willowherb and wild carrot. This grassy verge then usually merges with hedgerows (WL1) or treelines (WL2) with species such as willows, ash, sycamore, Scots pine, pedunculate oak, guelder rose and hawthorn.

Table 4.3-1 Habitats recorded from Griffith Bridge - Clononey Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS3	Ornamental/non-native shrub

Table 4.3-2 Plant species recorded from Griffith Bridge - Clononey Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Common Bent	<i>Agrostis capillaris</i>
Agrimony	<i>Agrimonia procera</i>	Common Club-rush	<i>Schoenoplectus lacustris</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Common Fleabane	<i>Pulicaria dysenterica</i>
Ash	<i>Fraxinus excelsior</i>	Common Reed	<i>Phragmites australis</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>
Blackthorn	<i>Prunus spinosa</i>	Common Valerian	<i>Valeriana officinalis</i>
Bottle Sedge	<i>Carex rostrata</i>	Corn Sow Thistle	<i>Sonchus arvensis</i>
Bramble	<i>Rubus fruticosus agg.</i>	Couch Grass	<i>Elymus repens</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Cowslip	<i>Primula veris</i>
Broom	<i>Cytisus scoparius</i>	Creeping Thistle	<i>Cirsium arvense</i>
Bulrush	<i>Typha latifolia</i>	Devilsbit Scabious	<i>Succisa pratensis</i>
Butterbur	<i>Petasites hybridus</i>	Dog Rose	<i>Rosa canina</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Common Duckweed	<i>Lemna minor</i>
Celery-leaved Buttercup	<i>Ranunculus sceleratus</i>	Eared Willow	<i>Salix aurita</i>
Cleavers	<i>Galium aparine</i>	Elder	<i>Sambucus nigra</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	False Oat Grass	<i>Arrhenatherum elatius</i>
Coltsfoot	<i>Tussilago farfara</i>	Fennel Pondweed	<i>Potamogeton pectinatus</i>

Common Name	Scientific Name
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Guelder Rose	<i>Viburnum opulus</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Knapweed	<i>Centaurea nigra</i>
Knotgrass	<i>Polygonum aviculare</i>
Lords and Ladies	<i>Arum maculatum</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Montbretia	<i>Crocsmia x crocosmiiflora</i>
Nettle	<i>Urtica dioica</i>
Osier	<i>Salix viminalis</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Pedunculate Oak	<i>Quercus robur</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Pineappleweed	<i>Matricaria discoidea</i>
Prickly Sow Thistle	<i>Sonchus asper</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Osier Dogwood	<i>Cornus sericea</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>

Common Name	Scientific Name
Rosebay	<i>Epilobium angustifolium</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea</i> subsp <i>oleifolia</i>
Scentless Mayweed	<i>Matricaria perforata</i>
Scots Pine	<i>Pinus sylvestris</i>
Selfheal	<i>Prunella vulgaris</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Snowberry	<i>Symphoricarpos albus</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Traveller's-joy	<i>Clematis vitalba</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Watercress	<i>Rorippa nasturtium- aquaticum</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>

Fauna

This section was again quite accessible from Shannon Harbour, and sport-fishing was observed along the northern towpath. There was no evidence of badger or otter presence. A rat was sighted and mink and fox are likely to be present. Clononey Bridge has some limited bat potential. Common and widespread bird species were recorded.

Table 4.3-3 Animal species recorded from Griffith Bridge - Clononey Bridge

Common Name	Scientific Name
Mammal	
Rat	<i>Rattus norvegicus</i>
Birds	
Blackbird	<i>Turdus merula</i>
Goldcrest	<i>Regulus regulus</i>
Heron	<i>Ardea cinerea</i>
House Sparrow	<i>Passer domesticus</i>
Jackdaw	<i>Corvus monedula</i>
Moorhen	<i>Gallinula chloropus</i>
Swallow	<i>Hirundo rustica</i>
Rook	<i>Corvus frugilegus</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>
Invertebrates	
Large white	<i>Pieris brassicae</i>
Common darter	<i>Sympetrum striolatum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>
Common blue	<i>Polyommatus icarus</i>
Common carder bee	<i>Bombus pascuorum</i>

4.4 34TH LOCK, CLONONEY BRIDGE – L'ESTRANGE BRIDGE

Map 2-3, Section length – 1.0km

Habitats and Flora



South towpath, view west

Along the southern towpath the canal edge habitats are mapped as TPM with an adjacent gravel path and a treeline or hedgerow on the outside of the path. Closer to L'Estrange Bridge the treeline expands out into a woodland habitat mapped as wet willow-alder-ash woodland (WN6). The woodland is characterised by rusty willow, white willow, hawthorn and ash, with some cherry, oak and hazel. The ground flora indicates wet conditions with meadowsweet and flag iris common. The lands behind the woodland are fields

reclaimed from cutover peatland, and a deep drain with running water (FW4) runs between the woodland and these fields. There are numerous access points from the canal towpath through the woodland into the fields.

The southern TPM includes intermittent stands of reedbeds. The vegetation has been cut along the edge of the path. The typical mosaic of wet to dry grassland species includes meadowsweet, marsh thistle, knapweed, yellow rattle, eyebright, common spotted orchid, lady's bedstraw and hard rush.

On the northern towpath, at Clononey Bridge, the landholding encompasses a lockkeeper's cottage and grounds. The grounds include an area of garden surrounding by some woodland planting including ash, oak, willow and birch. There is also a non-native leylandii and dogwood hedge mapped as WS3. Otherwise the northern TPM is as that described for the south, but grading into a mown grassy towpath (GA2), and then into a hedgerow dominated by willow with some hazel, bramble, elder, hawthorn and blackthorn. There is also a short section of treeline (WL2) dominated by mature ash and sycamore.

A wide strip of wet grassland (GS4) is mapped along the northern section towards L'Estrange Bridge with some grading into drier grassland closer to the path edges. The grassland is characterised by a range of species including sharp-flowered rush, marsh horsetail, marsh ragwort, common spotted orchid, crested dogstail, marsh bedstraw, purple loosestrife spear-tipped moss, meadowsweet, sweet

vernal grass, lesser spearwort, wild angelica and hard rush. The wettest areas occur by the drain (FW4) running to the north of the grassland. This area has been designated as an ESA.

There are dense areas of emergent and submerged macrophytes throughout this section including shining pondweed, broad-leaved pondweed, whorled water milfoil, perfoliate pondweed, Canadian waterweed, yellow water lily, marestail, fennel pondweed, unbranched bur-reed and water plantain. Bristly stonewort was also recorded.



Wet Grassland approaching L'Estrange Bridge

Table 4.4-1 Habitats recorded from 34th Lock Clononey Bridge – L'Estrange Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/ lowland rivers
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN6	Wet willow-alder-ash woodland
WD1	Mixed broadleaved woodland

Table 4.4-2 Plant species recorded from 34th Lock Clononey Bridge – L'Estrange Bridge

Common Name	Scientific Name
Vascular Plants	
Agrimony	<i>Agrimonia procera</i>
Almond Willow	<i>Salix triandra</i>
American Willowherb	<i>Epilobium ciliatum</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>

Common Name	Scientific Name
Bird's foot trefoil	<i>Lotus corniculatus</i>
Blackthorn	<i>Prunus spinosa</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus</i> agg.
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Canadian Waterweed	<i>Elodea canadensis</i>

Common Name	Scientific Name
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Maretail	<i>Hippus Vulgaris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Couch Grass	<i>Elymus repens</i>
Crack Willow	<i>Salix fragilis</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Thistle	<i>Cirsium arvense</i>
Crested Dogstail	<i>Cynosurus cristatus</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Herb Robert	<i>Geranium robertianum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Lesser Spearwort	<i>Ranunculus flammula</i>
Marsh Bedstraw	<i>Galium palustre</i>
Marsh Horsetail	<i>Equisetum palustre</i>
Marsh Ragwort	<i>Senecio aquaticus</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Pedunculate Oak	<i>Quercus robur</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>

Common Name	Scientific Name
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Sessile Oak	<i>Quercus petraea</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Spear Thistle	<i>Cirsium vulgare</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Cherry	<i>Prunus avium</i>
Wild Plum	<i>Prunus domestica</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>
Bryophytes	
moss	<i>Calliergonella cuspidata</i>

Fauna

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded. No signs of mammals were observed but mink and rat are likely to be present. Typical common hedgerow bird species were recorded.

Table 4.4-3: Animal species recorded from 34th Lock Clononey Bridge – L'Estrange Bridge

Common Name	Scientific Name
Birds	
Blackbird	<i>Turdus merula</i>
Coal Tit	<i>Periparus ater hibernicus</i>
Goldcrest	<i>Regulus regulus</i>
Great Tit	<i>Parus major</i>
Heron	<i>Ardea cinerea</i>
Jackdaw	<i>Corvus monedula</i>
Mistle Thrush	<i>Turdus viscivorus</i>
Robin	<i>Erithacus rubecula</i>
Swallow	<i>Hirundo rustica</i>
Woodpigeon	<i>Columba palumbus</i>
Invertebrates	
Blue-tailed damselfly	<i>Ischnura elegans</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Common darter	<i>Sympetrum striolatum</i>
Large white	<i>Pieris brassicae</i>

4.5 L'ESTRANGE BRIDGE – 33RD LOCK, BELMONT BRIDGE

Map 3-4, Section length – 2.6km

Habitats and Flora

The northern towpath initially comprises a gravel track, and further east a mown amenity grassland pathway. Initially just the canal verge is mapped as TPM, and then the towpath together with the canal verge habitats is mapped as TPM. The study area runs to the south of a forestry plantation, and backing onto this the canal embankment (towpath verge) is characterised by tall grasses, herbs and scrub species. Further east the towpath boundary habitats are mapped mainly as treelines or hedgerows.



South towpath, view east



South towpath, view west

Mature ash, sycamore and hazel are the dominant treeline species. The hedgerows mainly consisting of willow, hawthorn and blackthorn, though there is also some holly, alder and hazel. The towpath mosaic habitat includes the typical transition from reedbed to drier grassland. The reedbed element is represented by stands of common rush or common club rush. The grassland element is calcareous and includes orchids, cowslip and quaking grass.

A road runs for a short distance along the southern towpath. The towpath verge is dominated by grasses such as false oat-grass, cocksfoot grass and timothy but also contains broadleaved herbs such as lady's bedstraw, field horsetail, bramble, hedge bindweed, bush vetch, broad-leaved dock,

creeping thistle, water mint, knapweed, hogweed, hedge woundwort, meadowsweet and wild angelica. Along the roadway, a thin strip of the grassy verge is mown. From L'Estrange bridge to the end of the roadway, there is a hawthorn hedge with some standard sycamore, ash and willow trees in the vicinity

of L'Estrange bridge. The roadway quickly changes to mown amenity grassland, along which the grassy verge and hedgerow continue for half of this section. A stream was noted along the immediate south of this hedgerow.

A hawthorn, sycamore, ash, willow spp. and spindle treeline then dominates the boundary and the grassy verge is reduced to a very thin strip under the canopy of the trees. For mapping purposes, this section has been mapped as TPM from the bank of the canal to the treeline. To the south of the canal, outside of the land ownership boundary, an area of conifer forestry has been planted.

The towpath once again becomes roadway in the immediate vicinity of the 33rd lock. The banks of the canal in this section are heavily modified to accommodate the lock and bridge, a small area of improved amenity grassland is present up to the edge of the canal walls.

Aquatic species include the invasive Nuttall's waterweed and charophytes, together with the common emergent and submerged species.

Table 4.5-1 Habitats recorded from L'Estrange Bridge 33rd Lock, Belmont Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditch
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub
HD1	Dense bracken

Table 4.5-2 Plant species recorded from L'Estrange Bridge 33rd Lock, Belmont Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Bracken	<i>Pteridium aquilinum</i>
Agrimony	<i>Agrimonia procera</i>	Bramble	<i>Rubus fruticosus agg.</i>
Alder	<i>Alnus glutinosa</i>	Broad-leaved Dock	<i>Rumex obtusifolius</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Broad-leaved Pondweed	<i>Potamogeton natans</i>
Ash	<i>Fraxinus excelsior</i>	Bulrush	<i>Typha latifolia</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Bush Vetch	<i>Vicia sepium</i>
Black medick	<i>Medicago lupulina</i>	Cleavers	<i>Galium aparine</i>
Blackthorn	<i>Prunus spinosa</i>		

Common Name	Scientific Name
Cock's-foot grass	<i>Dactylis glomerata</i>
Coltsfoot	<i>Tussilago farfara</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Fleabane	<i>Pulicaria dysenterica</i>
Common Maretail	<i>Hippus Vulgaris</i>
Common Reed	<i>Phragmites australis</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Cotoneaster	<i>Cotoneaster sp.</i>
Cowslip	<i>Primula veris</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Curled Dock	<i>Rumex crispus</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Dog Rose	<i>Rosa canina</i>
Domestic Apple	<i>Malus sylvestris</i>
Eared Willow	<i>Salix aurita</i>
Elder	<i>Sambucus nigra</i>
Escallonia	<i>Escallonia sp.</i>
Eyebright	<i>Euphrasia spp.</i>
Fairy Flax	<i>Linum catharticum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Field Scabious	<i>Knautia arvensis</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Fuchsia	<i>Fuchsia magellanica</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Gelder Rose	<i>Viburnum opulus</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>
Hoary Willowherb	<i>Epilobium parviflorum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>

Common Name	Scientific Name
Honeysuckle	<i>Lonicera periclymenum</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Lady's Mantle	<i>Alchemilla vulgaris agg.</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Osier	<i>Salix viminalis</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Pineappleweed	<i>Matricaria discoidea</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Rhododendron	<i>Rhododendron ponticum</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rowan	<i>Sorbus aucuparia</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scots Pine	<i>Pinus sylvestris</i>
Selfheal	<i>Prunella vulgaris</i>
Sessile Oak	<i>Quercus petraea</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silver Birch	<i>Betula pendula</i>
Silverweed	<i>Potentilla anserina</i>
Softrush	<i>Juncus effusus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tormentil	<i>Potentilla erecta</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>

Common Name	Scientific Name
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wood Rush	<i>Luzula sylvatica</i>

Common Name	Scientific Name
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yew	<i>Taxus baccata</i>
Stoneworts	
Delicate Stonewort	<i>Chara virgata</i>

Fauna

No evidence of bats roosting was identified at L'Estrange Bridge on the day of survey; however the bridge is noted as having limited roost potential for bats due to some small crevices present.

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded.

Two mammal access points to the canal were noted along the southern canal bank, one of which was small, likely to be rats, the second one larger. A further two access tracks were noted through the hedgerow on the southern canal bank, connecting the canal towpath to the stream within the hedgerow, most likely made by otter. Birds recorded included buzzard and kestrel, together with common countryside species.

Table 4.5-3 Animal species recorded from L'Estrange Bridge 33rd Lock, Belmont Bridge

Common Name	Scientific Name
Mammals	
Rat	<i>Rattus norvegicus</i>
Otter	<i>Lutra lutra</i>
Birds	
Blue Tit	<i>Parus caeruleus</i>
Buzzard	<i>Buteo buteo</i>
Goldcrest	<i>Regulus regulus</i>
Grey Heron	<i>Ardea cinerea</i>
Kestrel	<i>Falco tinnunculus</i>
Lesser Redpoll	<i>Carduelis flammea cabaret</i>
Robin	<i>Erithacus rubecula</i>
Swallow	<i>Hirundo rustica.</i>

Common Name	Scientific Name
Willow Warbler	<i>Phylloscopus trochilus</i>
Wren	<i>Troglodytes troglodytes</i>
Jackdaw	<i>Corvus monedula</i>
Invertebrates	
Brown hawkler	<i>Aeshna grandis</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Ringlet	<i>Aphantopus hyperantus</i>
Common darter	<i>Sympetrum striolatum</i>
Small white	<i>Pieris rapae</i>
Meadow Brown	<i>Maniola jurtina</i>

4.6 33RD LOCK, BELMONT BRIDGE – JUDGE’S BRIDGE

Map 4-5, Section length – 0.8km

Habitats and Flora



Approach to Judges Bridge

With the exception of a short section of roadway near the 33rd lock on the southern towpath, both towpaths are mainly mapped as TPM incorporating a mown amenity grassland pathway and transitional canal verge habitats. The towpath verge boundary is predominately hedgerow with some sections of treeline with species including hawthorn, rusty willow, hazel, beech, ash, blackthorn, elder, sycamore, holly, elm and spindle.

Along the northern towpath, the dry grassland element is most consistent with grassy verges (GS2) combined with scrub (WS1), as some areas are quite overgrown with young ash, eared willow and rusty willow. The presence of Vervain along the northern towpath is notable as this was not found anywhere else in the study area.

Along the built section of towpath on the southern canal bank there is an exposed calcareous esker bank on the southern towpath verge. It has been designated an ESA. This area is mapped as GS1 as it a mix of calcareous species such as quaking-grass, carline thistle, rough hawkbit yellow-wort, field scabious, common knapweed, yarrow, lady’s bedstraw ,eyebright and the mosses *Rhytidiadelphus squarrosus*, *Ctenidium molluscum*, *Pseudoscleropodium purum* and *Calliergonella cuspidata*. Further east the towpath verge has become overgrown with gorse and bramble scrub.



South towpath verge esker bank

To the south of this bank is a woodland block dominated by oak, ash and hazel on the southern towpath, mapped as oak- ash-hazel woodland (WN2). This woodland forms part of esker woodland which extends to the south. Understorey species included blackthorn, hawthorn and bracken (along the towpath).

The canal verge habitats include reedbed (mostly common club rush), marsh/wet grassland and drier grassland.

Aquatic species include fennel pondweed, water milfoil, arrowhead, yellow water lily, broad-leaved pondweed, water plantain and charophytes.

Table 4.6-1: Habitats recorded from 33rd Lock, Belmont Bridge – Judge’s Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
BC4	Flower beds and borders
GA2	Amenity grassland (improved)
GS1	Dry calcareous and neutral grassland
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\WS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
WS1	Scrub

Table 4.6-2: Plant species recorded from 33rd Lock, Belmont Bridge – Judge’s Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Cock's-foot grass	<i>Dactylis glomerata</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Common Club-rush	<i>Schoenoplectus lacustris</i>
Ash	<i>Fraxinus excelsior</i>	Common Fleabane	<i>Pulicaria dysenterica</i>
Beech	<i>Fagus sylvatica</i>	Common Reed	<i>Phragmites australis</i>
Blackthorn	<i>Prunus spinosa</i>	Common Valerian	<i>Valeriana officinalis</i>
Bramble	<i>Rubus fruticosus agg.</i>	Couch Grass	<i>Elymus repens</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Creeping Thistle	<i>Cirsium arvense</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Dandelion	<i>Taraxacum agg.</i>
Bulrush	<i>Typha latifolia</i>	Dog Rose	<i>Rosa canina</i>
Bush Vetch	<i>Vicia sepium</i>	Eared Willow	<i>Salix aurita</i>
Carlina Thistle	<i>Carlina vulgaris</i>	Elder	<i>Sambucus nigra</i>
Cleavers	<i>Galium aparine</i>	Eyebright	<i>Euphrasia spp.</i>

Common Name	Scientific Name
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Field Scabious	<i>Knautia arvensis</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Ground Ivy	<i>Glechoma hederacea</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hoary Willowherb	<i>Epilobium parviflorum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>
Hybrid Black Poplar	<i>Populus x canadensis</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Pignut	<i>Conopodium majus</i>
Prickly Sow Thistle	<i>Sonchus asper</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp</i>

Common Name	Scientific Name
	<i>oleifolia</i>
Sessile Oak	<i>Quercus petraea</i>
Silverweed	<i>Potentilla anserina</i>
Softrush	<i>Juncus effusus</i>
Spindle	<i>Euonymus europaeus</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sycamore	<i>Fagus sylvatica</i>
Tormentil	<i>Potentilla erecta</i>
Tree of Heaven	<i>Ailanthus altissima</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Vervain	<i>Verbena officinalis</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Figwort	<i>Scrophularia auriculata</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yellow-wort	<i>Blackstonia perfoliata</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Bryophytes	
Moss	<i>Rhytidiadelphus squarrosus</i>
Moss	<i>Calliergonella cuspidata</i>
Moss	<i>Ctenidium molluscum,</i>
Moss	<i>Pseudoscleropodium purum</i>
Stoneworts	
Rugged Stonewort	<i>Chara rudis</i>
Delicate Stonewort	<i>Chara virgata</i>

Fauna

It was not possible to assess Belmont Bridge at the 33rd lock for roosting bats as there was no walking access under the bridge. This bridge is however stone and there may be crevices or ledges for bats to roost. Judge's Bridge was searched for signs of roosting bats and although no evidence was found, this bridge was assessed as also having potential for roosting bats.

Data from Bat Conservation Ireland indicates that Belmont Bridge has in the past been used as a roost site by Daubenton's Bats. This section was surveyed as part of a bat transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded. Raven was recorded in this section, together with typical common hedgerow bird species.

Table 4.6-3 Animal species recorded from 33rd Lock, Belmont Bridge – Judge's Bridge

Common Name	Scientific Name
Birds	
Willow Warbler	<i>Phylloscopus trochilus</i>
Raven	<i>Corvus corax</i>
Robin	<i>Erithacus rubecula</i>
Wren	<i>Troglodytes troglodytes</i>
Duncock	<i>Prunella modularis</i>
Goldcrest	<i>Regulus regulus</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Great Tit	<i>Parus major</i>
Invertebrates	
Brown hawker	<i>Aeshna grandis</i>
Small tortoiseshell	<i>Aglais urticae</i>
Peacock	<i>Aglais io</i>
Common darter	<i>Sympetrum striolatum</i>
White-tailed bumblebee	<i>Bombus leucorum</i>

4.7 JUDGE'S BRIDGE – 32ND LOCK, GLYN BRIDGE

Map 5, Section length – 1.2km

Habitats and Flora

This section is similar to the previous one, with both towpaths mainly mapped as TPM incorporating a mown amenity grassland pathway and transitional canal verge habitats. The towpath verge is again predominately hedgerow with some sections of treeline and a narrow grassy verge underneath. Treelines are dominated by mature beech, ash, rusty willow, sycamore and hazel. Travellers-joy and soapwort were noted within the towpath verge vegetation.



South towpath, view east

The canal verge habitats include reedbed (mostly common club rush), marsh/wet grassland and drier grassland. The dry grassland element is mostly a mosaic of calcareous grassland (GS1) and grassy verges (GS2), with some invading willow scrub in places.

Aquatics include the invasive Nuttall's waterweed, together with fennel pondweed, arrowhead, yellow water lily, perfoliate pondweed, water milfoil, water plantain and charophytes.

Table 4.7-1 Habitats recorded from Judges' Bridge – 32nd Lock, Glyn Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
ED3	Recolonising bare ground
GA2	Amenity grassland (improved)
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub

Table 4.7-2 Plant species recorded from Judges' Bridge – 32nd Lock, Glyn Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Ash	<i>Fraxinus excelsior</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Beech	<i>Fagus sylvatica</i>

Common Name	Scientific Name
Bird's foot trefoil	<i>Lotus corniculatus</i>
Bittersweet	<i>Solanum dulcamara</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Bulrush	<i>Typha latifolia</i>
Bush Vetch	<i>Vicia sepium</i>
Catsear	<i>Hypochaeris radicata</i>
Cleavers	<i>Galium aparine</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Fleabane	<i>Pulicaria dysenterica</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Soapwort	<i>Soponaria officinalis</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Couch Grass	<i>Elymus repens</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Creeping Thistle	<i>Cirsium arvense</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Dog Rose	<i>Rosa canina</i>
Eared Willow	<i>Salix aurita</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>

Common Name	Scientific Name
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Lords and Ladies	<i>Arum maculatum</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Perforate St John's Wort	<i>Hypericum perforatum</i>
Pignut	<i>Conopodium majus</i>
Primrose	<i>Primula vulgaris</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scentless Mayweed	<i>Matricaria perforata</i>
Selfheal	<i>Prunella vulgaris</i>
Slender St John's Wort	<i>Hypericum pulchrum</i>
Soft rush	<i>Juncus effusus</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Traveller's-joy	<i>Clematis vitalba</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Glyn Bridge was searched for signs of roosting bats and although no evidence was found, this bridge was assessed as also having potential for roosting bats. This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded. Moorhen was recorded within the canal. Other birds recorded are common countryside species.

Table 4.7-3 Animal species recorded from Judges' Bridge – 32nd Lock, Glyn Bridge

Common Name	Scientific Name
Birds	
Willow Warbler	<i>Phylloscopus trochilus</i>
Blackbird	<i>Turdus merula</i>
Wren	<i>Troglodytes troglodytes</i>
Woodpigeon	<i>Columba palumbus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Magpie	<i>Pica pica</i>
Moorhen	<i>Gallinula chloropus</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Peacock	<i>Aglais io</i>
Brown hawker	<i>Aeshna grandis</i>
Green-veined white	<i>Pieris napi</i>
Beautiful demoiselle	<i>Calopteryx virgo</i>

4.8 32ND LOCK, GLYN BRIDGE – NOGGUS BRIDGE

Map 5-6, Section length – 0.8km

Habitats and Flora

The northern towpath of this short section is mapped mostly as TPM which incorporates a mown amenity grassland towpath and the transitional canal verge habitats. A gravelled track runs along the southern towpath with the canal verge mapped as TPM. Both towpath verges comprise of treelines dominated by ash, elder and blackthorn with grassy verges underneath and patches of scrub.

The canal verge habitats again include reedbeds (mostly common reed but some bulrush), wet grassland/marsh and dry grassland (GS1/GS2) elements.

Aquatic plants included the invasive Nuttall's waterweed, together with fennel pondweed, arrowhead, yellow water lily, perfoliate pondweed, whorled water milfoil and water plantain.



South towpath, view east

Table 4.8-1 Habitats recorded from 32nd Lock Glyn Bridge – Noggus Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub

Table 4.8-2 Plant species recorded from 32nd Lock Glyn Bridge – Noggus Bridge

Common Name	Scientific Name
Vascular Plants	
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Bulrush	<i>Typha latifolia</i>
Catsear	<i>Hypochaeris radicata</i>
Cleavers	<i>Galium aparine</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Valerian	<i>Valeriana officinalis</i>
Couch Grass	<i>Elymus repens</i>
Eared Willow	<i>Salix aurita</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>

Common Name	Scientific Name
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Ragwort	<i>Senecio jacobaea</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scentless Mayweed	<i>Matricaria perforata</i>
Selfheal	<i>Prunella vulgaris</i>
Slender St John's Wort	<i>Hypericum pulchrum</i>
Softrush	<i>Juncus effusus</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

No mammal sightings or signs were noted in this short section. It was not possible to assess Noggus Bridge for roosting bats as there was no walking access under the bridge. This bridge is not a stone bridge however there may be ledges or crevices for bats to roost.

Heavy rain on the initial survey date also inhibited the activity of birds and insects, though some common hedgerow species were recorded.

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded.

Table 4.8-3 Animal species recorded from 32nd Lock Glyn Bridge – Noggus Bridge

Common Name	Scientific Name
Birds	
Willow Warbler	<i>Phylloscopus trochilus</i>
Wren	<i>Troglodytes troglodytes</i>
Blackbird	<i>Turdus merula</i>
Swallow	<i>Hirundo rustica</i>
Woodpigeon	<i>Columba palumbus</i>
Chaffinch	<i>Fringilla coelebs</i>
Rook	<i>Corvus frugilegus</i>
Robin	<i>Erithacus rubecula</i>

4.9 NOGGUS BRIDGE – ARMSTRONG BRIDGE, GALLEN

Map 6-7, Section length – 0.6km

Habitats and Flora



West of Armstrong Bridge

This short section has distinctly different habitats along the northern and southern towpaths. The northern towpath is mapped as TPM incorporating the transitional canal verge habitats and the mown amenity grassland pathway. The towpath verge is characterised by a wide band of low scrub dominated by willows, gorse and brambles with a treeline to the back along the field boundary.

The northern canal verge includes stands of common reed and common club rush and transitions to wet grassland/marsh and then to calcareous grassland. There is also patches of calcareous grassland interspersed with willow scrub on the towpath verge. Species recorded within the calcareous grassland included abundant grass of Parnassus, yellow-wort, carline thistle, marjoram, yellow rattle, field scabious and common spotted orchid. The



North towpath, view west

BSBI also highlight some interesting flora in this area including marsh helliborine, fragrant orchid, marsh fragrant orchid, bee orchid, bog pimpernel, zig zag clover, sweetbriar, skullcap and lesser clubmoss. The Offaly Heritage Officer also noted the presence of bee orchid in this section (*A. pedlow*, *pers. comm*). This area is part of ESA 4 'Gallen Towpaths'.

The southern towpath is mapped as scattered trees and parkland (WD5) and comprises a wide stretch of amenity grassland with scattered planted trees including birch, ash and leylandii. A thin layer of TPM is also mapped on the canal verge which contained a mix of calcareous sections with species such as common knapweed, lady's bedstraw fragrant orchid, marjoram, red clover and grass of Parnassus and species such as purple moor-grass, common valerian and field horsetails. The towpath also contained planted ash trees.

Aquatic species in this section included broad-leaved pondweed, whorled water milfoil and stoneworts.

Table 4.9-1 Habitats recorded from Noggus Bridge - Armstrong Bridge, Gallen

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub
WD5	Scattered trees and parkland

Table 4.9-2 Plant species recorded from Noggus Bridge - Armstrong Bridge, Gallen

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Devilsbit Scabious	<i>Succisa pratensis</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Dog Rose	<i>Rosa canina</i>
Ash	<i>Fraxinus excelsior</i>	Eared Willow	<i>Salix aurita</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Eyebright	<i>Euphrasia spp.</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	False Oat Grass	<i>Arrhenatherum elatius</i>
Bracken	<i>Pteridium aquilinum</i>	Field Horsetail	<i>Equisetum arvense</i>
Bramble	<i>Rubus fruticosus agg.</i>	Field Scabious	<i>Knautia arvensis</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Flag Iris	<i>Iris pseudacorus</i>
Bush Vetch	<i>Vicia sepium</i>	Fragrant Orchid	<i>Gymnadenia conopsea</i>
Catsear	<i>Hypochaeris radicata</i>	Glaucous Sedge	<i>Carex flacca</i>
Carline Thistle	<i>Carlina vulgaris</i>	Grass of Parnassus	<i>Parnassia palustris</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Greater Birds Foot Trefoil	<i>Lotus uliginosus</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Hawthorn	<i>Crataegus monogyna</i>
Common Fleabane	<i>Pulicaria dysenterica</i>	Hazel	<i>Corylus avellana</i>
Common Reed	<i>Phragmites australis</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>	Herb Robert	<i>Geranium robertianum</i>
Common Valerian	<i>Valeriana officinalis</i>	Hogweed	<i>Heracleum sphondylium</i>

Common Name	Scientific Name
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Leyland Cypress	<i>Cupressus x leylandii</i>
Marjoram	<i>Origanum vulgare</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Pignut	<i>Conopodium majus</i>
Prickly Sow Thistle	<i>Sonchus asper</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Clover	<i>Trifolium pratense</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>

Common Name	Scientific Name
Scentsless Mayweed	<i>Matricaria perforata</i>
Selfheal	<i>Prunella vulgaris</i>
Silver Birch	<i>Betula pendula</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Tormentil	<i>Potentilla erecta</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow-wort	<i>Blackstonia perfoliata</i>
Stoneworts	
Bristly stonewort	<i>Chara hispida</i>

Fauna

The underside of Armstrong Bridge was skimmed to seal it from the elements, limiting its potential for use by roosting bats. The stone facing of the exterior of the bridge may however continue to provide crevices for roosting bats although no evidence was noted.

A Kingfisher was noted leaving the bank of the canal in this section. Personal communication with a resident at this location indicated that this species nests here and had bred in 2015.

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded.

Table 4.9-3 Animal species recorded from Noggus Bridge - Armstrong Bridge, Gallen

Common Name	Scientific Name
Birds	
Kingfisher	<i>Alcedo atthis</i>
Goldcrest	<i>Regulus regulus</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Wren	<i>Troglodytes troglodytes</i>

Common Name	Scientific Name
Robin	<i>Erithacus rubecula</i>
Pied wagtail	<i>Motacilla alba yarrellii</i>
Swallow	<i>Hirundo rustica</i>
Invertebrates	
Peacock	<i>Aglais io</i>

4.10 ARMSTRONG BRIDGE, GALLEN – MACARTNEY AQUEDUCT, SILVER RIVER

Map 7-9, Section length – 3.0km

Habitats and Flora

The landholding along the northern towpath extends into an area of wet willow-alder-ash woodland (WN6). Rusty willow and ash are the dominant species, with pedunculate oak, sycamore and a ground flora including wild angelica, stands of common reed and flag iris. The woodland grades into a drier birch dominated habitat (WN1) near the bend in the canal in this section, then grades to a thinner band of willow scrub, before the landholding opens out into another birch woodland area and wet grassland field (GS4) close to the aqueduct. Throughout this section a narrow grassy verge runs underneath the edge woodland/scrub habitat. The grassy towpath verge, mown amenity towpath (GA2) and canal verge are mapped together as TPM. The canal verge incorporates the usual mosaic of reedbed, marsh, wet grassland and dry grassland. The grassland element is species-rich and calcareous and includes yellow rattle, fragrant orchid, lady's bedstraw, yellow-wort and quaking grass. These occur together with patches of purple moor-grass, devil's-bit scabious and tormentil. This area is part of ESA 4 'Gallen Towpaths'.

A roadway (BL3) runs along the southern towpath and a number of dwellings and farm buildings are located off this road. The canal verge is much as described for the north side, with patches of calcareous and acid grassland species, though the edge is mown by the road so it is narrower in extent. This area has been included as part of ESA 4 'Gallen Towpaths'. The section of canal verge closest to the dwellings at Armstrong bridge is less diverse and includes some garden escapes. On the towpath verge there are strips of woodland dominated by birch (WN1), and sections of lower scrub (WS1) consisting of willow, bracken and bramble, and some areas totally dominated by bracken and mapped as HD1. The landholding opens out near the bend in the canal to incorporate a section of woodland and grassland habitats that merge south into bog woodland and raised bog.



South bank canal verge

The grassland habitats merge from drier less-diverse dry grassland nearer the canal (GS1) to wet acid grassland (GS4) to recovering cutaway bog (PB4). The wet grassland included sharp-flowered rush, soft rush, purple moor grass, sweet vernal grass, tormentil, carnation sedge and devil's-bit scabious. A bog drain separates the high raised bog from the recovering cutaway and is colonised by soft rush, bottle sedge, rusty willow, duckweed and bulrush. The dry raised bog is dominated by cross-leaved heath, ling, bog asphodel, Sphagnum and purple-moor grass. An area of birch woodland

is located partially on deep peat (WN7) and partially at a lower level on cutaway, with a notable difference in the height of the trees.

Macrophytes were abundant and included yellow water lily, arrowhead, water plantain, broad-leaved pondweed, fennel pondweed, bulbous rush and stoneworts. There were also some patches of bogbean and greater spearwort in the canal margins.

The BSBI highlighted the towpaths in this section as being particularly diverse in orchids (common spotted, fragrant and twayblade).

Table 4.10-1 Habitats recorded from Armstrong Bridge, Gallen – Macartney Aqueduct, Sliver River

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/lowland rivers
FW3	Canals
GA2	Amenity grassland (improved)
GS1	Dry calcareous and neutral grassland
GS2	Dry meadows and grassy verges
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN1	Oak-birch-holly woodland
WN6	Wet willow-alder-ash woodland
WN7	Bog woodland
PB1	Raised bog
PB4	Cutover bog

Table 4.10-2 Plant species recorded from Armstrong Bridge, Gallen – Macartney Aqueduct, Sliver River

Common Name	Scientific Name
Vascular Plants	
Amphibious Bistort	<i>Persicaria amphibia</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>

Common Name	Scientific Name
Bog Asphodel	<i>Narthecium ossifragum</i>
Bog Cotton	<i>Eriophorum angustifolium</i>
Bogbean	<i>Menyanthes trifoliata</i>
Bottle Sedge	<i>Carex rostrata</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Branched Bur-reed	<i>Sparganium erectum</i>

Common Name	Scientific Name
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Bulbous Rush	<i>Juncus bulbosus</i>
Bulrush	<i>Typha latifolia</i>
Carnation Sedge	<i>Carex panicea</i>
Catsear	<i>Hypochaeris radicata</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Corn Sow Thistle	<i>Sonchus arvensis</i>
Crack Willow	<i>Salix fragilis</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Creeping Thistle	<i>Cirsium arvense</i>
Cross-leaved Heath	<i>Erica tetralix</i>
Dandelion	<i>Taraxacum agg.</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Dog Rose	<i>Rosa canina</i>
Downy Birch	<i>Betula pubescens</i>
Common Duckweed	<i>Lemna minor</i>
Elder	<i>Sambucus nigra</i>
Fairy Flax	<i>Linum catharticum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Field Scabious	<i>Knautia arvensis</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Garden Privet	<i>Ligustrum ovalifolium</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Greater Spearwort	<i>Ranunculus lingua</i>
Hard Rush	<i>Juncus inflexus</i>

Common Name	Scientific Name
Hard Shield Fern	<i>Polystichum aculeatum</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Lesser Stitchwort	<i>Stellaria graminea</i>
Ling	<i>Calluna vulgaris</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Pedunculate Oak	<i>Quercus robur</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Rambling Rose	<i>Rosa sp.</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scarlet Pimpernel	<i>Anagallis arvensis</i>
Selfheal	<i>Prunella vulgaris</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Silverweed	<i>Potentilla anserina</i>
Soft rush	<i>Juncus effusus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>

Common Name	Scientific Name
Tormentil	<i>Potentilla erecta</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
White Willow	<i>Salix alba</i>

Common Name	Scientific Name
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yellow-wort	<i>Blackstonia perfoliata</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>

Fauna

Armstrong Bridge at Gallen has been concreted underneath and has no bat potential on the inner side. A Kingfisher was sighted foraging along this section of the canal. Evidence of mink and badger were found throughout this section but particularly closer to the aqueduct.

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (34th Lock to Macartney Aqueduct) with Daubenton's bat the only species recorded.

Kingfisher was observed in flight within this section, and sedge warbler was heard calling from reedbeds. Other birds recorded are common and widespread species.

Table 4.10-3 Animal species recorded from Armstrong Bridge, Gallen – Macartney Aqueduct, Sliver River

Common Name	Scientific Name
Willow warbler	<i>Phylloscopus trochilus</i>
House sparrow	<i>Passer domesticus</i>
Jackdaw	<i>Corvus monedula</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>
Meadow Brown damselfly	<i>Maniola jurtina</i>
Brown hawker	<i>Aeshna grandis</i>
Large white	<i>Pieris brassicae</i>
Common blue	<i>Polyommatus icarus</i>

4.11 MACARTNEY AQUEDUCT, SILVER RIVER – DERRY BRIDGE

Map 9, Section length – 2.2km

Habitats and Flora



Macartney Aqueduct

The Silver River (FW2) crosses the study area at Maccartney Aqueduct. The steep banks of the river are colonised by a low grassy verge/scrub type habitat with great willowherb, bramble, willow, blackthorn, ash, meadowsweet and hedge bindweed. Marginal plants include club rush, reed canary grass and unbranched bur-reed. To the north the study area extends into a wet grassland field (GS4) with some scrub (WS1) close to the canal bank. The canal verge on both banks incorporates the usual transitional mosaic of reedbed, marsh, wet grassland and dry grassland habitats.

The grassland element of the verge is rich and calcareous in patches along the southern towpath, though mown at the edge. Species include fragrant orchid, common spotted orchid, twayblade, common fleabane, eyebright, quaking grass and cowslip. On the northern bank the reedbeds are well developed in certain patches with wide stands of common reed and flag iris. On the northern bank the mown towpath track changes to a gravelled track after a short-distance. The towpath verge consists of a band of scrub



North towpath, view east

(WS1) dominated by rusty willow, hawthorn and bracken, this merges into taller willow woodland which was mapped as wet willow-alder-ash woodland (WN6). A roadway occupies the south side of the canal in this section, with scrub (WS1) on the towpath verge grading into areas of taller trees mapped as a

WN1 woodland strip, and also stands of bracken (HD1). These habitats were dominated by a combination of rusty willow, birch, bracken, bramble and bindweed.

Aquatic species include milfoil, perfoliate pondweed, shining pondweed, greater spearwort, arrowhead, yellow water lily, water plantain, fennel pondweed, bulbous rush and stoneworts.

The BSBI noted some locally uncommon species in this area including sweetbriar and skullcap.

Table 4.11-1 Habitats recorded from Macartney Aqueduct, Silver River – Derry Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	River
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub
WN1	Oak-birch-holly woodland
WN6	Wet willow-alder-ash woodland

Table 4.11-2 Plant species recorded from Macartney Aqueduct, Silver River – Derry Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Catsear	<i>Hypochaeris radicata</i>
Agrimony	<i>Agrimonia procera</i>	Cock's-foot grass	<i>Dactylis glomerata</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Common Club-rush	<i>Schoenoplectus lacustris</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Common Fleabane	<i>Pulicaria dysenterica</i>
Ash	<i>Fraxinus excelsior</i>	Common Mouse-ear	<i>Cerastium fontanum</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Common Reed	<i>Phragmites australis</i>
Black medick	<i>Medicago lupulina</i>	Common Sedge	<i>Carex nigra</i>
Bottle Sedge	<i>Carex rostrata</i>	Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>
Bracken	<i>Pteridium aquilinum</i>	Corn Sow Thistle	<i>Sonchus arvensis</i>
Bramble	<i>Rubus fruticosus agg.</i>	Cowslip	<i>Primula veris</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Creeping Buttercup	<i>Ranunculus repens</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Creeping Cinquefoil	<i>Potentilla reptans</i>
Bulbous Rush	<i>Juncus bulbosus</i>	Creeping Thistle	<i>Cirsium arvense</i>
Bulrush	<i>Typha latifolia</i>	Domestic Apple	<i>Malus sylvestris</i>

Common Name	Scientific Name
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Spearwort	<i>Ranunculus lingua</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hogweed	<i>Heracleum sphondylium</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Maidenhair Spleenwort	<i>Asplenium trichomanes</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Osier	<i>Salix viminalis</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Quaking Grass	<i>Briza media</i>
Reed Sweet Grass	<i>Glyceria maxima</i>

Common Name	Scientific Name
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Slender St John's Wort	<i>Hypericum pulchrum</i>
Softrush	<i>Juncus effusus</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>
Tufted Vetch	<i>Vicia cracca</i>
Twayblade	<i>Listera ovata</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>
Bryophytes	
moss	<i>Calliergonella cuspidata</i>

Fauna

A badger sett was located in the field immediately to the east of the aqueduct, and badger activity was common along the northern towpath. Mink activity was also notable particularly near the aqueduct. Common countryside bird species were recorded in this section.

Table 4.11-3 Animal species recorded from Macartney Aqueduct, Silver River – Derry Bridge

Common Name	Scientific Name
Mammals	
Badger	<i>Meles meles</i>
Mink	<i>Neovison vison</i>

Common Name	Scientific Name
Birds	
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
House Sparrow	<i>Delichon urbica</i>
Hooded Crow	<i>Corvus corone cornix</i>
Rook	<i>Corvus frugilegus</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Woodpigeon	<i>Columba palumbus</i>
Blackbird	<i>Turdus merula</i>
Invertebrates	
Meadow Brown	<i>Maniola jurtina</i>
Brown hawk	<i>Aeshna grandis</i>
Common Blue damselfly	<i>Enallagma cyathigerum</i>
Common darter	<i>Sympetrum striolatum</i>

4.12 DERRY BRIDGE – LIGHT RAILWAY BRIDGE

Map 9-10, Section length – 1.0km

Habitats and Flora

Close to Derry Bridge a roadway leads to a farmyard on the northern towpath with a hedgerow/treeline on the towpath verge and TPM mapped on the canal verge comprising a dry-wet grassland mosaic with little in the form of emergent's and reedbeds. In the vicinity of the farmyard access along the towpath is blocked due to scrub encroachment on the banks. East of the farmyard the towpath comprises of mown amenity grassland. The canal verge habitats are quite overgrown and include numerous young birch, ash, hawthorn and willow, together with the vegetation typical of the transition from reedbed to dry grassland. The study area opens out to the north to some wet grassland fields in various stages of improvement/management. The overgrown rank wet grassland fields occurring closest to the light railway bridge are dominated by Yorkshire fog, knapweed, meadowsweet, bramble, soft rush and marsh thistle.



North towpath, view west

A roadway runs along the southern towpath with TPM mapped on the canal verge and woodland and peatland habitats on the towpath verge side. The southern towpath mosaic incorporates the usual habitats, with quite a narrow reedbed edge (common reed) and species-rich calcareous grassland on the canal verge. Species included knapweed, ribwort plantain, cowslip, hard rush, quaking grass, common spitted orchid, fragrant orchid, twayblade, marsh thistle and agrimony.



South towpath, view east

The towpath verge habitats within the study area immediately east of Derry Bridge comprise of woodland dominated by birch (WN7). The ground flora includes bracken, cock's foot grass, purple moor grass and slender St John's wort. Further east the study area opens out to the south to include grassland fields which transition from dry neutral GS1 fields close to the canal to wet grassland (GS4) to degraded raised bog (PB1). The wet grassland/bog transitional area is dominated by purple moor grass, with sweet vernal grass, tormentil, bog cotton, bog asphodel and some ling and gorse.

To the south and east of the wet grassland and degraded raised bog is a large expanse of cutaway bog (PB4) in various stages of recolonisation. Some areas have been flooded. More recently recolonised areas are characterised mainly by bog cotton with some Yorkshire fog, soft rush, purple moor grass, tormentil and yellow sedge. Wet peat areas at the margins of the flooded section have been colonised by willow saplings, sharp-flowered rush, marsh arrowgrass, toad rush and marsh pennywort. Areas further along in terms of recolonisation have been colonised by birch and are classified as bog woodland WN7. Closer to the canal there are higher areas of degraded bog raised bog (PB1) with a more heathy vegetation due to drainage, though the peat is quite deep at this location. These areas are characterised by purple moor grass, bog cotton, ling, cladonia, white beak sedge, sphagnum mosses and bog asphodel. This grades into gorse, birch and willow scrub on peat closer to the canal bank which is mapped as WN7.

Aquatic species include whorled water milfoil, spiked water milfoil, shining pondweed, yellow water lily, arrowhead, stoneworts, Nuttall's waterweed, bulbous rush and water plantain.

Table 4.12-1 Habitats recorded from Derry Bridge – Light Railway Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN7	Bog woodland
PB1	Raised bog
PB4	Cutover bog

Table 4.12-2 Plant species recorded from Habitats recorded from Derry Bridge – Light Railway Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hedge Bindweed	<i>Calystegia sepium</i>
Agrimony	<i>Agrimonia procera</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Knapweed	<i>Centaurea nigra</i>
Ash	<i>Fraxinus excelsior</i>	Knotgrass	<i>Polygonum aviculare</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Lady's Bedstraw	<i>Galium varum</i>
Bog Asphodel	<i>Narthecium ossifragum</i>	Ling	<i>Calluna vulgaris</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Marsh Arrowgrass	<i>Triglochin palustris</i>
Bracken	<i>Pteridium aquilinum</i>	Marsh Pennywort	<i>Hydrocotyle vulgaris</i>
Bramble	<i>Rubus fruticosus agg.</i>	Marsh Thistle	<i>Cirsium palustre</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Bulbous Rush	<i>Juncus bulbosus</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Bulrush	<i>Typha latifolia</i>	Nettle	<i>Urtica dioica</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Nuttall's Waterweed	<i>Elodea nuttallii</i>
Catsear	<i>Hypochaeris radicata</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Common Bent	<i>Agrostis capillaris</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Quaking Grass	<i>Briza media</i>
Common Reed	<i>Phragmites australis</i>	Ragwort	<i>Senecio jacobaea</i>
Common Sedge	<i>Carex nigra</i>	Red Bartsia	<i>Odontites verna</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>	Red Clover	<i>Trifolium pratense</i>
Corn Sow Thistle	<i>Sonchus arvensis</i>	Redleg	<i>Persicaria maculosa</i>
Couch Grass	<i>Elymus repens</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Cowslip	<i>Primula veris</i>	Reindeer Lichen	<i>Cladonia portentosa</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Creeping Thistle	<i>Cirsium arvense</i>	Selfheal	<i>Prunella vulgaris</i>
Cross-leaved Heath	<i>Erica tetralix</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Silverweed	<i>Potentilla anserina</i>
Downy Birch	<i>Betula pubescens</i>	Slender St John's Wort	<i>Hypericum pulchrum</i>
Eyebright	<i>Euphrasia spp.</i>	Spiked water milfoil	<i>Myriophyllum spicatum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Field Horsetail	<i>Equisetum arvense</i>	Toad Rush	<i>Juncus bufonis</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>	Tormentil	<i>Potentilla erecta</i>
Small Sweet Grass	<i>Glyceria declinata</i>	Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Gorse	<i>Ulex europaeus</i>	Tufted Vetch	<i>Vicia cracca</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Twayblade	<i>Listera ovata</i>
Hard Rush	<i>Juncus inflexus</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Hawthorn	<i>Crataegus monogyna</i>	Water Mint	<i>Mentha aquatica</i>

Common Name	Scientific Name
Water Plantain	<i>Alisma plantago-aquatica</i>
White Beak-sedge	<i>Rhynchospora alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yellow Sedge	<i>Carex demissa</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	

Common Name	Scientific Name
Bristly Stonewort	<i>Chara hispida</i>
Rugged Stonewort	<i>Chara rudis</i>
Fragile Stonewort	<i>Chara globularis</i>
Bryophytes	
moss	<i>Sphagnum capillifolium</i>
moss	<i>Sphagnum papillosum</i>
moss	<i>Leucobryum glaucum</i>
moss	<i>Hypnum jutlandicum</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

Derry bridge had some bat potential with a few gaps and a small amount of ivy. Invertebrate activity along this stretch of canal was high relative to other sections though this may be in part due to the hot weather on the survey date in question. Signs of mink were common along the towpath. There was no evidence of otter usage of this section. Meadow pipit was recorded from the peatland and wet grassland habitats, and reed bunting and willow warbler were observed within the canal reedbeds.

Table 4.12-3 Animal species recorded from Habitats recorded from Derry Bridge – Light Railway Bridge

Common Name	Scientific Name
Birds	
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Dunnock	<i>Prunella modularis</i>
Goldcrest	<i>Regulus regulus</i>
Coal tit	<i>Parus ater hibernicus</i>
Meadow pipit	<i>Anthus pratensis</i>
Woodpigeon	<i>Columba palumbus</i>
Heron	<i>Ardea cinerea</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Rook	<i>Corvus frugilegus</i>
Sedge warbler	<i>Acrocephalus schoenobaenus</i>
Hooded Crow	<i>Corvus corone cornix</i>

Common Name	Scientific Name
Jackdaw	<i>Corvus monedula</i>
Magpie	<i>Pica pica</i>
Mammals	
Rat	<i>Rattus norvegicus</i>
Mink	<i>Neovison vison</i>
Invertebrates	
Ruddy darter	<i>Sympetrum sanguineum</i>
Common darter	<i>Sympetrum striolatum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Beautiful demoisele	<i>Calopteryx virgo</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>
Peacock	<i>Aglais io</i>
Meadow brown	<i>Maniola jurtina</i>
Large white	<i>Pieris brassicae</i>

4.13 LIGHT RAILWAY BRIDGE – PLUNKETT BRIDGE, POLLAGH

Map 10-12, Section length – 4.4km

Habitats and Flora

The northern towpath east of the light railway bridge initially consists of mown amenity grassland which is mapped together with the canal verge as TPM, followed by a bare track and then a gravel track. The canal verge includes significant areas of tall reedbeds dominated by reed sweet grass, common reed, bulrush and common club rush, together with the typical marsh-wet grassland-dry grassland mosaic. The study area extends into wet grassland fields bordered by areas of willow dominated hedgerow, and some taller treelines. The River Boora transects the study area via an aqueduct. The banks of the river are characterised by a mix of willow and bramble scrub on the west bank, and taller woodland on the east bank mapped as wet willow-alder-ash woodland (WN6). Towards Pollagh the verge habitats grade between scrub and grassy verge before merging into a hedgerow (WL1).



South towpath, view east

The gravel roadway continues along the southern towpath from Derry Bridge. The study area then includes a large expanse of land to the south around Turraun. The main habitats are cutaway bog in various stages of recolonisation, with some recovered sufficiently to be mapped as expanses of bog woodland (WN7). There is also an area of dry remnant raised bog (PB1) with ling, cross-leaved heath, purple moor grass, bog asphodel and sphagnum mosses. This area potentially aligns with the Annex I habitat 'Degraded raised bogs'. This area has been included as part of ESA 5 'Turraun Peatlands and Towpath'. There are also a number of improved agricultural fields and other dry neutral and wet grassland fields – GS4 and GS1. These habitats merge into the canal towpath verge habitats – usually grassy verges or scrub (bracken, gorse and small willows/birch) on the canal embankment.



Cutaway peatland to south of canal



Remnant raised bog to south of canal

The southern TPM habitat again incorporates the typical habitats and is particularly diverse incorporating both acid and calcareous species. The GS1 element aligns strongly with the Annex I calcareous grassland category. Common species include lady's bedstraw, quaking grass, fragrant orchid, marjoram, gipsywort, twayblade and common spotted orchid. This area has been included as part of ESA 5 'Turraun Peatlands and Towpath'.

Aquatics include the typical emergents and submerged species. Both spiked and whorled water milfoil are present together with yellow water lily, water plantain, arrowhead, shining pondweed, bulbous rush and stoneworts.

Table 4.13-1 Habitats recorded from Light Railway Bridge – Plunkett Bridge, Pollagh

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/lowland river
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS3	Dry-humid acid grassland

Habitat Code	Habitat Name
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN7	Bog woodland
PB1	Raised bog
PB4	Cutover bog
WN6	Wet willow-alder-ash woodland

Table 4.13-2 Plant species recorded from Light Railway Bridge – Plunkett Bridge, Pollagh

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Field Horsetail	<i>Equisetum arvense</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Flag Iris	<i>Iris pseudacorus</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Fragrant Orchid	<i>Gymnadenia conopsea</i>
Ash	<i>Fraxinus excelsior</i>	Gipsywort	<i>Lycopus europaeus</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Gorse	<i>Ulex europaeus</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Black medick	<i>Medicago lupulina</i>	Hairy Sedge	<i>Carex hirta</i>
Blackthorn	<i>Prunus spinosa</i>	Hard Rush	<i>Juncus inflexus</i>
Bog Asphodel	<i>Narthecium ossifragum</i>	Hawthorn	<i>Crataegus monogyna</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bog Myrtle	<i>Myrica gale</i>	Hogweed	<i>Heracleum sphondylium</i>
Bracken	<i>Pteridium aquilinum</i>	Ivy	<i>Hedera helix</i>
Bramble	<i>Rubus fruticosus agg.</i>	Knapweed	<i>Centaurea nigra</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Lady's Bedstraw	<i>Galium varum</i>
Bulbous Rush	<i>Juncus bulbosus</i>	Lesser Spearwort	<i>Ranunculus flammula</i>
Bulrush	<i>Typha latifolia</i>	Ling	<i>Calluna vulgaris</i>
Bush Vetch	<i>Vicia sepium</i>	Marjoram	<i>Origanum vulgare</i>
Butterbur	<i>Petasites hybridus</i>	Marsh Thistle	<i>Cirsium palustre</i>
Carnation Sedge	<i>Carex panicea</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Osier	<i>Salix viminalis</i>
Coltsfoot	<i>Tussilago farfara</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Common Reed	<i>Phragmites australis</i>	Poppy	<i>Papaver rhoeas</i>
Common Sedge	<i>Carex nigra</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>	Quaking Grass	<i>Briza media</i>
Common Valerian	<i>Valeriana officinalis</i>	Ragwort	<i>Senecio jacobaea</i>
Couch Grass	<i>Elymus repens</i>	Red Clover	<i>Trifolium pratense</i>
Cowslip	<i>Primula veris</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Crack Willow	<i>Salix fragilis</i>	Reindeer Lichen	<i>Cladonia portentosa</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Creeping Thistle	<i>Cirsium arvense</i>	Rowan	<i>Sorbus aucuparia</i>
Crested Dogstail	<i>Cynosurus cristatus</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Cross-leaved Heath	<i>Erica tetralix</i>	Selfheal	<i>Prunella vulgaris</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Downy Birch	<i>Betula pubescens</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Elder	<i>Sambucus nigra</i>	Slender St John's Wort	<i>Hypericum pulchrum</i>
Fairy Flax	<i>Linum catharticum</i>	Softrush	<i>Juncus effusus</i>
False Oat Grass	<i>Arrhenatherum elatius</i>		

Common Name	Scientific Name
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Timothy	<i>Phleum pratense</i>
Tormentil	<i>Potentilla erecta</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Twayblade	<i>Listera ovata</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Beak-sedge	<i>Rhynchospora alba</i>
White Clover	<i>Trifolium repens</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>

Common Name	Scientific Name
Wild Carrot	<i>Daucus carota</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>
Rugged Stonewort	<i>Chara rudis</i>
Bryophytes	
moss	<i>Rhytidiadelphus squarrosus</i>
moss	<i>Sphagnum capillifolium</i>
moss	<i>Sphagnum cuspidatum</i>
moss	<i>Sphagnum papillosum</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

There is evidence of mink along the northern and southern towpaths in this section and a hare was observed. Common countryside bird species were recorded.

Table 4.13-3 Animal species recorded from Light Railway Bridge – Plunkett Bridge, Pollagh

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Hare	<i>Lepus timidus hibernicus</i>
Birds	
Blackbird	<i>Turdus merula</i>
Blackcap	<i>Sylvia atricapilla</i>
Chaffinch	<i>Fringilla coelebs</i>
Dunnock	<i>Prunella modularis</i>
Goldfinch	<i>Carduelis carduelis</i>
Hooded crow	<i>Corvus corone cornix</i>
Lesser Redpoll	<i>Carduelis cabaret</i>
Robin	<i>Erithacus rubecula</i>

Common Name	Scientific Name
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Whitethroat	<i>Sylvia communis</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Wren	<i>Troglodytes troglodytes</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Meadow brown	<i>Maniola jurtina</i>
Brown hawk	<i>Aeshna grandis</i>
Beautiful demoiselle	<i>Calopteryx virgo</i>
Peacock	<i>Aglais io</i>
White-tailed bumblebee	<i>Bombus leucorum</i>

4.14 PLUNKETT BRIDGE, POLLAGH – 31ST LOCK, CORNALOUR

Map 12-15, Section length – 3.6km

Habitats and Flora

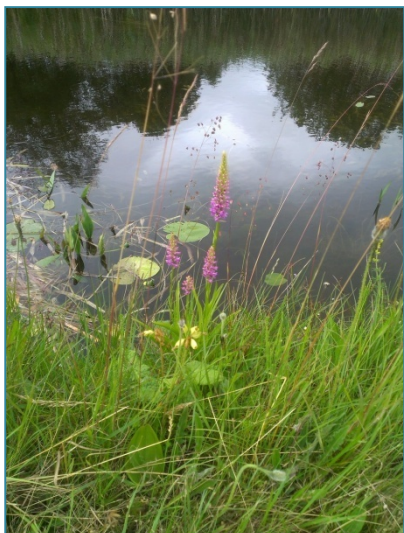
After an amenity area around Pollagh (wooden jetty, amenity grassland) the towpath is mapped as TPM which includes an amenity grassland mown pathway and the canal verge habitats. The canal verge habitats are the usual habitat mosaics with a reedbed and then a short transition from marsh/wet grassland to drier grassland. The study area expands out to the north to include fields which have been mapped as GS1 although there are lightly grazed and therefore there are elements of GA1 particularly in the fields closest to Pollagh, and one inner section of the field was mapped as wet grassland (GS4). East of these fields the study area includes an expanse of cutaway bog in various stages of recolonisation, and some remnant raised bog. Within the cutover area are some bare peat areas, while other areas have a heathy/grassy vegetation cover dominated by purple moor grass, bog cotton, tormentil, ling and gorse. Significant parts of the cutaway have been colonised by varying densities of gorse, birch and willow scrub, with willow particularly concentrated around old drains. Where this cover is dense it has been mapped as bog woodland (WN7) together with areas of planted birch on the peatland margins to the north.

A roadway runs along the southern part of this section with a number of scattered dwellings located along it. To the south of these dwellings, with associated amenity grassland, is another expanse of cutaway bog. A remnant area of raised bog (Derrycooly Bog) supports a vegetation community comprising ling, cross-leaved heath, purple moor grass, bog asphodel and sphagnum mosses. Strips of woodland, mainly dominated by birch and willows (WN7), are present throughout this



Derrycooly Bog

area between the canal road, dwellings and cutaway. This area has been designated as ESA 7.



South towpath mosaic

The study area narrows back to just include the towpath and adjacent field hedgerows and grassy verges approaching Cornalaur.

A very narrow strip of calcareous grassland was found along the southern canal verge in this section. Although adjacent to a roadway, management practices (irregular mowing) have allowed quite an open sward to develop, with orchids, sedges and other flowering plants flourishing along this narrow strip. The calcareous element corresponds with the Annex I habitat 'orchid-rich calcareous grasslands (6210)'. Characteristic calcareous grassland species

present included orchids (common spotted, fragrant, twayblade), quaking grass, yellow rattle, bird's-foot trefoil, common, glaucous and pill sedges, wild carrot, lady's bedstraw and ox-eye daisy. This area has been designated as ESA 8.

The typical emergent aquatic species were present together with stoneworts, whorled water milfoil, unbranched bur-reed, perfoliate pondweed, broad-leaved pondweed and shining pondweed.

Table 4.14-1 Habitats recorded from Plunkett Bridge, Pollagh – 31st Lock, Cornalour

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS3	Dry-humid acid grassland
GS4	Wet grassland
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN7	Bog woodland
PB1	Raised bog
PB4	Cutover bog

Table 4.14-2 Plant species recorded from Plunkett Bridge, Pollagh – 31st Lock, Cornalour

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hawthorn	<i>Crataegus monogyna</i>
Ash	<i>Fraxinus excelsior</i>	Hazel	<i>Corylus avellana</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Blackthorn	<i>Prunus spinosa</i>	Hogweed	<i>Heracleum sphondylium</i>
Bog Asphodel	<i>Narthecium ossifragum</i>	Ivy	<i>Hedera helix</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Knapweed	<i>Centaurea nigra</i>
Bracken	<i>Pteridium aquilinum</i>	Lesser Burdock	<i>Arctium minus</i>
Bramble	<i>Rubus fruticosus agg.</i>	Lesser Stitchwort	<i>Stellaria graminea</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Ling	<i>Calluna vulgaris</i>
Catsear	<i>Hypochaeris radicata</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Common Bent	<i>Agrostis capillaris</i>	Osier	<i>Salix viminalis</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Common Reed	<i>Phragmites australis</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>	Quaking Grass	<i>Briza media</i>
Common Valerian	<i>Valeriana officinalis</i>	Rambling Rose	<i>Rosa sp.</i>
Cowslip	<i>Primula veris</i>	Red Clover	<i>Trifolium pratense</i>
Crack Willow	<i>Salix fragilis</i>	Red Fescue	<i>Festuca rubra</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Redleg	<i>Persicaria maculosa</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Creeping Thistle	<i>Cirsium arvense</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Crested Dogstail	<i>Cynosurus cristatus</i>	Rosebay	<i>Epilobium angustifolium</i>
Cross-leaved Heath	<i>Erica tetralix</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Domestic Apple	<i>Malus sylvestris</i>	Rowan	<i>Sorbus aucuparia</i>
Downy Birch	<i>Betula pubescens</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Common Duckweed	<i>Lemna minor</i>	Scots Pine	<i>Pinus sylvestris</i>
Elder	<i>Sambucus nigra</i>	Selfheal	<i>Prunella vulgaris</i>
Eyebright	<i>Euphrasia spp.</i>	Snowberry	<i>Symphoricarpos albus</i>
Fairy Flax	<i>Linum catharticum</i>	Soft rush	<i>Juncus effusus</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Spear Thistle	<i>Cirsium vulgare</i>
Flea Sedge	<i>Carex pulicaris</i>	Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>	Sycamore	<i>Fagus sylvatica</i>
Fuchsia	<i>Fuchsia magellanica</i>	Tormentil	<i>Potentilla erecta</i>
Garden Privet	<i>Ligustrum ovalifolium</i>	Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Germander Speedwell	<i>Veronica chamaedrys</i>	Tufted Vetch	<i>Vicia cracca</i>
Glaucous Sedge	<i>Carex flacca</i>	Twayblade	<i>Listera ovata</i>
Gorse	<i>Ulex europaeus</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Hard Rush	<i>Juncus inflexus</i>		

Common Name	Scientific Name
White Clover	<i>Trifolium repens</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Plum	<i>Prunus domestica</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Common Name	Scientific Name
Bryophytes/Lichens	
Reindeer Lichen	<i>Cladonia portentosa</i>
Devil's Matchsticks	<i>Cladonia floerkeana</i>
moss	<i>Sphagnum capillifolium</i>
moss	<i>Sphagnum papillosum</i>
moss	<i>Leucobryum glaucum</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>

Fauna

Signs of mammals included a pine marten scat close to the birch woodland along the northern towpath. The diversity of bird species in this section was notable. In particular Derrycooley bog and surrounding woodland habitats supported numerous bird species including snipe, amber-listed spotted flycatcher, and red-listed meadow pipit.

Table 4.14-3 Animal species recorded from Plunkett Bridge, Pollagh – 31st Lock, Cornalour

Common Name	Scientific Name
Mammals	
Pine marten	<i>Martes martes</i>
Birds	
Blackbird	<i>Turdus merula</i>
Blackcap	<i>Sylvia atricapilla</i>
Blue Tit	<i>Cyanistes caeruleus</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Buzzard	<i>Buteo buteo</i>
Chaffinch	<i>Fringilla coelebs</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Coal Tit	<i>Actitis hypoleucos</i>
Dunnock	<i>Prunella modularis</i>
Goldcrest	<i>Regulus regulus</i>
Goldfinch	<i>Carduelis carduelis</i>
Great Tit	<i>Parus major</i>
House Martin	<i>Delichon urbica</i>
House Sparrow	<i>Passer domesticus</i>
Jay	<i>Garrulus glandarius hibernicus</i>
Linnet	<i>Carduelis cannabina</i>

Common Name	Scientific Name
Long-tailed Tit	<i>Aegithalos caudatus</i>
Meadow Pipit	<i>Anthus pratensis</i>
Moorhen	<i>Gallinula chloropus</i>
Pheasant	<i>Phasianus colchicus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Robin	<i>Erithacus rubecula</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Snipe	<i>Gallinago gallinago</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Starling	<i>Hirundo rustica</i>
Swallow	<i>Sylvia communis</i>
Whitethroat	<i>Phylloscopus trochilus</i>
Willow Warbler	<i>Columba palumbus</i>
Woodpigeon	<i>Acrocephalus schoenobaenus</i>
Wren	<i>Troglodytes troglodytes</i>
Invertebrates	
Small white	<i>Pieris rapae</i>
Small tortoiseshell	<i>Aglais urticae</i>

4.15 31ST LOCK, CORNALOUR – 30TH LOCK, BALLINCLOUGHIN BRIDGE

Map 15, Section length – 0.8km

Habitats and Flora



North towpath, view east

A mown amenity grassland pathway runs along the northern towpath in this section. The towpath verge consists of area of woodland (WN2) dominated by ash, oak, sycamore and hawthorn which extends in a strip eastwards before merging into a hedge dominated by hawthorn, privet and brambles with a dry grassy bank on the inner side. A roadway runs along the southern towpath with hedgerow on the outer side.

The canal verge within this section incorporates the typical mosaic of habitats. Reedbeds are mostly quite narrow and the grassland verge is typically cut along the roadside by the southern towpath. Common species include false oat grass, purple loosestrife, knapweed, common valerian, yellow rattle and butterbur. Montbretia and soapwort were notable just west of Ballincloughin Bridge.

There is a disused quarry immediately to the south of Ballincloughin Bridge which is currently being used as a storage location for turf. There are ash and elm trees around the quarry boundary which grade into a lower scrub with bramble, dog rose, rock cotoneaster, blackthorn and ivy (WS1), and then to a recolonising and bare area in the centre (ED2/ED2). The treeline adjacent to the farm consists of tall poplars.

The typical emergent aquatic species were present together with stoneworts, whorled water milfoil, unbranched bur-reed, perfoliate pondweed, broad-leaved pondweed and shining pondweed.

Table 4.15-1 Habitats recorded from 31st Lock, Cornalour – 30th Lock, Ballincloughlin Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
ED2	Spoil and bare ground
ED3	Recolonising bare ground
WS1	Scrub

Table 4.15-2 Plant species recorded from 31st Lock, Cornalour – 30th Lock, Ballincloughlin Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Creeping Thistle	<i>Cirsium arvense</i>
American Willowherb	<i>Epilobium ciliatum</i>	Daisy	<i>Bellis perennis</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Devilsbit Scabious	<i>Succisa pratensis</i>
Ash	<i>Fraxinus excelsior</i>	Dog Rose	<i>Rosa canina</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	False Oat Grass	<i>Arrhenatherum elatius</i>
Black medick	<i>Medicago lupulina</i>	Greater Plantain	<i>Plantago major</i>
Blackthorn	<i>Prunus spinosa</i>	Hart's Tongue Fern	<i>Asplenium scolopendrium</i>
Bracken	<i>Pteridium aquilinum</i>	Hawkweed	<i>Hieracium spp.</i>
Bramble	<i>Rubus fruticosus agg.</i>	Hawthorn	<i>Crataegus monogyna</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Herb Robert	<i>Geranium robertianum</i>
Bush Vetch	<i>Vicia sepium</i>	Hogweed	<i>Heracleum sphondylium</i>
Butterbur	<i>Petasites hybridus</i>	Ivy	<i>Hedera helix</i>
Catsear	<i>Hypochaeris radicata</i>	Knapweed	<i>Centaurea nigra</i>
Cleavers	<i>Galium aparine</i>	Lady's Bedstraw	<i>Galium varum</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Maidenhair Spleenwort	<i>Asplenium trichomanes</i>
Common Bent	<i>Agrostis capillaris</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Montbretia	<i>Crocsmia x crocosmiiflora</i>
Common Reed	<i>Phragmites australis</i>	Nettle	<i>Urtica dioica</i>
Common Soapwort	<i>Soponaria officinalis</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Valerian	<i>Valeriana officinalis</i>	Pedunculate Oak	<i>Quercus robur</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
		Purple Loosestrife	<i>Lythrum salicaria</i>

Common Name	Scientific Name
Red Clover	<i>Trifolium pratense</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rock Cotoneaster	<i>Cotoneaster integrifolius</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Smooth Sow Thistle	<i>Sonchus oleraceus</i>
Sycamore	<i>Fagus sylvatica</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>

Common Name	Scientific Name
Water Plantain	<i>Alisma plantago-aquatica</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>

Fauna

No mammal signs were recorded in this section. The presence of yellowhammer, a red-listed species of conservation concern, is notable. Other bird species are common and widespread.

Table 4.15-3 Animal species recorded from 31st Lock, Cornalour – 30th Lock, Ballinloughlin Bridge

Common Name	Scientific Name
Birds	
Blue Tit	<i>Cyanistes caeruleus</i>
Buzzard	<i>Buteo buteo</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Dunnock	<i>Prunella modularis</i>
Goldfinch	<i>Carduelis carduelis</i>
Moorhen	<i>Gallinula chloropus</i>
Pied Wagtail	<i>Motacilla alba yarrellii</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Wren	<i>Troglodytes troglodytes</i>
Yellowhammer	<i>Emberiza citrinella</i>
Invertebrates	
Meadow brown	<i>Maniola jurtina</i>
Ringlet	<i>Aphantopus hyperantus</i>
Small tortoiseshell	<i>Aglais urticae</i>

4.16 30TH LOCK, BALLINCLOUGHIN BRIDGE – HENESY'S BRIDGE

Map 15-16, Section length – 0.8km

Habitats and Flora



North towpath, view east to Henesys Bridge

Roadways with scattered dwellings occur within this section. Verge habitats on the outer side of the roadways are mainly low hedgerows and some ornamental garden hedges. Hedgerows are dominated by blackthorn, brambles, ash, hazel and elder. The canal verge vegetation includes the usual transition from narrow reedbed, to marsh/wet grassland species to dry grassland species. Communities present are common with no particular conservation interest. The canal verge widens out on the northern towpath close to Henesy's Bridge

and the canal verge here is quite overgrown with young ash and bramble. The southern canal verge has a cut grassland edge and marginal vegetation is quite sparse.

Macrophytes include the usual emergents and whorled water milfoil, unbranched bur-reed, shining pondweed and Canadian waterweed.

Table 4.16-1 Habitats recorded from 30th Lock, Ballincloughin Bridge – Henesy's Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.16-2 Plant species recorded from 30th Lock, Ballincloughin Bridge – Henesy’s Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hogweed	<i>Heracleum sphondylium</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Honeysuckle	<i>Lonicera periclymenum</i>
Ash	<i>Fraxinus excelsior</i>	Lady's Bedstraw	<i>Galium varum</i>
Blackthorn	<i>Prunus spinosa</i>	Maidenhair Spleenwort	<i>Asplenium trichomanes</i>
Bramble	<i>Rubus fruticosus agg.</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Bush Vetch	<i>Vicia sepium</i>	Nettle	<i>Urtica dioica</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Carnation Sedge	<i>Carex panicea</i>	Red Clover	<i>Trifolium pratense</i>
Cleavers	<i>Galium aparine</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Common Reed	<i>Phragmites australis</i>	Rosebay	<i>Epilobium angustifolium</i>
Common Valerian	<i>Valeriana officinalis</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Couch Grass	<i>Elymus repens</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Dandelion	<i>Taraxacum agg.</i>	Timothy	<i>Phleum pratense</i>
Dog Rose	<i>Rosa canina</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Elder	<i>Sambucus nigra</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Field Horsetail	<i>Equisetum arvense</i>	Yarrow	<i>Achillea millefolium</i>
Flag Iris	<i>Iris pseudacorus</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Hazel	<i>Corylus avellana</i>	Yorkshire Fog	<i>Holcus lanatus</i>
Hedge Bindweed	<i>Calystegia sepium</i>		
Herb Robert	<i>Geranium robertianum</i>		

Fauna

Ballincloughin Bridge has no bat potential on the undersurface with all cracks re-pointed. No mammal activity was observed during the walkover survey, roadways on both towpaths may preclude activity in this section somewhat. A small number of common bird species were recorded.

Table 4.16-3 Animal species recorded from 30th Lock, Ballincloughin Bridge – Henesy’s Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Birds		Starling	<i>Sturnus vulgaris</i>
Coal Tit	<i>Parus ater hibernicus</i>	Woodpigeon	<i>Columba palumbus</i>
Greenfinch	<i>Carduelis chloris</i>	Invertebrates	
Heron	<i>Ardea cinerea</i>	Peacock	<i>Aglais io</i>
House Sparrow	<i>Passer domesticus</i>		

4.17 HENESY'S BRIDGE – BECAN'S BRIDGE, RAHAN

Map 16, Section length – 1.0km

Habitats and Flora

The northern towpath has been mapped as TPM which includes a mown amenity grassland pathway. The TPM at the canal verge incorporates the typical transitional habitats including stands of reedbeds dominated by common reed. The towpath boundary is characterised by trees which depending on height and width are mapped as hedgerow, treeline or woodland. Ash is the dominant tree. Close to Becan's Bridge a wider strip of woodland, possibly two merging planted boundaries, dominated by ash and elm is mapped as WN2. Other species within these wooded habitats include hawthorn, domestic plum, elder, rusty willow and some scattered ash trees. At the base of these boundary habitats within the towpath verge is an overgrown understory including tall grasses such as cock's foot grass, false oat grass and timothy, together with meadowsweet, cleavers, great willowherb, bramble and bindweed.

The southern towpath is similar to the above with a mown amenity grass path (GA2), similar verge mosaic habitat, and treelines/hedgerows or woodland strip mapped along the path boundary. Hedgerows are dominated by blackthorn and elder. Where treelines are mapped these are characterised by mature elm or ash. The woodland strip close to Becan's Bridge is dominated by ash and hazel, together with elder and sycamore and is mapped as WN2.



Southern towpath, view east

Macrophytes include the usual emergents and whorled water milfoil, spiked water milfoil, unbranched bur-reed, shining pondweed and Canadian waterweed.

Table 4.17-1 Habitats recorded from Henesy's Bridge – Becan's Bridge, Rahan

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy

Habitat Code	Habitat Name
	verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.17-2 Plant species recorded from Henesy's Bridge – Becan's Bridge, Rahan

Common Name	Scientific Name
Vascular Plants	
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus fruticosus agg.</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Carnation Sedge	<i>Carex panicea</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Bent	<i>Agrostis capillaris</i>
Common Reed	<i>Phragmites australis</i>
Common Valerian	<i>Valeriana officinalis</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Dog Rose	<i>Rosa canina</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Goat Willow	<i>Salix caprea</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>

Common Name	Scientific Name
Hedge Woundwort	<i>Stachys sylvatica</i>
Hogweed	<i>Heracleum sphondylium</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Plum	<i>Prunus domestica</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Otter activity was very common in this section, including couches on both the northern and southern towpaths. The lack of a gravel path/roadway in this section probably accounts for the high activity. Otter spraints were found under Becan's Bridge. Evidence of Badger and Rabbits was also recorded. Of the bird species recorded the presence of red-listed yellowhammer is notable.

Table 4.17-3 Animal species recorded from Henesy's Bridge – Becan's Bridge, Rahan

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Rabbit	<i>Oryctolagus cuniculus</i>
Badger	<i>Meles meles</i>
Birds	
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Chaffinch	<i>Fringilla coelebs</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Jackdaw	<i>Corvus monedula</i>
Blackbird	<i>Turdus merula</i>
Great Tit	<i>Parus major</i>
Yellowhammer	<i>Emberiza citrinella</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Lesser Redpoll	<i>Carduelis cabaret</i>
Woodpigeon	<i>Columba palumbus</i>
Invertebrates	
Ringlet	<i>Aphantopus hyperantus</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Meadow brown	<i>Maniola jurtina</i>

4.18 BECAN'S BRIDGE, RAHAN – CORCORANS BRIDGE

Map 16-17, Section length – 1.2km

Habitats and Flora



North towpath, view east

The northern towpath has been mapped as TPM with an amenity grassland path running between the canal verge habitats on one side and hedgerow/treeline on the other side. Treelines are mapped where mature ash and elm were dominant, otherwise the towpath boundary is mapped as hedgerow which had a wider mix of species including hawthorn, dog rose, hazel, rusty willow, gorse, sycamore, elder, beech, ash and elm. The hedge/treeline understory (towpath verge) included bramble, field thistle, meadowsweet, false

oat grass, curled dock and hogweed. The canal verge comprised of the usual mosaic of habitats from reedbed to wet grassland/marsh to a grassy verge habitat. Species recorded included common reed, Yorkshire fog, flag iris, common valerian, variegated horsetail, ribwort plantain and lady's bedstraw.

The southern towpath was similar with a mown amenity pathway for most of this section. The canal verge included the mosaic of habitats as described above. Hedgerows on the outer side were characterised by blackthorn, hawthorn, hazel, elder and rusty willow with some elm, ash and sycamore trees. A gravel towpath is mapped leading up to a farmyard, and a short section of ornamental hedge is also mapped here and some garden species were planted at the canal edge (laurel).

Aquatic species include the usual emergents and whorled water milfoil, spiked water milfoil, unbranched bur-reed, shining pondweed, Canadian waterweed and stoneworts.

Table 4.18-1 Habitats recorded from Becan's Bridge, Rahan – Corcoran Bridge

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	GS2	Dry meadows and grassy verges
FW3	Canals	GM1\GS4\FS1\GS2	Towpath mosaic
FW4	Drainage Ditches	WL1	Hedgerow
GA2	Amenity grassland (improved)	WL2	Treelines

Table 4.18-2 Plant species recorded from Becan's Bridge, Rahan – Corcoran's Bridge

Common Name	Scientific Name
Vascular Plants	
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Butterbur	<i>Petasites hybridus</i>
Canadian Waterweed	<i>Elodea canadensis</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Reed	<i>Phragmites australis</i>
Common Valerian	<i>Valeriana officinalis</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Creeping Thistle	<i>Cirsium arvense</i>
Curled Dock	<i>Rumex crispus</i>
Dog Rose	<i>Rosa canina</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hogweed	<i>Heracleum sphondylium</i>
Horse Chestnut	<i>Aesculus hippocastanum</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Sycamore	<i>Fagus sylvatica</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variegated Horsetail	<i>Equisetum variegatum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Delicate Stonewort	<i>Chara virgata</i>
Bryophytes	
moss	<i>Calliergonella cuspidata</i>

Fauna

Otter activity was again notable in this section with otter spraints recorded at Becan's and Corcoran's Bridges. Becan's Bridge is a concrete structure with no bat potential. The bridge at Rahan on the Clodiagh River ca. 500m north of the canal has supported roosts for Daubenton's and Natterer's bats according to data provided by Bat Conservation Ireland. Yellowhammer, a red-listed bird of conservation concern, was notable amongst the common bird species recorded.

Table 4.18-3 Animal species recorded from Becan's Bridge, Rahan – Corcoran's Bridge

Common Name	Scientific Name
Birds	
Woodpigeon	<i>Columba palumbus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Magpie	<i>Pica pica</i>
Lesser Redpoll	<i>Carduelis cabaret</i>
Swallow	<i>Hirundo rustica</i>
Coal Tit	<i>Pariparus ater hibernicus</i>
Great Tit	<i>Parus major</i>
Jackdaw	<i>Corvus monedula</i>
Goldcrest	<i>Regulus regulus</i>
Blackbird	<i>Turdus merula</i>
Whitethroat	<i>Sylvia communis</i>
Invertebrates	
Ringlet	<i>Aphantopus hyperantus</i>
Meadow brown	<i>Maniola jurtina</i>
Speckled wood	<i>Pararge aegeria</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>
Common darter	<i>Sympetrum striolatum</i>
Small tortoiseshell	<i>Aglais urticae</i>

4.19 CORCORAN'S BRIDGE – CHARLEVILLE AQUEDUCT

Map 17-18, Section length – 2.6km

Habitats and Flora



North towpath, view west

A gravelled/bare track runs along the northern towpath in this section, with the canal verge mapped as TPM, and the towpath verge mostly hedgerow with some areas of taller treeline. The northern canal verge vegetation is sparse due to heavy poaching by cattle which appear to frequently access this bank. Hedgerows are dominated by blackthorn, ash, elder, hawthorn and hazel.

The southern towpath is predominately a mown path, overgrown in places, and is mapped together with the canal verge habitats as TPM. In the section near Killina a roadway runs along the southern towpath up to the aqueduct.

The southern canal verge is sparse in terms of flora in the vicinity of the roadways at the east and west sides of this section. Typical transitional species are present in other parts, with reedbed, marsh/wet grassland species, and the dry grassland element being generally consistent with calcareous GS1 or GS2 where dominated by tall grasses.

The southern towpath hedgerow includes blackthorn, privet, bramble, ash, sycamore and elder. In places this grades into a taller treeline dominated by mature sycamore, elm or ash. One small area of woodland has been mapped (WN2) where the hedgerow extends out and is dominated by ash, hawthorn, blackthorn and willow.

There is a grassy verge beneath hedgerow/treeline habitat which is characterised by tall grasses – false oat grass, cock's foot grass, Yorkshire fog, couch grass, together with other species including creeping cinquefoil, creeping thistle, meadow buttercup, ox-eye daisy, knapweed, red clover, rough hawkbit, hogweed, great willowherb and hedge woundwort. Immediately east of Corcoran's bridge a ca. 4m stretch of snowberry occurs within the low gappy hedgerow.

Macrophytes included whorled water milfoil, spiked water milfoil, unbranched bur-reed, fennel pondweed, shining pondweed, bulbous rush, Canadian waterweed and Nuttall's waterweed. Stoneworts and Water forget-me-not were also recorded in this section.

Table 4.19-1 Habitat recorded from Corcoran's Bridge – Charleville Aqueduct

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland

Table 4.19-2 Plant species recorded from Corcoran's bridge – Charleville Aqueduct

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		False Brome	<i>Brachypodium sylvaticum</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	False Oat Grass	<i>Arrhenatherum elatius</i>
Ash	<i>Fraxinus excelsior</i>	Fennel Pondweed	<i>Potamogeton pectinatus</i>
Beech	<i>Fagus sylvatica</i>	Field Horsetail	<i>Equisetum arvense</i>
Blackthorn	<i>Prunus spinosa</i>	Flag Iris	<i>Iris pseudacorus</i>
Bracken	<i>Pteridium aquilinum</i>	Garden Privet	<i>Ligustrum ovalifolium</i>
Bramble	<i>Rubus fruticosus agg.</i>	Germander Speedwell	<i>Veronica chamaedrys</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Brassicas	<i>Brassica spp.</i>	Hard Rush	<i>Juncus inflexus</i>
Bulbous Rush	<i>Juncus bulbosus</i>	Hawthorn	<i>Crataegus monogyna</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Hazel	<i>Corylus avellana</i>
Cleavers	<i>Galium aparine</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Herb Robert	<i>Geranium robertianum</i>
Common Reed	<i>Phragmites australis</i>	Hogweed	<i>Heracleum sphondylium</i>
Couch Grass	<i>Elymus repens</i>	Horse Chestnut	<i>Aesculus hippocastanum</i>
Crack Willow	<i>Salix fragilis</i>	Ivy	<i>Hedera helix</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Knapweed	<i>Centaurea nigra</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Knotgrass	<i>Polygonum aviculare</i>
Creeping Thistle	<i>Cirsium arvense</i>	Lady's Bedstraw	<i>Galium varum</i>
Crested Dogstail	<i>Cynosurus cristatus</i>	Leyland Cypress	<i>Cupressus x leylandii</i>
Dog Rose	<i>Rosa canina</i>	Lords and Ladies	<i>Arum maculatum</i>
Elder	<i>Sambucus nigra</i>	Marsh Bedstraw	<i>Galium palustre</i>

Common Name	Scientific Name
Marsh Horsetail	<i>Equisetum palustre</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Pineappleweed	<i>Matricaria discoidea</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Quaking Grass	<i>Briza media</i>
Red Clover	<i>Trifolium pratense</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Small Sweet Grass	<i>Glyceria declinata</i>

Common Name	Scientific Name
Snowberry	<i>Symphoricarpos albus</i>
Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Sycamore	<i>Fagus sylvatica</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Forget-me-not	<i>Myosotis scorpioides</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yew	<i>Taxus baccata</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Delicate Stonewort	<i>Chara virgata</i>
Byrophytes	
moss	<i>Rhytidiadelphus squarrosus</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

Otter activity was notable within this section and a hare was sighted on the towpath. Corcoran's Bridge has little bat potential with cracks re-pointed. Birds recorded were common countryside species.

Table 4.19-3 Animal species recorded from Corcoran's bridge – Charleville Aqueduct

Common Name	Scientific Name
Mammal	
Otter	<i>Lutra lutra</i>
Hare	<i>Lepus timidus hibernicus</i>
Birds	
Mistle Thrush	<i>Turdus viscivorus</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Great Tit	<i>Parus major</i>
Blackbird	<i>Turdus merula</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Jackdaw	<i>Corvus monedula</i>

Common Name	Scientific Name
Wren	<i>Troglodytes troglodytes</i>
Heron	<i>Ardea cinerea</i>
Robin	<i>Erithacus rubecula</i>
Hooded Crow	<i>Corvus corone cornix</i>
Invertebrates	
Common carder bee	<i>Bombus pascuorum</i>
Blue-tail damselfly	<i>Ischnura elegans</i>
Meadow brown	<i>Maniola jurtina</i>
Small tortoiseshell	<i>Aglais urticae</i>
Ringlet	<i>Aphantopus hyperantus</i>
Common darter	<i>Sympetrum striolatum</i>

4.20 CHARLEVILLE AQUEDUCT – HUBAND AQUEDUCT

Map 18-19, Section length – 1.0km

Habitats and Flora

The Clodiagh River transects the study area within a steep sided channel at Charleville Aqueduct. The steep banks are colonised with bramble, bindweed and tall grasses, with a row of ash, alder and willow at the top of the bank (WN5). The rivers substrate comprises gravels and silts. The water is shallow and no macrophytes were noted.



Charleville Aqueduct

A gravelled path runs along the northern towpath, with typical canal verge and hedgerow habitats either side. Along the

southern towpath, east of Charleville aqueduct there is a small area of ash dominated dry woodland (WN2), with other species including sycamore, bramble, elder and hawthorn. After a short track leading to farm buildings east of the aqueduct, the southern towpath mainly comprises of a mown grassy path and is mapped together with the canal verge as TPM. The canal verge becomes quite overgrown with scrub vegetation in this section including bramble, hawthorn, blackthorn and tall herbs and grasses. Hedgerows are characterised by hawthorn, blackthorn, elder, bittersweet and dog rose.

Aquatic species in this section include unbranched bur-reed, whorled water milfoil, shining pondweed and stoneworts.

Table 4.20-1 Habitats recorded from Charleville Aqueduct – Huband Aqueduct

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/lowland rivers
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges

Habitat Code	Habitat Name
GM1\GS4\FS1\GS1\GS2\WS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
WN5	Riparian woodland

Table 4.20-2 Plant species recorded from Charleville Aqueduct – Huband Aqueduct

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hard Rush	<i>Juncus inflexus</i>
Alder	<i>Alnus glutinosa</i>	Hawthorn	<i>Crataegus monogyna</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Ash	<i>Fraxinus excelsior</i>	Ivy	<i>Hedera helix</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Marjoram	<i>Origanum vulgare</i>
Bittersweet	<i>Solanum dulcamara</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Blackthorn	<i>Prunus spinosa</i>	Nettle	<i>Urtica dioica</i>
Bramble	<i>Rubus fruticosus agg.</i>	Nipplewort	<i>Lapsana communis</i>
Brassicac	<i>Brassica spp.</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Cleavers	<i>Galium aparine</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Poppy	<i>Papaver rhoeas</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Red Clover	<i>Trifolium pratense</i>
Common Figwort	<i>Scrophularis nodosa</i>	Red Fescue	<i>Festuca rubra</i>
Common Sorrell	<i>Rumex acetosa</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Common Valerian	<i>Valeriana officinalis</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Couch Grass	<i>Elymus repens</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Silverweed	<i>Potentilla anserina</i>
Creeping Thistle	<i>Cirsium arvense</i>	Sycamore	<i>Fagus sylvatica</i>
Curled Dock	<i>Rumex crispus</i>	Tufted Vetch	<i>Vicia cracca</i>
Elder	<i>Sambucus nigra</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Wall Rue	<i>Asplenium ruta-muraria</i>
Field Horsetail	<i>Equisetum arvense</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Field Rose	<i>Rosa arvensis</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Flag Iris	<i>Iris pseudacorus</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Garden Privet	<i>Ligustrum ovalifolium</i>	Yorkshire Fog	<i>Holcus lanatus</i>
Great Willowherb	<i>Epilobium hirsutum</i>		

Fauna

Several stoat scats were present across the aqueduct wall at Charleville aqueduct. Otter activity was also notable in the vicinity of the aqueduct with slides, spraints and a pathway down to the river. Yellowhammer was the only notable bird species recorded.

Table 4.20-3 Animal species recorded from Charleville Aqueduct – Huband Aqueduct

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Irish Stoat	<i>Mustela erminea hibernica</i>
Birds	
Jackdaw	<i>Corvus monedula</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Great Tit	<i>Parus major</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Blackbird	<i>Turdus merula</i>
Woodpigeon	<i>Columba palumbus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Wren	<i>Troglodytes troglodytes</i>
Invertebrates	
Common Carder Bee	<i>Bombus pascuorum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Meadow brown	<i>Maniola jurtina</i>
Small tortoiseshell	<i>Aglais urticae</i>
Speckled wood	<i>Pararge aegeria</i>

4.21 HUBAND AQUEDUCT – 29TH LOCK, BALLYCOWAN BRIDGE

Map 21, Section length – 1.4km

Habitats and Flora

The Tullamore River transects the study area at Huband Aqueduct.

A gravel track continues along the northern towpath in this short section with the canal verge mapped as TPM. Cypress trees have been planted at the old castle immediately to the east of Huband aqueduct, and the rest of the field boundaries are mapped as hedgerow. The study area extends out to include an agricultural field just west of Ballycowan Bridge.



North towpath, view east to Ballycowan Bridge

A mown amenity pathway along the southern towpath is mapped together with the canal verge as towpath mosaic. The mosaic incorporates the typical wet-dry transitional species. On the towpath boundary is a hedgerow characterised by blackthorn, willows, bramble and ash with an understory of typical tall herbs and grasses. Snowberry has been indicated on the maps at several locations along this hedgerow.



Huband Aqueduct, view east

Emergent macrophytes include water plantain, yellow water lily and water plantain. Submerged species include Nuttall's waterweed, whorled water milfoil, spiked water milfoil, unbranched bur-reed, shining pondweed, charophytes and river moss.

Table 4.21-1 Habitats recorded from Huband Aqueduct 29th Lock, Ballycowan Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/lowland rivers
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS3	Ornamental

Table 4.21-2 Plant species recorded from Huband Aqueduct 29th Lock, Ballycowan Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Lawsons Cypress	<i>Chamaecyparis lawsoniana</i>
Almond Willow	<i>Salix triandra</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Nettle	<i>Urtica dioica</i>
Ash	<i>Fraxinus excelsior</i>	Nipplewort	<i>Lapsana communis</i>
Blackthorn	<i>Prunus spinosa</i>	Nuttall's Waterweed	<i>Elodea nuttallii</i>
Bramble	<i>Rubus fruticosus agg.</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Butterbur	<i>Petasites hybridus</i>	Red Clover	<i>Trifolium pratense</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Cleavers	<i>Galium aparine</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Common Bent	<i>Agrostis capillaris</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Snowberry	<i>Symphoricarpos albus</i>
Common Valerian	<i>Valeriana officinalis</i>	Spear Thistle	<i>Cirsium vulgare</i>
Creeping Thistle	<i>Cirsium arvense</i>	Sycamore	<i>Fagus sylvatica</i>
Dandelion	<i>Taraxacum agg.</i>	Spiked Water Milfoil	<i>Myriophyllum spicatum</i>
Elder	<i>Sambucus nigra</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Variiegated Horsetail	<i>Equisetum variegatum</i>
Field Rose	<i>Rosa arvensis</i>	Wall Rue	<i>Asplenium ruta-muraria</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Hard Rush	<i>Juncus inflexus</i>	White Clover	<i>Trifolium repens</i>
Hawthorn	<i>Crataegus monogyna</i>	White Willow	<i>Salix alba</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Whorled Water Milfoil	<i>Myriophyllum</i>
Hogweed	<i>Heracleum sphondylium</i>		
Hybrid Black Poplar	<i>Populus x canadensis</i>		

Common Name	Scientific Name
	<i>verticillatum</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	

Common Name	Scientific Name
Delicate Stonewort	<i>Chara virgata</i>
Bryophytes	
moss	<i>Fontinalis antipyretica</i>

Fauna

Otter activity was notable in the vicinity of Huband aqueduct with slides, spraints and a pathway down to the river. Common sandpiper, an amber-listed breeding species was observed wading in a shallow cattle crossing. Yellowhammer, a red-listed breeding species, was also recorded in this section.

Table 4.21-3 Animal species recorded from Huband Aqueduct 29th Lock, Ballycowan Bridge

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Birds	
Common Sandpiper	<i>Actitis hypoleucos</i>
Yellowhammer	<i>Emberiza citrinella</i>
Woodpigeon	<i>Columba palumbus</i>
Chaffinch	<i>Fringilla coelebs</i>
Jackdaw	<i>Corvus monedula</i>

4.22 29TH LOCK, BALLYCOWAN BRIDGE – SHRA BRIDGE

Map 19-20, Section length – 1.8m

Habitats and Flora

The 29th lock supports typical amenity and stone wall vegetation. Grassed areas are characterised by perennial rye grass, selfheal, yarrow, black medick, daisy, red clover, white clover and creeping buttercup. The lock walls have been colonised by American willowherb, meadowsweet, red valerian, false oat grass and prickly sow thistle.



North towpath, view of canal and verge habitats

On the northern side of Ballycowan Bridge the study area expands out to include a property and an agricultural field bounded by hedgerows and treelines.

A roadway runs along the northern towpath for part of this section, before diverging northwards, after which the towpath is mown grassland and is mapped as part of the TPM. The canal verge also forms part of the TPM with the typical transition from reedbed to wet grassland/marsh to a drier grassland edge. Hedgerow is the main

boundary habitat with blackthorn, bramble, hawthorn and willows common. There are also some taller sections of treeline dominated by ash, elm, sycamore and horse-chestnut. In one area the trees expands out sufficiently to be classed as woodland (WN2) with ash, elm and sycamore.

The southern towpath is mown amenity grassland and together with the canal verge is mapped as TPM. The canal verge habitat is quite overgrown, including some sections of bramble scrub and young ash, and the wet element (marsh/wet grassland) is sparse with habitat transitioning quickly in parts from sparse marginal reedbed/emergents to a drier tall grassland/scrub (GS2) mosaic. Typical species include common valerian, meadowsweet, ash, bramble, lady's bedstraw, knapweed, ribwort plantain, field horsetail, variegated horsetail, marsh bedstraw, Yorkshire fog and broad-leaved dock. The southern towpath hedgerow is generally low growing and characterised by typical species such as hawthorn, blackthorn, bramble, sycamore and ash, together with willows, yew and some invasive snowberry. A number of non-native trees (poplar, cherry, grey alder) are associated with the house boundary near Ballycowan Bridge.

The typical macrophytes were present including whorled water milfoil, shining pondweed, water lily, arrowhead and unbranched bur-reed.

Table 4.22-1 Habitats recorded from 29th Lock, Ballycowan Bridge – Shra Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland

Table 4.22-2 Plant species recorded from 29th Lock, Ballycowan bridge – Shra Bridge

Common Name	Scientific Name
Vascular Plants	
Agrimony	<i>Agrimonia procera</i>
American Willowherb	<i>Epilobium ciliatum</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Bush Vetch	<i>Vicia sepium</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Bent	<i>Agrostis capillaris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Mouse-ear	<i>Cerastium fontanum</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Crack Willow	<i>Salix fragilis</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Daisy	<i>Bellis perennis</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>

Common Name	Scientific Name
Field Horsetail	<i>Equisetum arvense</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Grey Alder	<i>Alnus incana</i>
Hawkweed	<i>Hieracium spp.</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Horse Chestnut	<i>Aesculus hippocastanum</i>
Imperforate St John's Wort	<i>Hypericum maculatum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Marsh Bedstraw	<i>Galium palustre</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Osier	<i>Salix viminalis</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Prickly Sow Thistle	<i>Sonchus asper</i>
Red Clover	<i>Trifolium pratense</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>

Common Name	Scientific Name
Rusty Willow	<i>Salix cinerea</i> subsp <i>oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Smooth Hawk's Beard	<i>Crepis capillaris</i>
Smooth Sow Thistle	<i>Sonchus oleraceus</i>
Snowberry	<i>Symphoricarpos albus</i>
Spindle	<i>Euonymus europaeus</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variiegated Horsetail	<i>Equisetum variegatum</i>

Common Name	Scientific Name
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
White Poplar	<i>Populus alba</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yew	<i>Taxus baccata</i>
Yorkshire Fog	<i>Holcus lanatus</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

Signs of mammals, most likely mink, accessing the canal was recorded in this section. Birds recorded were common countryside species.

Table 4.22-3 Animal species recorded from 29th Lock, Ballycowan Bridge – Shra Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Chiffchaff	<i>Phylloscopus collybita</i>
Magpie	<i>Pica pica</i>
House Sparrow	<i>Passer domesticus</i>
Heron	<i>Ardea cinerea</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Blackbird	<i>Turdus merula</i>
Pied wagtail	<i>Motacilla alba yarrellii</i>
Woodpigeon	<i>Columba palumbus</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Meadow brown	<i>Maniola jurtina</i>
Ringlet	<i>Aphantopus hyperantus</i>

4.23 SHRA BRIDGE – RAILWAY BRIDGE

Map 20-21, Section length – 1.2km

Habitats and Flora

A roadway continues along the northern towpath with TPM on the canal verge, and treeline, hedgerow or low grassy verge/scrub mosaic on the towpath verge. Treelines include mature sycamore, ash horse-chestnut and lime, with an understory of blackthorn, hawthorn, privet, elder, ivy and dog rose. In one area two treelines merge and are mapped as a woodland strip (WN2). By the large arable field in the east of this section a wide open verge is present which supports a vegetation transitional between grassy verge (GS2) and scrub (WS1) dominated by blackthorn, elder, bramble, hedge bindweed, willowherb and false oat grass.



North towpath, view east

The southern towpath consists of mown amenity grassland which combined with the canal verge vegetation is mapped as TPM. Common canal verge species include tall grasses, red clover, creeping buttercup, rough hawkbit, black medick, greater bird's foot trefoil, hedge woundwort, lady's bedstraw, meadowsweet and purple loosestrife. The verge also includes some young ash and willow on the inner bank. On the towpath verge the boundary habitat grades between treeline, woodland, hedgerow and grassy verge. The northern edge of Charleville wood meets the canal along this section and is dominated by ash, hawthorn and blackthorn (WN2). Near Railway Bridge in the vicinity of the waste water treatment plant a section of recolonising vegetation grades into a grassy verge habitat along the towpath verge.

A number of occurrences of snowberry in this section are identified and marked on the map.

Aquatic plants included yellow water lily, arrowhead, water plantain, shining pondweed, unbranched bur-reed and amphibious water bistort.

Table 4.23-1 Habitats recorded from Shra Bridge – Railway Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland

Table 4.23-2 Plant species recorded from Shra Bridge – Railway Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hairy Sedge	<i>Carex hirta</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Hard Rush	<i>Juncus inflexus</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hawthorn	<i>Crataegus monogyna</i>
Ash	<i>Fraxinus excelsior</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Black medick	<i>Medicago lupulina</i>	Hogweed	<i>Heracleum sphondylium</i>
Blackthorn	<i>Prunus spinosa</i>	Horse Chestnut	<i>Aesculus hippocastanum</i>
Bramble	<i>Rubus fruticosus agg.</i>	Ivy	<i>Hedera helix</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Knapweed	<i>Centaurea nigra</i>
Bush Vetch	<i>Vicia sepium</i>	Lady's Bedstraw	<i>Galium varum</i>
Cherry Laurel	<i>Prunus laurocerasus</i>	Leyland Cypress	<i>Cupressus x leylandii</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Marsh Bedstraw	<i>Galium palustre</i>
Common Bent	<i>Agrostis capillaris</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Common Reed	<i>Phragmites australis</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Common Valerian	<i>Valeriana officinalis</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Couch Grass	<i>Elymus repens</i>	Red Clover	<i>Trifolium pratense</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Red Fescue	<i>Festuca rubra</i>
Creeping Thistle	<i>Cirsium arvense</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Dog Rose	<i>Rosa canina</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Elder	<i>Sambucus nigra</i>	Rosebay	<i>Epilobium angustifolium</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Field Horsetail	<i>Equisetum arvense</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Flag Iris	<i>Iris pseudacorus</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Silverweed	<i>Potentilla anserina</i>
Greater Birds Foot Trefoil	<i>Lotus uliginosus</i>		

Common Name	Scientific Name
Snowberry	<i>Symphoricarpos albus</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>

Common Name	Scientific Name
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yew	<i>Taxus baccata</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Evidence of otter and mink activity was recorded along the southern towpath. The castle near the Railway Bridge to the north of the canal has potential for bats and barn owls. A bat transect in this section recorded Daubenton's Bats. Data provided by Bat Conservation Ireland indicates there are roost sites for Soprano pipistrelle, Brown long-eared bat and Natterer's bats within Charleville Demesne. Common countryside bird species were recorded in this section.

Table 4.23-3 Animal species recorded from Shra Bridge – Railway Bridge

Common Name	Scientific Name
Mammal	
Otter	<i>Lutra lutra</i>
Mink	<i>Neovison vison</i>
Birds	
Heron	<i>Ardea cinerea</i>
Wren	<i>Troglodytes troglodytes</i>
Willow warbler	<i>Phylloscopus trochilus</i>
House martin	<i>Delichon urbica</i>
House sparrow	<i>Passer domesticus</i>
Pied wagtail	<i>Motacilla alba yarrellii</i>
Swallow	<i>Hirundo rustica</i>
Rook	<i>Corvus frugilegus</i>
Invertebrates	
Blue-tailed damselfly	<i>Ischnura elegans</i>
Meadow brown	<i>Maniola jurtina</i>
Ringlet	<i>Aphantopus hyperantus</i>
White/Buff-tailed Bumblebee	<i>Bombus lucorum/terrestris agg.</i>
Large white	<i>Pieris brassicae</i>

4.24 RAILWAY BRIDGE – BURY BRIDGE

Map 21-22, Section length – 1.6km

Habitats and Flora

A number of short sections around Tullamore are described together here.

There is a very short section between Railway Bridge and New Bridge. A road runs along the north towpath, with the canal verge habitat mapped as TPM incorporating the typical transitional mix of species including common club rush, flag iris, common valerian, great willowherb, tufted vetch and one patch of marjoram. The southern towpath consists of a mown amenity grassland track with canal verge transitional habitats, also mapped as TPM. To the east the habitat around 28th lock is largely mapped as amenity grassland with perennial ryegrass, clovers, ragwort and catsear common. The towpath verge beyond this lock is mapped as TPM with the reedbed element dominated by reed sweet grass and common club rush. The marsh/wet grassland element is much reduced with a quick transition to a mown amenity grassland edge beside the roadway however species recorded included meadowsweet, common valerian, tufted vetch, flag iris, reed canary grass, marsh bedstraw, Yorkshire fog, hedge bindweed, rusty willow and false fox sedge. A stretch of scattered planted trees and amenity grassland



South towpath, view east of mature beech trees

mapped as WD5 is present on the south bank between 28th Lock and 27th Lock. Amenity grassland again is mapped around the 27th Lock.

The canal verge habitat between 27th Lock, Kilbeggan Road Bridge and Bury Bridge is mapped as TPM and generally consists of amenity grassland grading into a thin band of transitional wetland habitats, and then to marginal reedbeds. The typical vegetation transition is present though much reduced compared with more rural sections of the

canal. The reedbed/wet grassland/marsh element included common club rush, common reed, reed sweet grass, common valerian, meadowsweet and water mint. The drier grassland element incorporates elements of grassy verges (GS2) and amenity grassland (GA2) with Yorkshire fog, false oat grass, hedge bindweed, tufted vetch, red clover, ragwort, catsear and perennial rye grass. Scattered trees are present along both banks, with a row of mature beech present on the south bank mapped as WD5.

Considering the developed nature of the canal banks this section, the presence of a narrow marginal wetland/marsh verge along the canal banks is important. It will support the canal's function as a wildlife corridor for species such as otter, linking more rural sections of the canal to the east and west.

At Bury Bridge, the canal extends into Tullamore harbour. The banks either side comprise of amenity grassland dominated by perennial rye grass, white clover, daisy and silverweed. Planted around the harbour are silver birch trees. Included in this section are some buildings, all of which are occupied or under renovation and none of which provide significant roosting potential for bats.



Tullamore Harbour

Aquatic species found throughout this section include fennel pondweed, whorled water milfoil, shining pondweed, arrowhead, water plantain, water lily, fan-leaved water crowfoot and stoneworts.

Table 4.24-1 Habitats recorded from Railway Bridge – Bury Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2\GA2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WD5	Scattered trees and parkland

Table 4.24-2 Plant species recorded from Railway Bridge – Bury Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Branched Bur-reed	<i>Sparganium erectum</i>
American Willowherb	<i>Epilobium ciliatum</i>	Catsear	<i>Hypochaeris radicata</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Cherry Laurel	<i>Prunus laurocerasus</i>
Beech	<i>Fagus sylvatica</i>	Common Club-rush	<i>Schoenoplectus lacustris</i>
Box	<i>Buxus sempervirens</i>	Common Valerian	<i>Valeriana officinalis</i>
Bramble	<i>Rubus fruticosus agg.</i>	Creeping Cinquefoil	<i>Potentilla reptans</i>

Common Name	Scientific Name
Daisy	<i>Bellis perennis</i>
False Fox Sedge	<i>Carex obtrubae</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Flag Iris	<i>Iris pseudacorus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hogweed	<i>Heracleum sphondylium</i>
Leyland Cypress	<i>Cupressus x leylandii</i>
Marjoram	<i>Origanum vulgare</i>
Marsh Bedstraw	<i>Galium palustre</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Ragwort	<i>Senecio jacobaea</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Sycamore	<i>Fagus sylvatica</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>

Common Name	Scientific Name
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Delicate Stonewort	<i>Chara virgata</i>
Bryophytes	
Moss*	<i>Amblystegium serpens</i>
Moss*	<i>Barbula unguiculata</i>
Moss*	<i>Brachythecium rutabulum</i>
Moss*	<i>Bryum argenteum</i>
Moss*	<i>Bryum dichotomum</i>
Moss*	<i>Bryum capillare</i>
Moss*	<i>Calliergonella cuspidata</i>
Moss*	<i>Cryphaea heteromalla</i>
Moss*	<i>Didymodon insulanus</i>
Moss*	<i>Didymodon rigidulus</i>
Moss*	<i>Kindbergia praelonga</i>
Moss*	<i>Fontinalis antipyretica</i>
Moss*	<i>Grimmia pulvinata</i>
Moss*	<i>Homalothecium sericeum</i>
Moss*	<i>Hypnum cupressiforme var. cupressiforme</i>
Moss*	<i>Orthotrichum affine</i>
Moss*	<i>Orthotrichum anomalum</i>
Moss*	<i>Rhytidiadelphus squarrosus</i>
Moss*	<i>Schistidium crassipilum</i>
Moss*	<i>Syntrichia ruralis var. ruralis</i>
Moss*	<i>Tortula muralis</i>
Moss*	<i>Frullania dilatata</i>
Moss*	<i>Metzgeria furcata</i>

* BBS records

Fauna

There was no evidence of otter or mink found in this populated section; however otter were recorded to the east and west of Tullamore and may potentially use this section of the canal.

This section was surveyed as part of a Bat Conservation Ireland monitoring transect (Lock 26 to Lock 27) with Daubenton's bat the only species recorded. As noted above the buildings within the study area have been renovated with limited potential for bats. No unusual bird species were recorded in this section.

Table 4.24-3 Animal species recorded from Railway Bridge – Bury Bridge

Common Name	Scientific Name
Birds	
Willow warbler	<i>Phylloscopus trochilus</i>
Swallow	<i>Hirundo rustica</i>
Magpie	<i>Pica pica</i>
Wren	<i>Troglodytes troglodytes</i>
Blackbird	<i>Turdus merula</i>
Pied wagtail	<i>Motacilla alba yarrellii</i>
Invertebrates	
Meadow brown	<i>Maniola jurtina</i>
Large white	<i>Pieris brassicae</i>

4.25 BURY BRIDGE – 26TH LOCK

Map 22-23, Section length – 1.4km

Habitats and Flora

A gravel track runs along the northern towpath, with the canal verge mapped as TPM, and the towpath boundary mapped as either hedgerow or treeline.

A mown amenity grassland track runs along the southern towpath which together with the canal verge is mapped as TPM. Initially the towpath boundary consists of a treeline dominated by poplars with a hedge of hawthorn running behind it. This treeline grades into a treeline dominated by ash for most of the rest of this section with a wide grassy verge underneath.



South towpath, view east

A track runs along the northern towpath, with the canal verge mapped as TPM, and hedgerow/treeline on the towpath verge. Typical hedgerow/treeline species include hawthorn, hazel, spindle, elder, guilder rose, privet, alder and elm.

The canal verge on both banks is quite wide with the typical transition from wide sections of reedbed, to wet grassland/marsh to drier grassland. Tall grasses and herb species are common including knapweed, creeping thistle, couch grass, curled dock, meadowsweet, timothy, tufted vetch and meadow buttercup. Under the road bridge vegetation is reduced to some more ruderal species.

Aquatic species include fennel pondweed, Nuttall's waterweed, whorled water milfoil, shining pondweed, arrowhead, water plantain, yellow water lily and fan-leaved water crowfoot.

Table 4.25-1 Habitats recorded from Bury Bridge - 26th Lock

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)

Habitat Code	Habitat Name
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.25-2 Plant species recorded from Bury Bridge – 26th Lock

Common Name	Scientific Name
Vascular Plants	
Alder	<i>Alnus glutinosa</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Carnation Sedge	<i>Carex panicea</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Bent	<i>Agrostis capillaris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Mouse-ear	<i>Cerastium fontanum</i>
Common Valerian	<i>Valeriana officinalis</i>
Couch Grass	<i>Elymus repens</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Crested Dogstail	<i>Cynosurus cristatus</i>
Curled Dock	<i>Rumex crispus</i>
Domestic Apple	<i>Malus sylvestris</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Fern Grass	<i>Catapodium rigidum</i>
Field Horsetail	<i>Equisetum arvense</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Gelder Rose	<i>Viburnum opulus</i>
Hairy Sedge	<i>Carex hirta</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hogweed	<i>Heracleum sphondylium</i>

Common Name	Scientific Name
Hybrid Black Poplar	<i>Populus x canadensis</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nipplewort	<i>Lapsana communis</i>
Nuttall's Waterweed	<i>Elodea nuttallii</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Ragwort	<i>Senecio jacobaea</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

There was evidence of otter accessing the canal from a drain to the south beside the road bridge. Moorhen was recorded within the canal, and reed bunting within the reedbeds. Other birds recorded are common and widespread species.

Table 4.25-3 Animal species recorded from Bury Bridge – 26th Lock

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Birds	
Blackbird	<i>Turdus merula</i>
Woodpigeon	<i>Columba palumbus</i>
Moorhen	<i>Gallinula chloropus</i>
Swallow	<i>Hirundo rustica</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Wren	<i>Troglodytes troglodytes</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Invertebrates	
Meadow brown	<i>Maniola jurtina</i>

4.26 26TH LOCK – 25TH LOCK, CAPPINCUR BRIDGE

Map 23, Section length – 0.8km

Habitats and Flora

As for the previous section a track continues along the northern towpath, with a mown grass path along the southern towpath. The southern towpath verge is particularly diverse with wide areas of reedbed and emergents grading into wet grassland/marsh species and then grading into calcareous dry grassland. The calcareous grassland element includes common spotted orchid, fragrant orchid, twayblade and quaking grass. This towpath has been designated as ESA 8. The southern towpath together with the canal verge is mapped as TPM.



26th Lock



South towpath, view west

Hedgerows and treelines run along the towpath verge and include sycamore, ash, hawthorn, elder and willows. There is a section of ornamental planting on the southern towpath verge near Cappincur Bridge with honeysuckle and travellers joy. Under the treeline/hedgerow there is a grassy verge with tall grasses, cleavers, nettle, thistles and brambles. On the northern bank bracken is a frequent component of the canal verge and towpath verge.

Aquatics include whorled water milfoil, shining pondweed and fan-leaved water crowfoot.

Table 4.26-1 Habitats recorded from 26th Lock – 25th Lock, Cappincur Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges

Habitat Code	Habitat Name
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS3	Ornamental/non-native shrub

Table 4.26-2 Plant species recorded from 26th Lock – 25th Lock, Cappincur Bridge

Common Name	Scientific Name
Vascular Plants	
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Black medick	<i>Medicago lupulina</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Branched Bur-reed	<i>Sparganium erectum</i>
Butterfly Bush	<i>Buddleja davidii</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Cowslip	<i>Primula veris</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>
Creeping Thistle	<i>Cirsium arvense</i>
Crested Dogstail	<i>Cynosurus cristatus</i>
Daisy	<i>Bellis perennis</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Elder	<i>Sambucus nigra</i>
False Brome	<i>Brachypodium sylvaticum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Glaucous Sedge	<i>Carex flacca</i>
Hart's Tongue Fern	<i>Asplenium scolopendrium</i>
Hawkweed	<i>Hieracium spp.</i>
Hedge Bindweed	<i>Calystegia sepium</i>

Common Name	Scientific Name
Honeysuckle	<i>Lonicera periclymenum</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Quaking Grass	<i>Briza media</i>
Red Clover	<i>Trifolium pratense</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sycamore	<i>Fagus sylvatica</i>
Traveller's-joy	<i>Clematis vitalba</i>
Twayblade	<i>Listera ovata</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variiegated Horsetail	<i>Equisetum variegatum</i>
Wall Rue	<i>Asplenium ruta-muraria</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Wild Privet	<i>Ligustrum vulgare</i>
Hoary Willowherb	<i>Epilobium parvifolium</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

There was no obvious evidence of mink or otter activity within this section. Cappincur Bridge has low potential for bats. Swallows were observed to be nesting within the bridge and lock area. Grey wagtail was also recorded from the lock area. Other birds recorded are common countryside species.

Table 4.26-3 Animal species recorded from 26th Lock – 25th Lock, Cappincur Bridge

Common Name	Scientific Name
Birds	
Blackbird	<i>Turdus merula</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Swallow	<i>Hirundo rustica</i>
Grey wagtail	<i>Motacilla cinerea</i>
Wren	<i>Troglodytes troglodytes</i>
House sparrow	<i>Passer domesticus</i>
Pied wagtail	<i>Motacilla alba yarrellii</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>

4.27 25TH LOCK, CAPPINCUR BRIDGE – 24TH LOCK

Map 23-24, Section length – 0.6km

Habitats and Flora



South towpath, view east

A roadway runs along the northern towpath for this section, with hedgerow on the towpath verge and TPM mapped on the canal verge. The northern TPM includes the typical habitat transitions grading landwards from stands of common reed and reed sweet grass. The dry grassland element can be categorised as calcareous GS1 or GS2 with species including lady's bedstraw, yarrow and common spotted orchid. The southern towpath is mapped as TPM which includes the mown amenity pathway and the canal verge habitats. The canal verge

habitat had been cut back entirely in September. The hedgerow along the southern towpath verge is gappier than that along the northern towpath. Hedgerow species include hawthorn, blackthorn, elder, sycamore and bramble, together with occasional holly, privet, apple and honeysuckle. A wide grassy verge runs underneath the hedgerow in some places dominated by meadowsweet, false oat grass, field horsetail, nettle and bramble.

Aquatics include some large quantities of Nuttall's waterweed, together with broad-leaved pondweed, fennel pondweed and whorled water milfoil.

Table 4.27-1 Habitats recorded from 25th Lock, Cappincur Bridge – 24th Lock

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.27-2 Plant species recorded from 25th Lock, Cappincur Bridge – 24th Lock

Common Name	Species Name	Common Name	Species Name
Vascular Plants		Fennel Pondweed	<i>Potamogeton pectinatus</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Field Horsetail	<i>Equisetum arvense</i>
Annual Meadow Grass	<i>Poa annua</i>	Field Scabious	<i>Knautia arvensis</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Flag Iris	<i>Iris pseudacorus</i>
Ash	<i>Fraxinus excelsior</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Hard Rush	<i>Juncus inflexus</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hawthorn	<i>Crataegus monogyna</i>
Blackthorn	<i>Prunus spinosa</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bracken	<i>Pteridium aquilinum</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Bramble	<i>Rubus fruticosus agg.</i>	Hemp Agrimony	<i>Eupatorium cannabinum</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Herb Robert	<i>Geranium robertianum</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Hoary Willowherb	<i>Epilobium parviflorum</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Hogweed	<i>Heracleum sphondylium</i>
Bulrush	<i>Typha latifolia</i>	Honeysuckle	<i>Lonicera periclymenum</i>
Bush Vetch	<i>Vicia sepium</i>	Knapweed	<i>Centaurea nigra</i>
Catsear	<i>Hypochaeris radicata</i>	Lady's Bedstraw	<i>Galium varum</i>
Cleavers	<i>Galium aparine</i>	Leyland Cypress	<i>Cupressus x leylandii</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Coltsfoot	<i>Tussilago farfara</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Common Chickweed	<i>Stellaria media</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Nettle	<i>Urtica dioica</i>
Common Mouse-ear	<i>Cerastium fontanum</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Common Reed	<i>Phragmites australis</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Sedge	<i>Carex nigra</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Compact Rush	<i>Juncus conglomeratus</i>	Perforate St John's Wort	<i>Hypericum perforatum</i>
Couch Grass	<i>Elymus repens</i>	Pignut	<i>Conopodium majus</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Quaking Grass	<i>Briza media</i>
Creeping Thistle	<i>Cirsium arvense</i>	Ragwort	<i>Senecio jacobaea</i>
Daisy	<i>Bellis perennis</i>	Red Bartsia	<i>Odontites verna</i>
Dandelion	<i>Taraxacum agg.</i>	Red Clover	<i>Trifolium pratense</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Red Valerian	<i>Centranthus ruber</i>
Dog Rose	<i>Rosa canina</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Domestic Apple	<i>Malus sylvestris</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Elder	<i>Sambucus nigra</i>	Rosebay	<i>Epilobium angustifolium</i>
Eyebright	<i>Euphrasia spp.</i>	Selfheal	<i>Prunella vulgaris</i>
Fairy Flax	<i>Linum catharticum</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Silverweed	<i>Potentilla anserina</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Softrush	<i>Juncus effusus</i>

Common Name	Species Name
Spear Thistle	<i>Cirsium vulgare</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variiegated Horsetail	<i>Equisetum variegatum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>

Common Name	Species Name
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Along the southern towpath a mammal slide with droppings (likely otter) was noted. Birds recorded are common countryside residents.

Table 4.27-3 Animal species recorded from 25th Lock, Cappincur Bridge – 24th Lock

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Birds	
Magpie	<i>Pica pica</i>
Woodpigeon	<i>Columba palumbus</i>
Blackbird	<i>Turdus merula</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Invertebrates	
Large white	<i>Peris brassicae</i>
Meadow brown	<i>Maniola jurtina</i>
Brown hawk	<i>Aeshna grandis</i>
Green veined-white	<i>Pieris napi</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
White-tailed bumblebee	<i>Bombus leucorum</i>
Red-tailed bumblebee	<i>Bombus lapidarius</i>

4.28 24TH LOCK – 23RD LOCK

Map 24-25, Section length – 3.0km

Habitats and Flora

Just east of the lock there is a wooden jetty on the canal verge of the northern towpath, with amenity grassland on the outer canal verge (by the road). The roadway continues along the northern towpath. The canal verge is mapped as TPM with the usual transition of habitats from wet to dry. The southern towpath consists of mown amenity grassland which together with the canal verge is mapped as TPM.

In September 2015 the vegetation on both canal verges had just been cut back. Ash trees have been planted at regular intervals on the canal verge on both banks. Hedgerow runs along the towpath verge of both banks. On the northern towpath grassy verge habitat is also present underneath the hedgerow, and for a section it occupies the field boundary entirely.

Aquatics include Canadian waterweed, whorled water milfoil and the usual emergent macrophytes.



North towpath, view east

Table 4.28-1 Habitats recorded from 24th Lock – 23rd Lock

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.28-2 Plant species recorded from 24th Lock – 23rd Lock

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Field Scabious	<i>Knautia arvensis</i>
Agrimony	<i>Agrimonia procera</i>	Flag Iris	<i>Iris pseudacorus</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Germander Speedwell	<i>Veronica chamaedrys</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Ash	<i>Fraxinus excelsior</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Hard Rush	<i>Juncus inflexus</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hawthorn	<i>Crataegus monogyna</i>
Blackthorn	<i>Prunus spinosa</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bottle Sedge	<i>Carex rostrata</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Bracken	<i>Pteridium aquilinum</i>	Hemp Agrimony	<i>Eupatorium cannabinum</i>
Bramble	<i>Rubus fruticosus agg.</i>	Herb Robert	<i>Geranium robertianum</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Hoary Willowherb	<i>Epilobium parviflorum</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Hogweed	<i>Heracleum sphondylium</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Honeysuckle	<i>Lonicera periclymenum</i>
Bulrush	<i>Typha latifolia</i>	Knapweed	<i>Centaurea nigra</i>
Bush Vetch	<i>Vicia sepium</i>	Lady's Bedstraw	<i>Galium varum</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Cleavers	<i>Galium aparine</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Coltsfoot	<i>Tussilago farfara</i>	Nettle	<i>Urtica dioica</i>
Common Chickweed	<i>Stellaria media</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Reed	<i>Phragmites australis</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Common Sedge	<i>Carex nigra</i>	Perforate St John's Wort	<i>Hypericum perforatum</i>
Common Soapwort	<i>Soponaria officinalis</i>	Pignut	<i>Conopodium majus</i>
Couch Grass	<i>Elymus repens</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Creeping Buttercup	<i>Ranunculus repens</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Quaking Grass	<i>Briza media</i>
Creeping Thistle	<i>Cirsium arvense</i>	Red Bartsia	<i>Odontites verna</i>
Daisy	<i>Bellis perennis</i>	Red Clover	<i>Trifolium pratense</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Red Valerian	<i>Centranthus ruber</i>
Dog Rose	<i>Rosa canina</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Domestic Apple	<i>Malus sylvestris</i>	Rosebay	<i>Epilobium angustifolium</i>
Elder	<i>Sambucus nigra</i>	Selfheal	<i>Prunella vulgaris</i>
Eyebright	<i>Euphrasia spp.</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Fairy Flax	<i>Linum catharticum</i>	Shining Pondweed	<i>Potamogeton lucens</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Silverweed	<i>Potentilla anserina</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Snowberry	<i>Symphoricarpos albus</i>
Field Horsetail	<i>Equisetum arvense</i>	Softrush	<i>Juncus effusus</i>

Common Name	Scientific Name
Spear Thistle	<i>Cirsium vulgare</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variiegated Horsetail	<i>Equisetum variegatum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>

Common Name	Scientific Name
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Along the southern towpath well worn mammal tracks through the hedgerow in to the drain to the south were noted. Further along droppings that were likely mink were noted. Greenfinch (amber-listed) and Yellowhammer (red-listed) were recorded within this section; other birds recorded are common resident species.

Table 4.28-3 Animal species recorded from 24th Lock – 23rd Lock

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Greenfinch	<i>Carduelis chloris</i>
House Sparrow	<i>Passer domesticus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Wren	<i>Troglodytes troglodytes</i>
Willow warbler	<i>Phylloscopus trochilus</i>
sedge warbler	<i>Acrocephalus schoenobaenus</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Jackdaw	<i>Corvus monedula</i>
Magpie	<i>Pica pica</i>
Invertebrates	
Brown hawker	<i>Aeshna grandis</i>
Large white	<i>Pieris brassicae</i>

4.29 23RD LOCK – 22ND LOCK, CAPPYROE BRIDGE

Map 25-26, Section length – 0.6km

Habitats and Flora

Again the roadway continues along the northern towpath with TPM mapped on the canal verge and predominately hedgerow on the towpath verge. The hedgerow is dominated by hawthorn, elder, blackthorn and willow. There is also a wide band of grassy verge habitat grading into scrub in places in front of this hedgerow.

The southern towpath for the most part consists of a mown amenity grassland pathway, which together with the canal verge is mapped as TPM. A hedgerow runs along the towpath verge. The emergent vegetation is characterised by wide stands of common club rush and arrowhead. Snowberry is present along the northern towpath and the presence of soapwort is also notable. Nuttall's waterweed and shining pondweed are abundant in this section. Adjacent to Cappyroe Bridge the study area extends into an agricultural field by a farmyard with a row of poplars on the towpath verge.



North bank canal verge

Snowberry was recorded on the northern and southern towpaths just east of Lock 23.

Table 4.29-1 Habitats recorded from 23rd Lock – 22nd Lock, Cappyroe Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA1	Improved agricultural grassland
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.29-2 Plant species recorded from 23rd Lock – 22nd Lock, Capperoe Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Knapweed	<i>Centaurea nigra</i>
Agrimony	<i>Agrimonia procera</i>	Lady's Bedstraw	<i>Galium varum</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Blackthorn	<i>Prunus spinosa</i>	Nettle	<i>Urtica dioica</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Bush Vetch	<i>Vicia sepium</i>	Pignut	<i>Conopodium majus</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Coltsfoot	<i>Tussilago farfara</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Quaking Grass	<i>Briza media</i>
Common Reed	<i>Phragmites australis</i>	Red Bartsia	<i>Odontites verna</i>
Common Sedge	<i>Carex nigra</i>	Red Clover	<i>Trifolium pratense</i>
Couch Grass	<i>Elymus repens</i>	Red Valerian	<i>Centranthus ruber</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Creeping Thistle	<i>Cirsium arvense</i>	Selfheal	<i>Prunella vulgaris</i>
Daisy	<i>Bellis perennis</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Silverweed	<i>Potentilla anserina</i>
Dog Rose	<i>Rosa canina</i>	Snowberry	<i>Symphoricarpos albus</i>
Domestic Apple	<i>Malus sylvestris</i>	Timothy	<i>Phleum pratense</i>
Eyebright	<i>Euphrasia spp.</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Fairy Flax	<i>Linum catharticum</i>	Variogated Horsetail	<i>Equisetum variegatum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Water Horsetail	<i>Equisetum fluviatile</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Water Mint	<i>Mentha aquatica</i>
Field Horsetail	<i>Equisetum arvense</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Flag Iris	<i>Iris pseudacorus</i>	White Clover	<i>Trifolium repens</i>
Germander Speedwell	<i>Veronica chamaedrys</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Reed Sweet Grass	<i>Glyceria maxima</i>	Wild Angelica	<i>Angelica sylvestris</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Wild Carrot	<i>Daucus carota</i>
Hard Rush	<i>Juncus inflexus</i>	Wych Elm	<i>Ulmus glabra</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Yarrow	<i>Achillea millefolium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>	Yellow Rattle	<i>Rhinanthus minor</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Herb Robert	<i>Geranium robertianum</i>	Yorkshire Fog	<i>Holcus lanatus</i>
Hogweed	<i>Heracleum sphondylium</i>		

Fauna

No mammal signs were identified within this short section. Amber-listed Goldcrest were recorded within this section,

Table 4.29-3 Animal species recorded from 23rd Lock – 22nd Lock, Cappyroo Bridge

Common Name	Scientific Name
Birds	
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Goldcrest	<i>Regulus regulus</i>
Wren	<i>Troglodytes troglodytes</i>
Robin	<i>Erithacus rubecula</i>
Woodpigeon	<i>Columba palumbus</i>
Jackdaw	<i>Corvus monedula</i>
Invertebrates	
Green veined white	<i>Pieris napi</i>
Common carder bee	<i>Bombus pascorum</i>
Peacock	<i>Aglais io</i>

4.30 22ND LOCK, CAPPYROE BRIDGE – 21ST LOCK, BALLYCOMMON

Map 26, Section length – 1.4km

Habitats and Flora

A rough stone track runs along the northern towpath. The canal verge is mapped as TPM with the typical transition of habitats from reedbed to dry grassland. On towpath verge the canal embankment vegetation is mapped as GS2 with scattered trees and some scrub elements. Hedgerow is mapped along the towpath verge to the north of the canal embankment with common species including young ash, willow and white poplar, with some privet and hazel.



North towpath, view east

A gravelled track is also present on the southern towpath for most of this section with a low hedgerow running along the towpath verge.

Wide stands of reedbeds occur along both sides of the canal. Aquatics recorded included Nuttall's waterweed, shining pondweed, broad-leaved pondweed, whorled water milfoil and branched bur-reed.

Table 4.30-1 Habitats recorded from 22nd Lock, Cappyroie Bridge – 21st Lock, Ballycommon

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.30-2 Plant species recorded from 22nd Lock, Capproye Bridge – 21st Lock, Ballycommon

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Meadow Buttercup	<i>Ranunculus acris</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Ash	<i>Fraxinus excelsior</i>	Nettle	<i>Urtica dioica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Blackthorn	<i>Prunus spinosa</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Pignut	<i>Conopodium majus</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Bush Vetch	<i>Vicia sepium</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Quaking Grass	<i>Briza media</i>
Coltsfoot	<i>Tussilago farfara</i>	Red Bartsia	<i>Odontites verna</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Red Clover	<i>Trifolium pratense</i>
Common Reed	<i>Phragmites australis</i>	Red Valerian	<i>Centranthus ruber</i>
Common Sedge	<i>Carex nigra</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Couch Grass	<i>Elymus repens</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Selfheal	<i>Prunella vulgaris</i>
Creeping Thistle	<i>Cirsium arvense</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Daisy	<i>Bellis perennis</i>	Silverweed	<i>Potentilla anserina</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Timothy	<i>Phleum pratense</i>
Dog Rose	<i>Rosa canina</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Domestic Apple	<i>Malus sylvestris</i>	Variiegated Horsetail	<i>Equisetum variegatum</i>
Eyebright	<i>Euphrasia spp.</i>	Water Horsetail	<i>Equisetum fluviatile</i>
Fairy Flax	<i>Linum catharticum</i>	Water Mint	<i>Mentha aquatica</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Watercress	<i>Rorippa nasturtium-aquaticum</i>
Field Horsetail	<i>Equisetum arvense</i>	White Clover	<i>Trifolium repens</i>
Flag Iris	<i>Iris pseudacorus</i>	White Poplar	<i>Populus alba</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Whorled whor	<i>Myriophyllum verticillatum</i>
Hard Rush	<i>Juncus inflexus</i>	Wild Angelica	<i>Angelica sylvestris</i>
Hazel	<i>Corylus avellana</i>	Wild Carrot	<i>Daucus carota</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Wild Privet	<i>Ligustrum vulgare</i>
Hedge Woundwort	<i>Stachys sylvatica</i>	Wych Elm	<i>Ulmus glabra</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>	Yarrow	<i>Achillea millefolium</i>
Herb Robert	<i>Geranium robertianum</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Hogweed	<i>Heracleum sphondylium</i>	Yorkshire Fog	<i>Holcus lanatus</i>
Knapweed	<i>Centaurea nigra</i>		
Lady's Bedstraw	<i>Galium varum</i>		

Fauna

Capperoe Bridge has limited bat potential. Two mammal paths through the reeds in to the canal were noted along the southern towpath.

Table 4.30-3 Animal species recorded from 22nd Lock, Capperoe Bridge – 21st Lock, Ballycommon

Common Name	Scientific Name
Birds	
Lesser Redpoll	<i>Carduelis cabaret</i>
Blackbird	<i>Turdus merula</i>
Dunnock	<i>Prunella modularis</i>
Hooded Crow	<i>Corvus corone cornix</i>
Magpie	<i>Pica pica</i>
Swallow	<i>Hirundo rustica</i>
Woodpigeon	<i>Columba palumbus</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Large white	<i>Pieris brassicae</i>
Brown hawk	<i>Aeshna grandis</i>

4.31 21ST LOCK, BALLYCOMMON – CHENEVIX BRIDGE, BALLYCOMMON

Map 26-27, Section length – 0.4km

Habitats and Flora



North towpath, Campbells Bridge

This section includes the stretch of canal from the 21st lock to Campbell's Bridge over the Kilbeggan line, and onwards the short distance to Chenevix Bridge, Ballycommon.

A roadway runs along the northern towpath. The canal verge includes a wide amenity grassland strip with boat moorings and a much reduced reedbed/wet grassland/marsh element to the TPM. The bank is also quite steep-sided which limits the abundance of transitional vegetation that can develop.

Around the Kilbeggan Branch entrance the canal verge includes an element of more calcareous grassland on the outer edge of the verge. Bee orchids have been recorded at the turn for the Kilbeggan line (*A. pedlow*, pers. comm.).

The southern towpath consists of mown amenity grassland. The southern canal verge is also very steep-sided and therefore has little in the term of wet grassland/marsh species, though some (meadowsweet, wild angelica, purple loosestrife) are sparsely distributed. There is also little in terms of reedbed, again with some scattered marginal species including common reed, reed sweet grass and common club rush.

Hedgerows and some sections of treelines, make up the towpath verge habitats on both towpaths. The Kilbeggan line at Campbell's bridge has standing water colonised with water horsetail, water mint, reed sweet grass and bulrush.

Aquatics include Nuttall's waterweed, shining pondweed, water milfoil, and the usual emergents.

Table 4.31-1 Habitats recorded from 21st Lock, Ballycommon – Chenevix Bridge, Ballycommon

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines

Table 4.31-2 Plant species recorded from 21st Lock, Ballycommon – Chenevix Bridge, Ballycommon

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hedge Bindweed	<i>Calystegia sepium</i>
Amphibious Bistort	<i>Persicaria amphibia</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hemp Agrimony	<i>Eupatorium cannabinum</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Herb Robert	<i>Geranium robertianum</i>
Blackthorn	<i>Prunus spinosa</i>	Hogweed	<i>Heracleum sphondylium</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Knapweed	<i>Centaurea nigra</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Lady's Bedstraw	<i>Galium varum</i>
Bush Vetch	<i>Vicia sepium</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Coltsfoot	<i>Tussilago farfara</i>	Nettle	<i>Urtica dioica</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Common Reed	<i>Phragmites australis</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Sedge	<i>Carex nigra</i>	Pignut	<i>Conopodium majus</i>
Couch Grass	<i>Elymus repens</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Creeping Cinquefoil	<i>Potentilla reptans</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Creeping Thistle	<i>Cirsium arvense</i>	Quaking Grass	<i>Briza media</i>
Daisy	<i>Bellis perennis</i>	Red Bartsia	<i>Odontites verna</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Red Clover	<i>Trifolium pratense</i>
Dog Rose	<i>Rosa canina</i>	Red Valerian	<i>Centranthus ruber</i>
Domestic Apple	<i>Malus sylvestris</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Eyebright	<i>Euphrasia spp.</i>	Selfheal	<i>Prunella vulgaris</i>
Fairy Flax	<i>Linum catharticum</i>	Shining Pondweed	<i>Potamogeton lucens</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Silverweed	<i>Potentilla anserina</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Timothy	<i>Phleum pratense</i>
Field Horsetail	<i>Equisetum arvense</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Flag Iris	<i>Iris pseudacorus</i>	Variiegated Horsetail	<i>Equisetum variegatum</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Water Horsetail	<i>Equisetum fluviatile</i>
Hard Rush	<i>Juncus inflexus</i>	Water Mint	<i>Mentha aquatica</i>

Common Name	Scientific Name
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>

Common Name	Scientific Name
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Cappyroe and Campbell's Bridges have limited bat potential. North of this section there is a known bat roost for Soprano Pipistrelle (Bat Conservation Ireland data) ca. 1km to the north of the canal.

No mammal signs were recorded from this short section. Grey Wagtail (red listed) was recorded perched on the gates of the 21st lock in this section.

Table 4.31-3 Animal species recorded from 21st Lock, Ballycommon – Chenevix Bridge, Ballycommon

Common Name	Scientific Name
Birds	
Grey Wagtail	<i>Motacilla cinerea</i>
Swallow	<i>Hirundo rustica</i>
Pied Wagtail	<i>Motacilla alba yarrellii</i>
Woodpigeon	<i>Columba palumbus</i>
wren	<i>Troglodytes troglodytes</i>
Jackdaw	<i>Corvus monedula</i>
Heron	<i>Ardea cinerea</i>
Coal Tit	<i>Parus ater hibernicus</i>
Invertebrates	
Large white	<i>Pieris brassicae</i>

4.32 CHENEVIX BRIDGE, BALLYCOMMON – BORD NA MONA BRIDGE

Map 27-29, Section length – 2.4km

Habitats and Flora

The northern towpath comprises a roadway with TPM mapped on the canal verge, and a range of habitats on the towpath verge including mature treelines, woodland and peatland. Moving east from Ballycommon there is firstly a mature beech and elm treeline, this then grades into a hedgerow dominated by willows with hawthorn, guilder rose and ash. There are sections of grassland along the towpath verge with both calcareous and acid elements. Grassland species including butterwort, fragrant orchid, marsh helliborine, quaking grass, purple moor-grass, devil's-bit scabious, lesser hawkbit and tormentil.

The study area opens out into a woodland on peaty soil classified as WN7 and characterised by a range of species including birch, ash, hawthorn, holly, oak, beech and sycamore. The ground flora included hard shield fern and bracken. Open grassland areas (GS1) within the woodland are grazed by horses and other open areas have been completely colonised by bracken. There is also an extensive area of snowberry within the



Bog with woodland in far ground

woodland.

An area of cutaway bog that has regenerated significantly is found just east of the woodland. It is wet with extensive depressions of *Sphagnum papillosum*, *Sphagnum cuspidatum* and white beak sedge, together with hummocks of *Sphagnum capillifolium* and bog asphodel, bog cotton, ling and cross-leaved heath. Drier edges around the bog include purple moor grass, sweet vernal grass, devils bit scabious and tormentil. There is some bogbean in an adjacent drain together with reed canary grass and meadowsweet.

The woodland and bog habitats have been designated as ESA 9.

Just west of the railway the towpath verge consists of a strip of woodland with sycamore, ash, willow and elm which does not strictly fit into any woodland category but was mapped as WN6. Wet grassland occurred to the north of this woodland strip.

The southern towpath consists of mown amenity grassland which is mapped together with the canal verge as TPM. The towpath verge consists of the edge of a block of woodland. Poplar and ash have been planted on the verge with an ash plantation behind. The woodland also has some hawthorn, willow, privet, guelder rose and spindle, and is increasingly dominated by willow towards the east. It is wet and waterlogged in places, and has been mapped as WN6.



South towpath, view west with wet woodland on towpath boundary

Further east, habitats consist mainly of areas of wet grassland, bracken/gorse scrub and woodland. The woodland areas are dominated by ash and willow and mapped as WN6. The wet grassland is relatively species poor with common species including meadowsweet, soft rush and meadow buttercup. There are also some areas of reedbed grading in and out of the wet grassland and woodland.

The towpath mosaic along this section is quite diverse and includes the typical transition of habitats. The wet grassland element grades into a mosaic of grassland habitats including tall grassy verge (GS2) and Calcareous grassland (GS1). Fragrant orchid was common towards the east of this section.

Aquatics include the typical emergents with perfoliate pondweed, shining pondweed, unbranched bur-reed, water milfoil and the invasive Nuttall's waterweed.

The BSBI have records of pyramidal orchid, zig zag clover, burnet saxifrage and marsh helliborine within the 2km square N42I around Ballycommon.

Table 4.32-1 Habitats recorded from Chenevix Bridge, Ballycommon – Bord na Mona Bridge

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	\GS2	
FW3	Canals	WL1	Hedgerow
FW4	Drainage Ditches	WL2	Treelines
GA2	Amenity grassland (improved)	WN6	Wet willow-alder-ash woodland
GS2	Dry meadows and grassy verges	WN7	Bog woodland
GS4	Wet Grassland	PB4	Cutover bog
GM1\GS4\FS1\GS1	Towpath mosaic		

Table 4.32-2 Plant species recorded from Chenevix Bridge, Ballycommon – Bord na Mona Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Hard Rush	<i>Juncus inflexus</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hard Shield Fern	<i>Polystichum aculeatum</i>
Ash	<i>Fraxinus excelsior</i>	Hawthorn	<i>Crataegus monogyna</i>
Beech	<i>Fagus sylvatica</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hemp Agrimony	<i>Eupatorium cannabinum</i>
Blackthorn	<i>Prunus spinosa</i>	Herb Robert	<i>Geranium robertianum</i>
Bog Asphodel	<i>Narthecium ossifragum</i>	Hogweed	<i>Heracleum sphondylium</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Holly	<i>Ilex aquifolium</i>
Bogbean	<i>Menyanthes trifoliata</i>	Hybrid Black Poplar	<i>Populus x canadensis</i>
Bracken	<i>Pteridium aquilinum</i>	Ivy	<i>Hedera helix</i>
Bramble	<i>Rubus fruticosus agg.</i>	Knapweed	<i>Centaurea nigra</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>	Lady's Bedstraw	<i>Galium varum</i>
Butterbur	<i>Petasites hybridus</i>	Lesser Hawkbit	<i>Leontodon saxatilis</i>
Catsear	<i>Hypochaeris radicata</i>	Ling	<i>Calluna vulgaris</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Lords and Ladies	<i>Arum maculatum</i>
Common Butterwort	<i>Pinguicula vulgaris</i>	Marsh Helliborine	<i>Epipactis palustris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Marsh Thistle	<i>Cirsium palustre</i>
Common Figwort	<i>Scrophularis nodosa</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Common Mouse-ear	<i>Cerastium fontanum</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Common Reed	<i>Phragmites australis</i>	Nettle	<i>Urtica dioica</i>
Common Sedge	<i>Carex nigra</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Valerian	<i>Valeriana officinalis</i>	Pedunculate Oak	<i>Quercus robur</i>
Couch Grass	<i>Elymus repens</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Creeping Bent	<i>Agrostis stolonifera</i>	Perforate St John's Wort	<i>Hypericum perforatum</i>
Creeping Thistle	<i>Cirsium arvense</i>	Prickly Sow Thistle	<i>Sonchus asper</i>
Cross-leaved Heath	<i>Erica tetralix</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Curled Dock	<i>Rumex crispus</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Quaking Grass	<i>Briza media</i>
Downy Birch	<i>Betula pubescens</i>	Ragwort	<i>Senecio jacobaea</i>
Eared Willow	<i>Salix aurita</i>	Red Clover	<i>Trifolium pratense</i>
Eyebright	<i>Euphrasia spp.</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Field Horsetail	<i>Equisetum arvense</i>	Rosebay	<i>Epilobium angustifolium</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Goat Willow	<i>Salix caprea</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Gorse	<i>Ulex europaeus</i>	Selfheal	<i>Prunella vulgaris</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Greater Plantain	<i>Plantago major</i>	Silverweed	<i>Potentilla anserina</i>
Guelder Rose	<i>Viburnum opulus</i>	Snowberry	<i>Symphoricarpos albus</i>

Common Name	Scientific Name
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>
Tall Fescue	<i>Festuca arundinacea</i>
Timothy	<i>Phleum pratense</i>
Tormentil	<i>Potentilla erecta</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Watercress	<i>Rorippa nasturtium-aquaticum</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wild Strawberry	<i>Fragaria vesca</i>
Wood Rush	<i>Luzula sylvatica</i>
Wood Sage	<i>Teucrium scorodonia</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Bryophytes	
Moss	<i>Rhytidiadelphus squarrosus</i>
Moss	<i>Sphagnum capillifolium</i>
Moss	<i>Sphagnum cuspidatum</i>
Moss	<i>Sphagnum papillosum</i>
Moss	<i>Thuidium tamariscinum</i>

*BBS Records

Common Name	Scientific Name
Moss	<i>Kindbergia praelonga</i>
Moss	<i>Eurhynchium striatum</i>
Moss*	<i>Radula complanata</i>
Moss*	<i>Brachythecium rutabulum</i>
Moss*	<i>Bryum capillare</i>
Moss*	<i>Calliergonella cuspidata</i>
Moss*	<i>Cinclidotus fontinaloides</i>
Moss*	<i>Cratoneuron filicinum</i>
Moss*	<i>Didymodon rigidulus</i>
Moss*	<i>Encalypta streptocarpa</i>
Moss*	<i>Kindbergia praelonga</i>
Moss*	<i>Eurhynchium striatum</i>
Moss*	<i>Fissidens adianthoides</i>
Moss*	<i>Fontinalis antipyretica</i>
Moss*	<i>Grimmia pulvinata</i>
Moss*	<i>Homalothecium sericeum</i>
Moss*	<i>Hypnum cupressiforme var. resupinatum</i>
Moss*	<i>Neckera complanata</i>
Moss*	<i>Orthotrichum affine</i>
Moss*	<i>Orthotrichum anomalum</i>
Moss*	<i>Pseudocrossidium revolutum</i>
Moss*	<i>Rhytidiadelphus squarrosus</i>
Moss*	<i>Schistidium crassipilum</i>
Moss*	<i>Tortula muralis</i>
Moss*	<i>Zygodon viridissimus var. viridissimus</i>
Moss*	<i>Metzgeria furcata</i>
Moss*	<i>Barbula convoluta var. convoluta</i>

Fauna

Signs of badger, fox and rat were recorded. The red-listed yellowhammer was amongst the bird species recorded. Buzzard was also recorded here. Other birds recorded are common countryside species.

Table 4.32-3 Animal species recorded from Chenevix Bridge, Ballycommon – Bord na Mona Bridge

Common Name	Scientific Name
Mammals	
Rat	<i>Rattus norvegicus</i>
Fox	<i>Vulpes vulpes</i>
Badger	<i>Meles meles</i>
Birds	
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Yellowhammer	<i>Emberiza citrinella</i>
Coal tit	<i>Periparus ater hibernicus</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Buzzard	<i>Buteo buteo</i>
Woodpigeon	<i>Columba palumbus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Magpie	<i>Pica pica</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Common carder bee	<i>Bombus pascuorum</i>
Ringlet	<i>Aphantopus hyperantus</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Ruddy darter	<i>Sympetrum sanguineum</i>
White-tailed bumblebee	<i>Bombus leucorum</i>

4.33 BORD NA MONA BRIDGE – MOLESWORTH BRIDGE, DAINGEAN

Map 29-31, Section length – 3.0km

Habitats and Flora

The steep-sided railway embankment transecting the canal at the start of this section has been colonised by field horsetail, bramble, nettle, hedge bindweed, false oat grass and meadowsweet.

To the north of the canal the study area includes a wet section of recolonised ground which has developed marsh type vegetation grading from a wet drain towards a drier edge on the canal embankment. Common species include water horsetail, lesser spearwort, yellow sedge, purple loosestrife, sharp-flowered rush, lousewort, knapweed, sweet vernal grass, Yorkshire fog, bulrush and common valerian. A hedgerow along the pathway to the east of this area is characterised by wild privet, elm, crack willow, rusty willow, hawthorn and dog rose.

East of this area to the north of the canal the study area comprises of agricultural grassland with mature treeline boundaries. The towpath verge includes sections of scrub where the field boundary hedgerow extends into the grassy verge. An area of woodland (WN2) is mapped where two hedgerows on a low



North towpath, view west

and high banks respectively have merged with ash, willow, hawthorn, wild privet, blackthorn and a ground flora of common dog violet, bramble, hedge parsley and herb robert.

Continuing to Daingean Bridge hedgerow is the dominant towpath verge habitat on the north side. It is mostly comprised of hawthorn with some ash, sycamore, elder and bramble. There is a 7m section of snowberry close to Daingean.

Along the southern part of this section just east of the railway there is a drain with bottle sedge, water mint and lesser spearwort. The dominant habitats east of this area are wet grassland fields on peat soils dominated by purple moor-grass with some ling, devil's bit scabious and tormentil, which grades in and out of areas of low woodland dominated by willow, gorse and birch (mapped as WN7). Species along the towpath verge include rosebay, bracken and field thistle.

An area of species-rich wet grassland is mapped on peat soils, grading southwards into poor fen and transition mire habitat with bog woodland at the edges. The wet grassland is characterised by common spotted orchid, early marsh orchid, purple moor grass, marsh cinquefoil, marsh thistle, purple loosestrife, devils bit scabious, sweet vernal grass, bog bean and tufted hair grass. This grades into the poor fen characterised by sphagnum mosses together with ling, cross-leaved heath, bog asphodel, white beaked sedge, cladonia, bog cotton and bog bean. There is also an area with sedges (long-stalked yellow sedge and lesser tussock sedge), marsh pennywort, and grass of Parnassus more dominant with some mosses characteristic of more base-rich conditions (*Campylium stellatum*, *Calliergon cordifolium* and *Scorpidium cossonii*) which has been mapped as transition mire. The wet grassland and fen habitats have been designated as ESA 10.



Fen/Mire complex south of canal



Grass of Parnassus

Further east less diverse and semi-improved wet grassland is characterised by meadowsweet, sweet vernal grass, hard rush and soft rush. The towpath verge is predominately grassy verge from this point onwards to Daingean, with some areas of low scrub, hedgerow or treeline. A small area of woodland by Daingean consists of willows, ash and hawthorn. Some ornamental shrubs including red osier dogwood and garden privet are planted near the bridge.

The canal verge TPM in this section, as for the previous section, includes the typical transition of habitats characterised by common species. Aquatics include broad-leaved pondweed, Nuttall's waterweed, fennel pondweed, perfoliate pondweed, unbranched bur-reed, fan-leaved water crowfoot and whorled water milfoil. The common emergents are all present.

Table 4.33-1 Habitats recorded from Bord Na Mona Bridge – Molesworth Bridge, Daingean

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GS3	Dry-humid acid grassland
GS4	Wet grassland
GM1	Marsh
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
WN6	Wet willow-alder-ash woodland
WN7	Bog woodland
PF2	Poor fen and flush
PF3	Transition mire

Table 4.33-2 Plant species recorded from Bord Na Mona Bridge – Molesworth Bridge, Daingean

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Common Valerian	<i>Valeriana officinalis</i>
Ash	<i>Fraxinus excelsior</i>	Corn Sow Thistle	<i>Sonchus arvensis</i>
Beech	<i>Fagus sylvatica</i>	Couch Grass	<i>Elymus repens</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Crack Willow	<i>Salix fragilis</i>
Blackthorn	<i>Prunus spinosa</i>	Creeping Thistle	<i>Cirsium arvense</i>
Bog Asphodel	<i>Nartheceium ossifragum</i>	Cross-leaved Heath	<i>Erica tetralix</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Devilsbit Scabious	<i>Succisa pratensis</i>
Bog Myrtle	<i>Myrica gale</i>	Dog Rose	<i>Rosa canina</i>
Bogbean	<i>Menyanthes trifoliata</i>	Downy Birch	<i>Betula pubescens</i>
Bracken	<i>Pteridium aquilinum</i>	Eared Willow	<i>Salix aurita</i>
Bramble	<i>Rubus fruticosus agg.</i>	Early Marsh Orchid	<i>Dactylorhiza incarnata</i> <i>subsp. incarnata</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Elder	<i>Sambucus nigra</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Enchanter's Nightshade	<i>Circaea lutetiana</i>
Bulrush	<i>Typha latifolia</i>	Eyebright	<i>Euphrasia spp.</i>
Catsear	<i>Hypochaeris radicata</i>	Fairy Flax	<i>Linum catharticum</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	False Oat Grass	<i>Arrhenatherum elatius</i>
Coltsfoot	<i>Tussilago farfara</i>	Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>
Common Dog-violet	<i>Viola riviniana</i>		
Common Sedge	<i>Carex nigra</i>		

Common Name	Scientific Name
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Garden Privet	<i>Ligustrum ovalifolium</i>
Gorse	<i>Ulex europaeus</i>
Grass of Parnassus	<i>Parnassia palustris</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Gelder Rose	<i>Viburnum opulus</i>
Hard Rush	<i>Juncus inflexus</i>
Hare's Tail Cottongrass	<i>Eriophorum vaginatum</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Parsley	<i>Torilis japonica</i>
Herb Robert	<i>Geranium robertianum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lesser Spearwort	<i>Ranunculus flammula</i>
Lesser Tussock Sedge	<i>Carex diandra</i>
Ling	<i>Calluna vulgaris</i>
Long-stalked Yellow Sedge	<i>Carex lepidocarpa</i>
Lousewort	<i>Pedicularis sylvatica</i>
Marsh Cinquefoil	<i>Potentilla palustris</i>
Marsh Pennywort	<i>Hydrocotyle vulgaris</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadow Thistle	<i>Cirsium dissectum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Osier	<i>Salix viminalis</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Osier Dogwood	<i>Cornus sericea</i>
Reindeer Lichen	<i>Cladonia portentosa</i>

Common Name	Scientific Name
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Silverweed	<i>Potentilla anserina</i>
Snowberry	<i>Symphoricarpos albus</i>
Softrush	<i>Juncus effusus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>
Tormentil	<i>Potentilla erecta</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
White Beak-sedge	<i>Rhynchospora alba</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yellow Loosestrife	<i>Lysimachia vulgaris</i>
Yorkshire Fog	<i>Holcus lanatus</i>
moss	<i>Sphagnum palustre</i>
moss	<i>Sphagnum subnitens</i>
moss	<i>Sphagnum capillifolium</i>
moss	<i>Sphagnum tenellum</i>
moss	<i>Campylium stellatum</i>
moss	<i>Calliergon cordifolium</i>
moss	<i>Scorpidium cossonii</i>
moss	<i>Calliergonella cuspidata</i>

Fauna

A fox den was located in woodland close to the northern towpath. Sedge warbler and reed bunting were observed within the reedbeds in this section. Other birds recorded are common and widespread species.

Table 4.33-3 Animal species recorded from Bord Na Mona Bridge – Molesworth Bridge, Daingean

Common Name	Scientific Name
Mammal	
Fox	<i>Vulpes vulpes</i>
Birds	
Sedge warbler	<i>Acrocephalus schoenobaenus</i>
Reed bunting	<i>Emberiza schoeniclus</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Jackdaw	<i>Corvus monedula</i>
Magpie	<i>Pica pica</i>
Wren	<i>Troglodytes troglodytes</i>
Blackbird	<i>Turdus merula</i>
House Sparrow	<i>Passer domesticus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Woodpigeon	<i>Columba palumbus</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Large white	<i>Pieris brassicae</i>
Green veined white	<i>Pieris napi</i>
Meadow brown	<i>Maniola jurtina</i>

4.34 MOLESWORTH BRIDGE DAINGEAN –KILLEEN BRIDGE

Map 31-32, Section length – 2.6km

Habitats and Flora

A roadway runs along the initial section of the northern towpath leading to the golf course. Just east of Daingean Bridge, on the towpath verge there is an area amenity grassland backed by a gappy hedgerow with some tall trees, mainly willow, ash and privet. Lower hedgerow is dominated by bramble with meadowsweet and great willowherb.



North towpath, view west

After the road turns up to the golf course the towpath comprises a mown amenity track. On the towpath verge there is an elder and bramble hedge with mature ash, horse chestnut and pedunculate oak trees. There is also a section of ornamental hedgerow. The canal verge and amenity track are mapped together as TPM. The canal verge includes stands of common reed and common club rush, then grades into wet grassland/marsh and dry grassland species. The presence of yellow oat grass here is notable as it was not found elsewhere on the canal. There is a section of treeline mapped where the canal turns northwards with sycamore, hawthorn, ash, elm, hazel, elder, hawthorn, beech and apple. The towpath verge then grades into a grassy verge habitat (GS2) with tufted hair grass, nettle, wild angelica and meadowsweet.

On the stretch towards Killeen Bridge a wider hedgerow is mapped as a dry woodland strip (WN2). It effectively includes a tall ash treeline on the field boundary side merging into willow on the towpath verge side. There are also dense patches of bramble, bracken and bindweed interspersed amongst the willows.

The vegetation within the canal verge habitat close to Killeen Bridge includes quaking grass, fragrant orchid and variegated horsetail.

The southern towpath consists of a mown amenity grassland track for most of this section. Close to Daingean there is a wide amenity strip with scattered ash trees which is mapped as Scattered Trees and Parkland (WD5). East of this area a gravel track accesses properties off the towpath. Towpath verge habitat mostly consists of grassy verges and low willow scrub with a hawthorn hedge to the field

boundary side. Grassy verge species include hard rush, bird's foot trefoil, timothy, knapweed, tufted vetch, water mint, purple loosestrife, meadowsweet and great willowherb.

Aquatics include the common emergents together with broad-leaved pondweed, fennel pondweed, water milfoil, Nuttall's waterweed and amphibious bistort.

Table 4.34-1 Habitats recorded from Molesworth Bridge Daingean – Killeen Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
WD5	Scattered trees and parkland
WS1	Scrub
WS3	Ornamental

Table 4.34-2 Plant species recorded from Molesworth Bridge Daingean – Killeen Bridge

Common Name	Scientific Name
Vascular Plants	
Agrimony	<i>Agrimonia procera</i>
Amphibious Bistort	<i>Persicaria amphibia</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Bulrush	<i>Typha latifolia</i>
Bush Vetch	<i>Vicia sepium</i>
Catsear	<i>Hypochaeris radicata</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Coltsfoot	<i>Tussilago farfara</i>

Common Name	Scientific Name
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Mouse-ear	<i>Cerastium fontanum</i>
Common Reed	<i>Phragmites australis</i>
Common Sorrell	<i>Rumex acetosa</i>
Common Valerian	<i>Valeriana officinalis</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Domestic Apple	<i>Malus sylvestris</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
Fairy Flax	<i>Linum catharticum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>

Common Name	Scientific Name
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Hard Rush	<i>Juncus inflexus</i>
Hawkweed	<i>Hieracium spp.</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>
Horse Chestnut	<i>Aesculus hippocastanum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Pedunculate Oak	<i>Quercus robur</i>
Pendulous Sedge	<i>Carex pendula</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>

Common Name	Scientific Name
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Silverweed	<i>Potentilla anserina</i>
Sitka Spruce	<i>Picea sitchensis</i>
Smooth Meadow Grass	<i>Poa pratensis</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Sycamore	<i>Fagus sylvatica</i>
Tall Fescue	<i>Festuca arundinacea</i>
Timothy	<i>Phleum pratense</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variiegated Horsetail	<i>Equisetum variegatum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Wych Elm	<i>Ulmus glabra</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Oat Grass	<i>Trisetum flavescens</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Evidence of mink was found throughout this section. Typical countryside bird species were recorded with no birds of particular note.

Table 4.34-3 Animal species recorded from Molesworth Bridge Daingean – Killeen Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Blue tit	<i>Cyanistes caeruleus</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Robin	<i>Erithacus rubecula</i>
Woodpigeon	<i>Columba palumbus</i>
Wren	<i>Troglodytes troglodytes</i>
Rook	<i>Corvus frugilegus</i>
Jackdaw	<i>Corvus monedula</i>
Swallow	<i>Hirundo rustica</i>
Invertebrates	
Peacock	<i>Aglais io</i>
Beautiful demoiselle	<i>Calopteryx virgo</i>
Ringlet	<i>Aphantopus hyperantus</i>
Large white	<i>Pieris brassicae</i>
Green veined white	<i>Pieris napi</i>
Meadow brown	<i>Maniola jurtina</i>
Brown hawker	<i>Aeshna grandis</i>

4.35 KILLEEN BRIDGE – LIGHT RAILWAY BRIDGE

Map 32-34, Section length – 3.0km

Habitats and Flora

There is a gravel pathway along the initial part of the northern towpath in this section. Adjacent to this the canal verge is mapped as TPM which included the usual transitional species grading to a dry grassland consistent with grassy verges habitat (GS2). Reedbed areas are dominated by common club rush, common reed or reed sweet grass. After the gravel road ends the towpath consists of a mown amenity track which is mapped together with the canal verge as TPM.

There is a treeline along the initial section of towpath boundary which grades into an area of woodland (dominated by ash and mapped as WN2) and further along this transitions to a hedgerow habitat. A grassy verge is present in front of this treeline/hedgerow and is dominated by tall herbs and grasses. Further along the hedgerow becomes wider and is classified as scrub for the most part, being dominated by various quantities of low willow, birch, gorse, bracken, bramble and hedge bindweed. A single Japanese knotweed plant was found along this stretch and is marked on the habitat map.

The southern towpath is gravelled from Killeen Bridge until just south of the Esker Stream crossing, where it changes to mown amenity grass. A gappy treeline of ash, elm, apple, elder, beech, rusty willow, Scots pine, horse chestnut and hawthorn stretches the full length of the section, interrupted only by woodland. A small area of woodland, mapped oak-ash-hazel (WN2), contained ash and hazel as well as alder and beech. This woodland then continued as a thin strip along the towpath, bordering a conifer plantation to the east.



South towpath verge habitats

An area of bog woodland (WN7) dominated by birch is also mapped on cutover bog.

A grassy verge flanks the towpath verge. Species present included marsh woundwort, rosebay willowherb, thistle, wild carrot, wild angelica and ragwort. After the Esker Stream this verge then gives way to an area of scrub dominated by low willow, bindweed and bramble, with a tall treeline on the boundary verge.

A 25m section of snowberry stretches along the understorey of the treeline, between the Esker Stream and the Railway Bridge.

Aquatics include the invasive Nuttall's waterweed, yellow water lily, water plantain and perfoliate pondweed.

Table 4.35-1 Habitats recorded from Killeen Bridge – Light Railway Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW2	Depositing/lowland rivers
FW3	Canals
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub
WN2	Oak-ash-hazel woodland

Table 4.35-2 Plant species recorded from Killeen Bridge – Light Railway Bridge

Common Name	Scientific Name
Vascular Plants	
Agrimony	<i>Agrimonia procera</i>
Alder	<i>Alnus glutinosa</i>
Amphibious Bistort	<i>Persicaria amphibia</i>
Annual Meadow Grass	<i>Poa annua</i>
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>
Beech	<i>Fagus sylvatica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Black medick	<i>Medicago lupulina</i>
Blackthorn	<i>Prunus spinosa</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Bush Vetch	<i>Vicia sepium</i>
Catsear	<i>Hypochaeris radicata</i>

Common Name	Scientific Name
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Coltsfoot	<i>Tussilago farfara</i>
Common Bent	<i>Agrostis capillaris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Field Speedwell	<i>Veronica persica</i>
Common Marestail	<i>Hippus Vulgaris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Corn Sow Thistle	<i>Sonchus arvensis</i>
Couch Grass	<i>Elymus repens</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Downy Birch	<i>Betula pubescens</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>

Common Name	Scientific Name
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Field Scabious	<i>Knautia arvensis</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Guelder Rose	<i>Viburnum opulus</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Corylus avellana</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Parsley	<i>Torilis japonica</i>
Hemp Agrimony	<i>Eupatorium cannabinum</i>
Herb Robert	<i>Geranium robertianum</i>
Hoary Willowherb	<i>Epilobium parviflorum</i>
Hogweed	<i>Heracleum sphondylium</i>
Honeysuckle	<i>Lonicera periclymenum</i>
Horse Chestnut	<i>Aesculus hippocastanum</i>
Ivy	<i>Hedera helix</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Lesser Tussock Sedge	<i>Carex diandra</i>
Male Fern	<i>Dryopteris filix-mas</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>
Meadow Vetchling	<i>Lathyrus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Pignut	<i>Conopodium majus</i>

Common Name	Scientific Name
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Red Valerian	<i>Centranthus ruber</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scarlet Pimpernel	<i>Anagallis arvensis</i>
Selfheal	<i>Prunella vulgaris</i>
Silver Birch	<i>Betula pendula</i>
Silverweed	<i>Potentilla anserina</i>
Softrush	<i>Juncus effusus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spearmint	<i>Mentha spicata</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Variegated Horsetail	<i>Equisetum variegatum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
White Willow	<i>Salix alba</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

A mink was sighted along the northern towpath and two mammal slides were found on the southern towpath. In addition, the intestinal remains of a small animal were found along the southern towpath near the Railway Bridge. Daubenton's bats have been recorded in the vicinity of Killeen Bridge (Bat Conservation Ireland database). Birds recorded are typical countryside species.

Table 4.35-3 Animal species recorded from Killeen Bridge – Light Railway Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Buzzard	<i>Buteo buteo</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Blackbird	<i>Turdus merula</i>
Swallow	<i>Hirundo rustica</i>
Robin	<i>Erithacus rubecula</i>
Goldcrest	<i>Regulus regulus</i>
Wren	<i>Troglodytes troglodytes</i>
Rook	<i>Corvus frugilegus</i>
Blackcap	<i>Sylvia atricapilla</i>
Coal Tit	<i>Parus ater hibernicus</i>
Invertebrates	
Brown hawker	<i>Aeshna grandis</i>
Small white	<i>Pieris rapae</i>
Large white	<i>Pieris brassicae</i>
Ringlet	<i>Aphantopus hyperantus</i>
Common carder bee	<i>Bombus pascorum</i>
Garden bumblebee	<i>Bombus hortorum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Beautiful demoiselle	<i>Calopteryx virgo</i>
Ruddy darter	<i>Sympetrum sanguineum</i>

4.36 LIGHT RAILWAY BRIDGE – TOBERDALY BRIDGE

Map 34-35, Section length – 1.6km

Habitats and Flora



South towpath, view west

The study area extends out to the north and south in this section to include Toberdaly Bog. With the exception of a short stretch of gravel towpath to the east of the railway bridge, both towpaths comprise of mown amenity grassland tracks which together with the towpath mosaic are mapped as TPM. Along the northern towpath a scrub edge on the embankment dominated by gorse, willow, birch and bramble grades into small patches of bog woodland on deeper

peat north of the embankment. A deep drain with duckweed and broad leaved pondweed

runs between the embankment and the bog edge. Similarly, along the southern towpath a grassy verge runs along the bog, separated from a scrub embankment by a deep wet ditch. Species along this embankment include rowan, bramble, bracken and gorse.

Toberdaly Bog, a dry degraded remnant raised bog, is characterised by bog cotton, bog asphodel, ling, cladonia and white beak sedge, with *Sphagnum capillifolium* and *S. papillosum*. This area has been designated as ESA 11. The bog north of the canal is remnant raised bog, whilst the bog to the south has been recently cutover.

To the east of the bog along the northern towpath is a woodland (WN1) with species including birch, beech, ash, oak, alder and elm; and an understorey of hard fern, ivy and holly. The canal verge then opens out into a grassy verge adjacent to agricultural fields with some scattered mature ash. Toberdaly wood extends down towards the canal towpath on the canal bend close to Toberdaly Bridge. A significant stand of Japanese Knotweed (ca. 14m wide by 10m deep) occurs in an open section of the woodland and is marked on the habitat maps.

Toberdaly wood is classified as WD1 due to the high proportion of non-native beech and sycamore. Other species include ash, silver birch, alder, willows, lime and rhododendron. The woodland strip

extending along the canal verge also includes rusty willow, osier and alder and is mapped as WN6. Snowberry occurs on both the towpath and canal verges between the woodland and Toberdaly bridge.

To the immediate east of the bog along the southern towpath, a birch, oak, ash, hawthorn and sycamore treeline exists with a gorse and bracken understorey. The scrub quickly changes to a grassy verge dominated by cocksfoot, meadowsweet, couch, Yorkshire fog and horsetails. This grassy verge borders the amenity towpath to Toberdaly Bridge.

The canal verge habitats incorporate reedbed, wet grassland, marsh and dry grassland elements with the typical mix of species.

The invasive Nuttall's waterweed is very abundant in this section. Other aquatic plants include broad leaved pondweed, fennel pondweed, perfoliate pondweed and whorled water milfoil

Table 4.36-1 Habitats recorded from Light Railway Bridge – Toberdaly Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN1	Oak-birch-holly woodland
WN7	Bog woodland
WD1	Mixed broadleaved woodland
WS1	Scrub
PB1	Raised bog
PB4	Cutover bog

Table 4.36-2 Plant species recorded from Light Railway Bridge – Toberdaly Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Black medick	<i>Medicago lupulina</i>
Alder	<i>Alnus glutinosa</i>	Bracken	<i>Pteridium aquilinum</i>
Annual Meadow Grass	<i>Poa annua</i>	Bramble	<i>Rubus fruticosus agg.</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Broad-leaved Dock	<i>Rumex obtusifolius</i>
Ash	<i>Fraxinus excelsior</i>	Broad-leaved Pondweed	<i>Potamogeton natans</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Bush Vetch	<i>Vicia sepium</i>

Common Name	Scientific Name
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Coltsfoot	<i>Tussilago farfara</i>
Common Bent	<i>Agrostis capillaris</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Reed	<i>Phragmites australis</i>
Common Sedge	<i>Carex nigra</i>
Common Spotted Orchid	<i>Dactylorhiza fuchsii</i>
Common Valerian	<i>Valeriana officinalis</i>
Couch Grass	<i>Elymus repens</i>
Crack Willow	<i>Salix fragilis</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Dandelion	<i>Taraxacum agg.</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Dog Rose	<i>Rosa canina</i>
Downy Birch	<i>Betula pubescens</i>
Eared Willow	<i>Salix aurita</i>
Elder	<i>Sambucus nigra</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Garden Privet	<i>Ligustrum ovalifolium</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Herb Robert	<i>Geranium robertianum</i>
Hoary Willowherb	<i>Epilobium parviflorum</i>
Hogweed	<i>Heracleum sphondylium</i>
Holly	<i>Ilex aquifolium</i>
Ivy	<i>Hedera helix</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Knapweed	<i>Centaurea nigra</i>

Common Name	Scientific Name
Lady's Bedstraw	<i>Galium varum</i>
Leyland Cypress	<i>Cupressus x leylandii</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Montbretia	<i>Crocsmia x crocosmiiflora</i>
Nettle	<i>Urtica dioica</i>
Nuttall's waterweed	<i>Elodea nuttallii</i>
Osier	<i>Salix viminalis</i>
Pedunculate Oak	<i>Quercus robur</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Ragwort	<i>Senecio jacobaea</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Scentless Mayweed	<i>Matricaria perforata</i>
Selfheal	<i>Prunella vulgaris</i>
Sessile Oak	<i>Quercus petraea</i>
Silver Birch	<i>Betula pendula</i>
Silverweed	<i>Potentilla anserina</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Wild Carrot	<i>Daucus carota</i>
Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Signs of mink activity were recorded in this section near Toberdaly bog. The red-listed meadow pipit was also observed in Toberdaly bog. Other birds recorded are common and widespread species.

Table 4.36-3 Animal species recorded from Light Railway Bridge – Toberdaly Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Blackbird	<i>Turdus merula</i>
Buzzard	<i>Buteo buteo</i>
Meadow Pipit	<i>Anthus pratensis</i>
Magpie	<i>Pica pica</i>
Wren	<i>Troglodytes troglodytes</i>
Swallow	<i>Hirundo rustica</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Heron	<i>Ardea cinerea</i>
Starling	<i>Sturnus vulgaris</i>
Invertebrates	
Brown hawker	<i>Aeshna grandis</i>
Small copper	<i>Lycaena phlaeas</i>
Peacock	<i>Aglais io</i>
Red-tailed bumblebee	<i>Bombus lapidarius</i>
Common carder bee	<i>Bombus pascorum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>

4.37 TOBERDALY BRIDGE – RHODE BRIDGE

Map 35-36, Section length – 1.0km

Habitats and Flora

With the exception of a small gravel track access area on the northern towpath, the towpaths on both banks of the canal are mapped as TPM incorporating the mown amenity grassland pathway and the transitional canal verge habitat.

A stonewall runs along the northern towpath verge in the initial part of this section, with a grassy verge underneath. Common species in the grassy verge were meadowsweet, hedge bindweed, great willowherb, wild carrot, hogweed and willow.

Along the southern towpath the area around Toberdaly Bridge has been improved (GA2), an ornamental hedge of cherry laurel and leylandii surrounds a house.

A small block of woodland (present on both the northern and southern towpaths) is mapped as WN2 with common species including ash, oak, alder and elder. After this area of woodland the towpath verge is mapped as treeline or hedgerow (oak, ash, hawthorn, alder and willow) growing at the bottom of the embankment with a grassy verge underneath.

A small clump of Japanese knotweed is found growing to the west of Rhode Bridge on the northern towpath.

Along the southern towpath a second ornamental hedge of leylandii surrounds a house at Rhode Bridge.



South towpath verge

The invasive Nuttall's waterweed is also very abundant in this section. Other aquatic plants include yellow water lily, fennel pondweed, perfoliate pondweed, arrowhead and whorled water milfoil.

Table 4.37-1 Habitats recorded from Toberdaly Bridge – Rhode Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges

Habitat Code	Habitat Name
GM1\GS4\FS1\GS1	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN2	Oak-ash-hazel woodland
BL1	Stone walls and other stonework

Table 4.37-2 Plant species recorded from Toberdaly Bridge – Rhode Bridge

Common Name	Scientific Name
Vascular Plants	
Arrowhead	<i>Sagittaria sagittifolia</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Bramble	<i>Rubus fruticosus agg.</i>
Bulrush	<i>Typha latifolia</i>
Bush Vetch	<i>Vicia sepium</i>
Cherry Laurel	<i>Prunus laurocerasus</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Reed	<i>Phragmites australis</i>
Common Valerian	<i>Valeriana officinalis</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Japanese Knotweed	<i>Fallopia japonica</i>
Knapweed	<i>Centaurea nigra</i>
Leyland Cypress	<i>Cupressus x leylandii</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>

Common Name	Scientific Name
Nuttall's waterweed	<i>Elodea nuttallii</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Red Valerian	<i>Centranthus ruber</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Sessile Oak	<i>Quercus petraea</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Byrophytes	
Moss*	<i>Brachythecium rutabulum</i>
Moss*	<i>Bryum capillare</i>
Moss*	<i>Calliergonella cuspidata</i>
Moss*	<i>Didymodon rigidulus</i>
Moss*	<i>Encalypta streptocarpa</i>
Moss*	<i>Kindbergia praelonga</i>
Moss*	<i>Grimmia pulvinata</i>
Moss*	<i>Homalothecium sericeum</i>
Moss*	<i>Neckera complanata</i>
Moss*	<i>Orthotrichum affine</i>
Moss*	<i>Schistidium crassipilum</i>
Moss*	<i>Thamnobryum alopecurum</i>
Moss*	<i>Thuidium tamariscinum</i>
Moss*	<i>Frullania dilatata</i>

*BBS record

Fauna

Although no evidence of bats were found at Rhode Bridge, the bridge has potential for roosting bats. Common countryside bird species were recorded. Otter spraints were recorded at Toberdaly Bridge.

Table 4.37-3 Animal species recorded from Toberdaly Bridge – Rhode Bridge

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Birds	
Chaffinch	<i>Fringilla coelebs</i>
Wren	<i>Troglodytes troglodytes</i>
Robin	<i>Erithacus rubecula</i>
Whitethroat	<i>Sylvia communis</i>
Goldcrest	<i>Regulus regulus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Willow warbler	<i>Phylloscopus trochilus</i>

4.38 RHODE BRIDGE – TRIMBLESTOWN BRIDGE

Map 36 – 39, Section length – 4.4km

Habitats and Flora

Aside from the initial stretch along the southern towpath where there is a roadway, for the most part the southern and northern towpaths of this long section are mapped as TPM incorporating a mown amenity grassland pathway and the canal verge transitional habitats.

The northern and southern towpath verge includes a range of habitats. Typically there is a wide grassy verge which sometimes grades into low scrub dominated by either bracken or bramble. Treeline or Hedgerow is usually mapped on the outer edge with common species including willow, ash, birch, hawthorn and alder. Typical grassy verge species include false oat grass, meadowsweet, nettles, great willowherb, rosebay, hogweed, wild angelica and cock's foot grass. Along the southern towpath, gorse, bramble and bracken scrub dominates the margins of a large conifer plantation. A drain runs along both northern and southern towpaths for much of this section.



South towpath, view east

The canal verge incorporates the usual mosaic of habitats. Reedbeds include common reed, bulrush, reed sweet grass and reed canary grass. The common emergent aquatics are present, together with unbranched bur-reed, whorled water milfoil, perfoliate pondweed and Nuttall's waterweed.

Table 4.38-1 Habitats recorded from Rhode Bridge – Trimblestown Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WS1	Scrub

Table 4.38-2 Plant species recorded from Rhode Bridge – Trimblestown Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Guelder Rose	<i>Viburnum opulus</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hard Rush	<i>Juncus inflexus</i>
Ash	<i>Fraxinus excelsior</i>	Hard Shield Fern	<i>Polystichum aculeatum</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Hawthorn	<i>Crataegus monogyna</i>
Bracken	<i>Pteridium aquilinum</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bramble	<i>Rubus fruticosus agg.</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Branched Bur-reed	<i>Sparganium erectum</i>	Herb Robert	<i>Geranium robertianum</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Hogweed	<i>Heracleum sphondylium</i>
Bulrush	<i>Typha latifolia</i>	Ivy	<i>Hedera helix</i>
Bush Vetch	<i>Vicia sepium</i>	Knapweed	<i>Centaurea nigra</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Lady's Bedstraw	<i>Galium varum</i>
Catsear	<i>Hypochaeris radicata</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Cleavers	<i>Galium aparine</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Nettle	<i>Urtica dioica</i>
Coltsfoot	<i>Tussilago farfara</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Ox-eye Daisy	<i>Leucanthemum vulgare</i>
Common Marestail	<i>Hippus Vulgaris</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Common Reed	<i>Phragmites australis</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Common Sedge	<i>Carex nigra</i>	Primrose	<i>Primula vulgaris</i>
Common Soapwort	<i>Soponaria officinalis</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Common Valerian	<i>Valeriana officinalis</i>	Quaking Grass	<i>Briza media</i>
Creeping Thistle	<i>Cirsium arvense</i>	Ragwort	<i>Senecio jacobaea</i>
Crested Dogstail	<i>Cynosurus cristatus</i>	Red Bartsia	<i>Odontites verna</i>
Dandelion	<i>Taraxacum agg.</i>	Red Clover	<i>Trifolium pratense</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Red Fescue	<i>Festuca rubra</i>
Elder	<i>Sambucus nigra</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Eyebright	<i>Euphrasia spp.</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Rosebay	<i>Epilobium angustifolium</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Field Horsetail	<i>Equisetum arvense</i>	Selfheal	<i>Prunella vulgaris</i>
Field Scabious	<i>Knautia arvensis</i>	Silverweed	<i>Potentilla anserina</i>
Flag Iris	<i>Iris pseudacorus</i>	Smooth Sow Thistle	<i>Sonchus oleraceus</i>
Germander Speedwell	<i>Veronica chamaedrys</i>	Spear Thistle	<i>Cirsium vulgare</i>
Gorse	<i>Ulex europaeus</i>	Sycamore	<i>Fagus sylvatica</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Timothy	<i>Phleum pratense</i>
Greater Plantain	<i>Plantago major</i>	Tormentil	<i>Potentilla erecta</i>

Common Name	Scientific Name
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>

*BBS Record

Common Name	Scientific Name
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Bryophytes	
Moss*	<i>Encalypta streptocarpa</i>

Fauna

Signs of mink accessing the canal were found along the northern and southern towpaths. In addition, otter droppings were found at a large mammal crossing within 500m of Rhode Bridge.

Trimblestown Bridge was noted as having potential as a roosting site for bats although no signs were recorded. Birds recorded are again typical countryside species.

Table 4.38-3 Animal species recorded from Rhode Bridge – Trimblestown Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Otter	<i>Lutra lutra</i>
Birds	
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
House Sparrow	<i>Passer domesticus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Woodpigeon	<i>Columba palumbus</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Blackbird	<i>Turdus merula</i>
Dunnock	<i>Prunella modularis</i>
Jackdaw	<i>Corvus monedula</i>
Moorhen	<i>Gallinula chloropus</i>

Common Name	Scientific Name
Invertebrates	
Common carder bee	<i>Bombus pascorum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Ringlet	<i>Aphantopus hyperantus</i>
Brown hawkler	<i>Aeshna grandis</i>
Buff-tailed bumblebee	<i>Bombus terrestris</i>
Large white	<i>Pieris brassicae</i>
Green-veined white	<i>Pieris napi</i>
Common darter	<i>Sympetrum striolatum</i>
Peacock	<i>Aglais io</i>
Small white	<i>Pieris rapae</i>

4.39 TRIMBLESTOWN BRIDGE – CARTLAND BRIDGE

Map 39-40, Section length – 2.0km

Habitats and Flora

Both the northern and southern towpaths are mapped as TPM for the most part which incorporates a mown amenity pathway and the canal verge habitats.



South towpath, view west

Along the northern towpath a wide grassy verge is present with a treeline or hedgerow on the towpath boundary. The boundary habitat merges with area of woodland dominated by willow, beech, birch and ash just east of Trimblestown Bridge (WN6). Some private gardens back onto the canal and species associated with these include *Montbretia* and *Rhododendron*. The grassy verge includes the typical tall herbs and grasses and grades into a more scrub dominated habitat in places with willow

and/or bracken. Treeline species include sycamore, ash and horse chestnut.

Similarly, along the southern towpath a wide grassy verge is present with a treeline of beech or hedgerow of elder, hawthorn and ash to the back. The grassy verge includes false oat, ragwort and hogweed. A stream was audible within the hedgerow for much of this section.

The area west of Cartland Bridge was heavily managed by the local resident and consisted of improved amenity, with planted leylandii, ash and laurel, this area was mapped as scattered trees and parkland (WD5).

The canal verge habitats incorporate the usual transition from reedbed to marsh/wet grassland to drier grassland (GS2). Aquatics include the usual emergent and submerged species. Fan-leaved water crowfoot and the invasive Nuttall's waterweed was recorded in this section.

Table 4.39-1 Habitats recorded from Trimblestown Bridge – Cartland Bridge

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	GM1\GS4\FS1\GS2	Towpath mosaic
FW3	Canals	WL1	Hedgerow
FW4	Drainage Ditches	WL2	Treelines
GA2	Amenity grassland (improved)	WN6	Wet willow-alder-ash woodland
GS2	Dry meadows and grassy verges	WD5	Scattered trees and parkland

Table 4.39-2 Plant species recorded from Trimblestown Bridge – Cartland Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Field Horsetail	<i>Equisetum arvense</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Flag Iris	<i>Iris pseudacorus</i>
Ash	<i>Fraxinus excelsior</i>	Germander Speedwell	<i>Veronica chamaedrys</i>
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Gorse	<i>Ulex europaeus</i>
Bracken	<i>Pteridium aquilinum</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Bramble	<i>Rubus fruticosus agg.</i>	Guelder Rose	<i>Viburnum opulus</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Hard Rush	<i>Juncus inflexus</i>
Bulrush	<i>Typha latifolia</i>	Hard Shield Fern	<i>Polystichum aculeatum</i>
Bush Vetch	<i>Vicia sepium</i>	Hawthorn	<i>Crataegus monogyna</i>
Canadian Waterweed	<i>Elodea canadensis</i>	Hazel	<i>Corylus avellana</i>
Catsear	<i>Hypochaeris radicata</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Cleavers	<i>Galium aparine</i>	Hedge Woundwort	<i>Stachys sylvatica</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Herb Robert	<i>Geranium robertianum</i>
Coltsfoot	<i>Tussilago farfara</i>	Hoary Willowherb	<i>Epilobium parviflorum</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Hogweed	<i>Heracleum sphondylium</i>
Common Marestail	<i>Hippus Vulgaris</i>	Honeysuckle	<i>Lonicera periclymenum</i>
Common Reed	<i>Phragmites australis</i>	Ivy	<i>Hedera helix</i>
Common Valerian	<i>Valeriana officinalis</i>	Knapweed	<i>Centaurea nigra</i>
Couch Grass	<i>Elymus repens</i>	Lady's Bedstraw	<i>Galium varum</i>
Crack Willow	<i>Salix fragilis</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Creeping Thistle	<i>Cirsium arvense</i>	Meadow Vetchling	<i>Lathyrus pratensis</i>
Dandelion	<i>Taraxacum agg.</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Montbretia	<i>Crocsmia x crocosmiiflora</i>
Dog Rose	<i>Rosa canina</i>	Nettle	<i>Urtica dioica</i>
Elder	<i>Sambucus nigra</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Eyebright	<i>Euphrasia spp.</i>	Perennial Ryegrass	<i>Lolium perenne</i>
False Fox Sedge	<i>Carex obtrubae</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Pignut	<i>Conopodium majus</i>
Fan-leaved Water Crowfoot	<i>Ranunculus circinatus</i>	Pineappleweed	<i>Matricaria discoidea</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>		

Common Name	Scientific Name
Primrose	<i>Primula vulgaris</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Clover	<i>Trifolium pratense</i>
Red Fescue	<i>Festuca rubra</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea</i> subsp <i>oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Silverweed	<i>Potentilla anserina</i>
Smooth Sow Thistle	<i>Sonchus oleraceus</i>
Softrush	<i>Juncus effusus</i>
Spindle	<i>Euonymus europaeus</i>
Square-stemmed St John's Wort	<i>Hypericum tetrapterum</i>

Common Name	Scientific Name
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tormentil	<i>Potentilla erecta</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Horsetail	<i>Equisetum fluviatile</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Fragile Stonewort	<i>Chara globularis</i>

Fauna

Signs of mammals accessing the canal, most likely mink, were recorded in this section. In addition, loose fur was recorded on the towpath in this section suggesting a small mammal kill occurred.

Cartland Bridge was noted as having potential as a roosting site for bats although no signs were recorded. This section was surveyed as part of a Bat Conservation Ireland monitoring transect (Cartland Bridge Transect) with Daubenton's bat the only species recorded. Heron was observed in this section. Other bird species are common hedgerow/countryside species.

Table 4.39-3 Animal species recorded from Trimblestown Bridge – Cartland Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Heron	<i>Ardea cinerea</i>
Mallard	<i>Anas platyrhynchos</i>
Swallow	<i>Hirundo rustica</i>
Wren	<i>Troglodytes troglodytes</i>
Woodpigeon	<i>Columba palumbus</i>

Common Name	Scientific Name
Willow warbler	<i>Phylloscopus trochilus</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Small white	<i>Pieris rapae</i>
Ringlet	<i>Aphantopus hyperantus</i>
Brown hawk	<i>Aeshna grandis</i>
Common carder bee	<i>Bombus pascorum</i>
Honeybee	<i>Apis mellifera</i>

4.40 CARTLAND BRIDGE – RATHMORE BRIDGE

Map 40-41, Section length – 1.6km

Habitats and Flora

Both the northern and southern towpath comprise a mown amenity grassland pathway with transitional canal verge habitats which are mapped together as TPM. The towpath verge consists of a treeline for most of its length on both sides. Just east of Cartland Bridge small patches of snowberry and montbretia occur on the northern towpath, while a ca. 60m long stretch of snowberry is present within the treeline understorey on the southern towpath. Treelines are dominated by mature ash and sycamore with other common species including rusty willow, hawthorn, elder, alder and wild privet. There are two blocks of woodland along the northern towpath, the first is beech dominated and mapped as WD1, the second is ash dominated and mapped as WN2. A grassy verge runs under the treeline with rosebay, ragwort, creeping thistle, bramble, hedge parsley, false oat grass, Yorkshire god, wild carrot, bracken and field horsetail amongst the common components. The canal verge habitats include reedbed (dominated by common reed), wet grassland/marsh and grassy verges.



North towpath verge Ash woodland

Two stonewort species were recorded together with whorled water milfoil, shining pondweed and the common emergents.

Table 4.40-1 Habitats recorded from Cartland Bridge – Rathmore Bridge

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	GM1\GS4\FS1\GS2	Towpath mosaic
FW3	Canals	WL1	Hedgerow
FW4	Drainage Ditches	WL2	Treelines
GA2	Amenity grassland (improved)	WD1	Mixed broadleaved woodland
GS2	Dry meadows and grassy verges	WN2	Oak-ash-hazel woodland

Table 4.40-2 Plant species recorded from Cartland Bridge – Rathmore Bridge

Common Name	Scientific Name
Vascular Plants	
Alder	<i>Alnus glutinosa</i>
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Catsear	<i>Hypochaeris radicata</i>
Cock's-foot grass	<i>Dactylis glomerata</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>
Common Reed	<i>Phragmites australis</i>
Common Valerian	<i>Valeriana officinalis</i>
Creeping Thistle	<i>Cirsium arvense</i>
Dog Rose	<i>Rosa canina</i>
Elder	<i>Sambucus nigra</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Greater Plantain	<i>Plantago major</i>
Gelder Rose	<i>Viburnum opulus</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Parsley	<i>Torilis japonica</i>
Herb Robert	<i>Geranium robertianum</i>
Ivy	<i>Hedera helix</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Montbretia	<i>Crocsmia x</i>

Common Name	Scientific Name
	<i>crocsmiiflora</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Ragwort	<i>Senecio jacobaea</i>
Red Clover	<i>Trifolium pratense</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Selfheal	<i>Prunella vulgaris</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Snowberry	<i>Symphoricarpos albus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Sycamore	<i>Fagus sylvatica</i>
Tall Fescue	<i>Festuca arundinacea</i>
Timothy	<i>Phleum pratense</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Wild Privet	<i>Ligustrum vulgare</i>
Stoneworts	
Rugged Stonewort	<i>Chara rudis</i>
Delicate Stonewort	<i>Chara virgata</i>

Fauna

A hare was recorded on the towpath here. Birds recorded were common countryside species. A large flock of long-tailed tits was notable. Cartland Bridge has some limited bat potential.

Table 4.40-3 Animal species recorded from Cartland Bridge – Rathmore Bridge

Common Name	Scientific Name
Mammals	
Hare	<i>Lepus timidus hibernicus</i>
Birds	
Robin	<i>Erithacus rubecula</i>
Wren	<i>Troglodytes troglodytes</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Woodpigeon	<i>Columba palumbus</i>
Swallow	<i>Hirundo rustica</i>
Blackbird	<i>Turdus merula</i>
Coal tit	<i>Parus ater hibernicus</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Invertebrates	
Common blue damselfly	<i>Enallagma cyathigerum</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>
Carder bee	<i>Bombus pascuorum</i>
Meadow brown	<i>Maniola jurtina</i>

4.41 RATHMORE BRIDGE – GEORGE’S BRIDGE

Map 41, Section length – 0.8km

Habitats and Flora

A gravelled track runs along the northern towpath with the canal verge habitats mapped as TPM and with hedgerow on the towpath verge. The hedgerow is dominated by willows including rusty willow, crack willow and osier, together with gorse, bramble, spindle, hawthorn and a few ash trees.



North towpath, view west to Rathmore Bridge

The southern towpath is mapped as TPM incorporating a mown amenity grassland pathway and the transitional canal verge habitats. A treeline along the southern towpath verge grades into hedgerow moving eastwards, and then into a block of woodland. The woodland most closely conforms with wet willow-alder-ash woodland WN6. Mature alder and ash were common together with willow,

although there were also areas of birch and sycamore. The understorey was slightly wet and included areas of flag iris.

The canal verge habitats include reedbed, wet grassland/marsh and calcareous grassland/grassy verges. Reedbeds are dominated by common reed and common club rush. Common species in the grassland habitats include meadowsweet, flag iris, hard rush, sharp-flowered rush, field horsetail, bird’s foot trefoil, yellow rattle and eyebright. A wet ditch runs behind the hedgerow and contains common reed.

Near Georges Bridge the study area opens out into an overgrown dry grassland field dominated by false oat grass, cleavers, bindweed and tufted vetch. Adjacent to the towpath and lay-by area there area of expanded hedgerow, mapped as willow and bramble scrub (WS1).

As for the previous section, two charophyte species were recorded together with whorled water milfoil, shining pondweed and the common emergents. IFI additionally recorded Canadian waterweed and Nuttall’s waterweed, and lesser pondweed within this section.

Table 4.41-1 Habitats recorded from Rathmore Bridge – George’s Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN6	Wet willow-alder-ash woodland
WS1	Scrub

Table 4.41-2 Plant species recorded from Rathmore Bridge – George’s Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Greater Plantain	<i>Plantago major</i>
Alder	<i>Alnus glutinosa</i>	Hard Rush	<i>Juncus inflexus</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Hawthorn	<i>Crataegus monogyna</i>
Ash	<i>Fraxinus excelsior</i>	Hedge Bindweed	<i>Calystegia sepium</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>	Herb Robert	<i>Geranium robertianum</i>
Blackthorn	<i>Prunus spinosa</i>	Ivy	<i>Hedera helix</i>
Bracken	<i>Pteridium aquilinum</i>	Knapweed	<i>Centaurea nigra</i>
Bramble	<i>Rubus fruticosus agg.</i>	Lady's Bedstraw	<i>Galium varum</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Catsear	<i>Hypochaeris radicata</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Cleavers	<i>Galium aparine</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Osier	<i>Salix viminalis</i>
Common Bent	<i>Agrostis capillaris</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>
Common Reed	<i>Phragmites australis</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Common Valerian	<i>Valeriana officinalis</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Crack Willow	<i>Salix fragilis</i>	Ragwort	<i>Senecio jacobaea</i>
Creeping Thistle	<i>Cirsium arvense</i>	Red Clover	<i>Trifolium pratense</i>
Downy Birch	<i>Betula pubescens</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Eyebright	<i>Euphrasia spp.</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>	Rosebay	<i>Epilobium angustifolium</i>
Field Horsetail	<i>Equisetum arvense</i>	Rough Hawkbit	<i>Leontodon hispidus</i>
Flag Iris	<i>Iris pseudacorus</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Gorse	<i>Ulex europaeus</i>	Selfheal	<i>Prunella vulgaris</i>
Great Willowherb	<i>Epilobium hirsutum</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>

Common Name	Scientific Name
Shining Pondweed	<i>Potamogeton lucens</i>
Silverweed	<i>Potentilla anserina</i>
Spear Thistle	<i>Cirsium vulgare</i>
Spindle	<i>Euonymus europaeus</i>
Sycamore	<i>Fagus sylvatica</i>
Timothy	<i>Phleum pratense</i>
Tufted Vetch	<i>Vicia cracca</i>

Common Name	Scientific Name
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yellow Rattle	<i>Rhinanthus minor</i>

Fauna

Mammal paths, most likely from otter, were noted between the ditch running behind the northern towpath hedgerow and the towpath. Rathmore Bridge has some limited bat potential. No bird species of particular note were recorded from within this section.

Table 4.41-3 Animal species recorded from Rathmore Bridge – George’s Bridge

Common Name	Scientific Name
Mammals	
Otter	<i>Lutra lutra</i>
Birds	
Great tit	<i>Parus major</i>
Woodpigeon	<i>Columba palumbus</i>
Hooded crow	<i>Corvus corone cornix</i>
Heron	<i>Ardea cinerea</i>
Wren	<i>Troglodytes troglodytes</i>
Robin	<i>Erithacus rubecula</i>
Swallow	<i>Hirundo rustica</i>
Willow warbler	<i>Phylloscopus trochilus</i>
Dunnock	<i>Prunella modularis</i>
Jackdaw	<i>Corvus monedula</i>

4.42 GEORGE'S BRIDGE – COLGAN'S BRIDGE

Map 42, Section length – 0.2km

Habitats and Flora



View from Colgans Bridge west to Georges Bridge

Amenity grassland towpaths occur on both canal banks in this short section. Along the northern towpath verge habitats consist of amenity grassland, scrub and hedgerow. The area of scrub is dominated by willow, spindle, elder and white poplar. Common hedgerow species include young ash and sycamore, dog rose and bramble. Snowberry was recorded and mapped. Close to the property at Colgans Bridge there are scattered planted trees (poplar and birch) and some escaped garden plants.

The southern towpath verge comprised a treeline with species including willow, sycamore, ash, hawthorn, and alder. Snowberry was common within the understorey of the treeline.

The canal verge incorporates wet grassland/marsh and drier grassland/grassy verge (GS1/GS2) elements. Reedbeds are lacking for much of this section. The verge vegetation includes yellow rattle, common spotted orchid, knapweed, lady's bedstraw and purple moor grass. Alder, ash and willow saplings are common within the verge habitat.

Notable amongst the common emergent aquatic species in this section was bogbean.

Table 4.42-1 Habitats recorded from George's Bridge – Colgan's Bridge

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1\GS2	Towpath mosaic
WL1	Hedgerow
WL2	Treelines
WN6	Wet willow-alder-ash woodland
WS1	Scrub

Table 4.42-2 Plant species recorded from George's Bridge – Colgan's Bridge

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Lady's Bedstraw	<i>Galium varum</i>
Alder	<i>Alnus glutinosa</i>	Meadow Buttercup	<i>Ranunculus acris</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Meadow Fescue	<i>Festuca pratensis</i>
Ash	<i>Fraxinus excelsior</i>	Meadowsweet	<i>Filipendula ulmaria</i>
Bogbean	<i>Menyanthes trifoliata</i>	Nuttall's waterweed	<i>Elodea nuttallii</i>
Bramble	<i>Rubus fruticosus agg.</i>	Perennial Ryegrass	<i>Lolium perenne</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Prickly Sow Thistle	<i>Sonchus asper</i>
Catsear	<i>Hypochaeris radicata</i>	Purple Moor Grass	<i>Molinia caerulea</i>
Cleavers	<i>Galium aparine</i>	Rambling Rose	<i>Rosa sp.</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Red Clover	<i>Trifolium pratense</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Common Reed	<i>Phragmites australis</i>	Reed Sweet Grass	<i>Glyceria maxima</i>
Common Spotted Orchid	<i>Dactylorhiza fushsii</i>	Ribwort Plantain	<i>Plantago lanceolata</i>
Common Valerian	<i>Valeriana officinalis</i>	Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Creeping Thistle	<i>Cirsium arvense</i>	Selfheal	<i>Prunella vulgaris</i>
Dandelion	<i>Taraxacum agg.</i>	Sharp-flowered Rush	<i>Juncus acutiflorus</i>
Dog Rose	<i>Rosa canina</i>	Shining Pondweed	<i>Potamogeton lucens</i>
Eared Willow	<i>Salix aurita</i>	Silver Birch	<i>Betula pendula</i>
Elder	<i>Sambucus nigra</i>	Silverweed	<i>Potentilla anserina</i>
Eyebright	<i>Euphrasia spp.</i>	Smooth Sow Thistle	<i>Sonchus oleraceus</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Sycamore	<i>Fagus sylvatica</i>
Field Horsetail	<i>Equisetum arvense</i>	Tufted Vetch	<i>Vicia cracca</i>
Flag Iris	<i>Iris pseudacorus</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Garden Privet	<i>Ligustrum ovalifolium</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Great Willowherb	<i>Epilobium hirsutum</i>	White Clover	<i>Trifolium repens</i>
Hard Rush	<i>Juncus inflexus</i>	White Poplar	<i>Populus alba</i>
Hawthorn	<i>Crataegus monogyna</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Hedge Bindweed	<i>Calystegia sepium</i>	Wild Angelica	<i>Angelica sylvestris</i>
Hogweed	<i>Heracleum sphondylium</i>	Wild Carrot	<i>Daucus carota</i>
Hybrid Black Poplar	<i>Populus x canadensis</i>	Yellow Rattle	<i>Rhinanthus minor</i>
Knapweed	<i>Centaurea nigra</i>	Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

George's bridge is a concrete structure with little or no potential for bats. A mammal path, most likely from mink, was noted within the treeline understorey on the northern towpath verge.

Table 4.42-3 Animal species recorded from George's Bridge – Colgan's Bridge

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Coat tit	<i>Periparus ater hibernicus</i>
Wren	<i>Troglodytes troglodytes</i>
House Sparrow	<i>Passer domesticus</i>
Hooded crow	<i>Corvus corone cornix</i>
Woodpigeon	<i>Columba palumbus</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Blue-tailed damselfly	<i>Ischnura elegans</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Common carder bee	<i>Bombus pascuorum</i>

4.44 COLGAN'S BRIDGE – DOWNSHIRE BRIDGE, EDENDERRY LINE

Map 42, Section length – 0.4km

Habitats and Flora



View from Colgans Bridge east

The northern towpath within this short section consist of a roadway. The transitional canal verge is mapped as TPM. The canal verge is quite shrubby in places with ash, hawthorn and alder saplings together with a wet grassland and grassy verge habitat mosaic dominated by tall grasses and herbs.

The southern towpath, at the time of this survey, was undergoing widening works. The majority of the towpath and canal verge were buried under bare soil which was being

placed by an excavator, although meadowsweet, field horsetail, common club rush, common valerian, cocksfoot and flag iris persisted.

A treeline forms both towpath verges with species including beech, ash, sycamore, willows, hawthorn, blackthorn and elder. At the junction of the Edenderry line, a small area of ash, hawthorn, elder and willow woodland is bordered by a bracken scrub, these areas are mapped as WN2 and HD1, respectively.

Despite widening works, the gappy treeline of ash, ivy, hawthorn, alder and willow treeline on the southern bank was intact, as was the understorey, which was mapped as grassy verge. In the vicinity of Colgan's Bridge, an ornamental box hedgerow formed the boundary of the existing dwelling.

Aquatic species in this section included broad-leaved pondweed, whorled water milfoil and arrowhead.

Table 4.44-1 Habitats recorded from Colgan's Bridge – Downshire Bridge, Edenderry Line

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	GM1\GS4\FS1\GS1	Towpath mosaic
FW3	Canals	WL1	Hedgerow
FW4	Drainage Ditches	WL2	Treelines
GA2	Amenity grassland (improved)	WN2	Oak-ash-hazel woodland
GS2	Dry meadows and grassy verges		

Table 4.44-2 Plant species recorded from Colgan's Bridge – Downshire Bridge, Edenderry Line

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Perennial Ryegrass	<i>Lolium perenne</i>
Alder	<i>Alnus glutinosa</i>	Red Clover	<i>Trifolium repens</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Red Valerian	<i>Centranthus ruber</i>
Ash	<i>Fraxinus excelsior</i>	Sycamore	<i>Fagus sylvatica</i>
Bracken	<i>Pteridium aquilinum</i>	Unbranched Bur-reed	<i>Sparganium emersum</i>
Bramble	<i>Rubus fruticosus agg.</i>	Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>	Wild Angelica	<i>Angelica sylvestris</i>
Bush Vetch	<i>Vicia sepium</i>	Annual Meadow Grass	<i>Poa annua</i>
Cock's-foot grass	<i>Dactylis glomerata</i>	Broad-leaved Dock	<i>Rumex obtusifolius</i>
Common Club-rush	<i>Schoenoplectus lacustris</i>	Cleavers	<i>Galium aparine</i>
Common Reed	<i>Phragmites australis</i>	Common Bent	<i>Agrostis capillaris</i>
Devilsbit Scabious	<i>Succisa pratensis</i>	Common Mouse-ear	<i>Cerastium fontanum</i>
Elder	<i>Sambucus nigra</i>	Common Valerian	<i>Valeriana officinalis</i>
Eyebright	<i>Euphrasia spp.</i>	Eared Willow	<i>Salix aurita</i>
False Oat Grass	<i>Arrhenatherum elatius</i>	Great Willowherb	<i>Epilobium hirsutum</i>
Field Horsetail	<i>Equisetum arvense</i>	Purple Loosestrife	<i>Lythrum salicaria</i>
Flag Iris	<i>Iris pseudacorus</i>	Reed Canary Grass	<i>Phalaris arundinacea</i>
Gorse	<i>Ulex europaeus</i>	Timothy	<i>Phleum pratense</i>
Greater Plantain	<i>Plantago major</i>	Tufted Vetch	<i>Vicia cracca</i>
Hawthorn	<i>Crataegus monogyna</i>	Wall Rue	<i>Asplenium ruta-muraria</i>
Hogweed	<i>Heracleum sphondylium</i>	Water Plantain	<i>Alisma plantago-aquatica</i>
Ivy	<i>Hedera helix</i>	Yarrow	<i>Achillea millefolium</i>
Knapweed	<i>Centaurea nigra</i>	Yellow Water-lily	<i>Nuphar lutea</i>
Meadowsweet	<i>Filipendula ulmaria</i>	Yorkshire Fog	<i>Holcus lanatus</i>

Fauna

Colgan's Bridge had limited bat potential. No other signs of mammals were recorded along this short section.

Table 4.44-3 Animal species recorded from Colgan's Bridge – Downshire Bridge, Edenderry Line

Common Name	Scientific Name
Birds	
Wren	<i>Troglodytes troglodytes</i>
Blackbird	<i>Turdus merula</i>
Raven	<i>Corvus corax</i>
Heron	<i>Ardea cinerea</i>
Dunnock	<i>Prunella modularis</i>
Swallow	<i>Hirundo rustica</i>

4.45 DOWNSHIRE BRIDGE, EDENDERRY LINE – BLUNDELL AQUEDUCT

Map 42-43, Section length – 1.8km

Habitats and Flora

The study areas expands slightly in this section. Both towpaths consist of mown amenity grassland which is mapped together with the canal verge habitats as TPM. The towpath verge incorporates a wide band of habitats grading between grassy verge, bracken/gorse scrub and woodland. The woodland elements are most consistent with bog woodland/birch woodland dominated by birch, willow and Scots pine. Most of the rest of the area is scrub with gorse, heather, willow and bracken. In some more open areas a wet



North towpath, view east from Downshire Bridge

grassland flora has regenerated on peat soils with purple moor grass, tormentil, slender St John's wort and common spotted orchid. Areas mapped as grassy verge GS2 include hedge bindweed, rosebay, meadowsweet, knapweed, great willowherb, couch grass, wild carrot, soft rush, creeping cinquefoil, wild angelica and birds foot trefoil. Dense bracken (HD1) was also abundant in this area.



South towpath, view west

The towpath on the southern bank is wide and diverges to two distinct access tracks separated by a narrow verge of wild carrot, common knapweed, false oat grass, poppy and weld.

The canal verge along the towpaths includes the typical transitional habitats. Reedbeds are dominated for the most part by either common reed or common club rush but with bulrush also present. Wet grassland/marsh species include common valerian, meadowsweet, soft rush, wild

angelica and flag iris. The dry grassland element of the canal verge includes some calcareous herbs with yellow rattle, lady's bedstraw and knapweed.

Table 4.45-1 Habitats recorded from Downshire Bridge, Edenderry Line – Blundell Aqueduct

Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces
FW3	Canals
FW4	Drainage Ditches
GA2	Amenity grassland (improved)
GS2	Dry meadows and grassy verges
GM1\GS4\FS1\GS1	Towpath mosaic
HD1	Dense bracken
WL1	Hedgerow
WL2	Treelines
WN7	Bog woodland
WS1	Scrub

Table 4.45-2 Plant species recorded from Downshire Bridge, Edenderry Line – Blundell Aqueduct

Common Name	Scientific Name
Vascular Plants	
Arrowhead	<i>Sagittaria sagittifolia</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Broad-leaved Pondweed	<i>Potamogeton natans</i>
Broom	<i>Cytisus scoparius</i>
Bush Vetch	<i>Vicia sepium</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Eyebright	<i>Euphrasia spp.</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Flag Iris	<i>Iris pseudacorus</i>
Germander Speedwell	<i>Veronica chamaedrys</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Greater Plantain	<i>Plantago major</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>

Common Name	Scientific Name
Purple Moor Grass	<i>Molinia caerulea</i>
Red Bartsia	<i>Odontites verna</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rowan	<i>Sorbus aucuparia</i>
Silver Birch	<i>Betula pendula</i>
Tormentil	<i>Potentilla erecta</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Weld	<i>Reseda luteola</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Stoneworts	
Bristly Stonewort	<i>Chara hispida</i>

Fauna

Sedge warbler and reed bunting were recorded from within the canal reedbeds. Other birds are typical countryside species.

Table 4.45-3 Animal species recorded from Downshire Bridge, Edenderry Line – Blundell Aqueduct

Common Name	Scientific Name
Birds	
Reed Bunting	<i>Emberiza schoeniclus</i>
Pied Wagtail	<i>Motacilla alba yarrellii</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Goldcrest	<i>Regulus regulus</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Swallow	<i>Hirundo rustica</i>
Woodpigeon	<i>Columba palumbus</i>
Jackdaw	<i>Corvus monedula</i>
Heron	<i>Ardea cinerea</i>
Great tit	<i>Parus major</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Coal Tit	<i>Periparus ater hibernicus</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Invertebrates	
Peacock	<i>Aglais io</i>
Green veined white	<i>Pieris napi</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>

4.46 BLUNDELL AQUEDUCT – 20TH LOCK

Map 43-45, Section length – 4.6km

Habitats and Flora



South towpath, view west

The towpaths along the northern and southern canal banks are mapped as TPM for the most part, incorporating a mown amenity grassland pathway and the transitional canal verge habitats. There is a short section of roadway along both towpaths east of Blundell aqueduct.

As for the previous section the study area widens out to include a wide towpath verge area. Habitats mapped in this area include grassy verges (GS2) grading into scrub (WS1), treeline (WL2) and bog woodland (WN7). The grassy verge habitat is

dominated by meadowsweet and rosebay, together with bindweed, common reed and flag iris. Scrub consisted of bracken or willow with some hawthorn, ash and gorse mixed in. Areas dominated by bracken were classified accordingly as dense bracken. A section of treeline mapped is dominated by ash.



Towpath verge habitat

Moving east the soil becomes more peaty with the woodland more closely aligned with the bog woodland category (WN7) and areas of wet acid grassland with purple-moor grass a common habitat.

The study area extends out approaching Lock 20 to include a large area of cutaway bog in various stages of recolonisation. Much of the area has recolonised with purple moor grass and bog myrtle. Other species in these open grassland areas include bog cotton, bog asphodel, tormentil,

ling, milkwort, catsear and sweet vernal grass. There are some dry hummocks of *Sphagnum capillifolium*. Areas have recolonised with gorse, willow, bracken and bramble scrub particularly

around the margins of the cutaway and within drained areas and these are mapped as scrub (WS1). A small section of high bog (PB1) is present to the north of the study area. Areas of birch are mapped as bog woodland (WN7).

There are improved agricultural fields in the easternmost part of the study area north and south of the canal.

The northern canal verge habitats include reedbed (common reed or common club rush dominant), marsh/wet grassland and dry grassland. The dry grassland elements include a mix of calcareous and acid species such as yellow rattle, quaking grass, fragrant orchid, tormentil and purple moor grass.

The southern canal verge was similar with common reed or common club rush dominant reedbeds, marsh/wet grassland species common valerian and wild angelica and dry calcareous grassland elements such as quaking grass, wild carrot, lady's bedstraw, oxeye daisy and common knapweed.

The invasive Nuttall's waterweed was found amongst the aquatic plants. Stoneworts were also present.

Table 4.46-1 Habitats recorded from Blundell Aqueduct – 20th Lock

Habitat Code	Habitat Name	Habitat Code	Habitat Name
BL3	Buildings and artificial surfaces	GM1\GS4\FS1\GS1	Towpath mosaic
FW3	Canals	HD1	Dense bracken
FW4	Drainage Ditches	WL1	Hedgerow
GA2	Amenity grassland (improved)	WL2	Treelines
GS2	Dry meadows and grassy verges	WN7	Bog woodland
GS4	Wet grassland	WS1	Scrub
		PB1	Raised bog
		PB4	Cutover bog

Table 4.46-2 Plant species recorded from Blundell Aqueduct – 20th Lock

Common Name	Scientific Name	Common Name	Scientific Name
Vascular Plants		Broad-leaved Dock	<i>Rumex obtusifolius</i>
Alder	<i>Alnus glutinosa</i>	Broad-leaved Pondweed	<i>Potamogeton natans</i>
Annual Meadow Grass	<i>Poa annua</i>	Bulrush	<i>Typha latifolia</i>
Arrowhead	<i>Sagittaria sagittifolia</i>	Bush Vetch	<i>Vicia sepium</i>
Black medick	<i>Medicago lupulina</i>	Catsear	<i>Hypochaeris radicata</i>
Bog Asphodel	<i>Nartheicum ossifragum</i>	Cock's-foot grass	<i>Dactylis glomerata</i>
Bog Cotton	<i>Eriophorum angustifolium</i>	Coltsfoot	<i>Tussilago farfara</i>
Bog Myrtle	<i>Myrica gale</i>	Common Club-rush	<i>Schoenoplectus lacustris</i>
Bracken	<i>Pteridium aquilinum</i>	Common Milkwort	<i>Polygala vulgaris</i>
Bramble	<i>Rubus fruticosus agg.</i>	Common Reed	<i>Phragmites australis</i>

Common Name	Scientific Name
Common Sorrell	<i>Rumex acetosa</i>
Common Valerian	<i>Valeriana officinalis</i>
Corn Sow Thistle	<i>Sonchus arvensis</i>
Couch Grass	<i>Elymus repens</i>
Cowslip	<i>Primula veris</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Creeping Thistle	<i>Cirsium arvense</i>
Cross-leaved Heath	<i>Erica tetralix</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
Downy Birch	<i>Betula pubescens</i>
Eyebright	<i>Euphrasia spp.</i>
Fairy Flax	<i>Linum catharticum</i>
False Oat Grass	<i>Arrhenatherum elatius</i>
Fennel Pondweed	<i>Potamogeton pectinatus</i>
Field Horsetail	<i>Equisetum arvense</i>
Flag Iris	<i>Iris pseudacorus</i>
Fragrant Orchid	<i>Gymnadenia conopsea</i>
Germander Speedwell	<i>Veronica chamaedrys</i>
Gorse	<i>Ulex europaeus</i>
Great Willowherb	<i>Epilobium hirsutum</i>
Greater Plantain	<i>Plantago major</i>
Hard Rush	<i>Juncus inflexus</i>
Hawthorn	<i>Crataegus monogyna</i>
Hedge Bindweed	<i>Calystegia sepium</i>
Hedge Woundwort	<i>Stachys sylvatica</i>
Hogweed	<i>Heracleum sphondylium</i>
Imperforate St John's Wort	<i>Hypericum maculatum</i>
Knapweed	<i>Centaurea nigra</i>
Lady's Bedstraw	<i>Galium varum</i>
Ling	<i>Calluna vulgaris</i>
Marsh Thistle	<i>Cirsium palustre</i>
Meadow Buttercup	<i>Ranunculus acris</i>
Meadow Foxtail	<i>Alopecurus pratensis</i>
Meadowsweet	<i>Filipendula ulmaria</i>
Nettle	<i>Urtica dioica</i>
Nuttall's Waterweed	<i>Elodea nutallii</i>
Perennial Ryegrass	<i>Lolium perenne</i>
Perfoliate Pondweed	<i>Potamogeton perfoliatus</i>

Common Name	Scientific Name
Pignut	<i>Conopodium majus</i>
Purple Moor Grass	<i>Molinia caerulea</i>
Quaking Grass	<i>Briza media</i>
Ragwort	<i>Senecio jacobaea</i>
Red Bartsia	<i>Odontites verna</i>
Red Clover	<i>Trifolium pratense</i>
Red Valerian	<i>Centranthus ruber</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Reed Sweet Grass	<i>Glyceria maxima</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rosebay	<i>Epilobium angustifolium</i>
Rough Hawkbit	<i>Leontodon hispidus</i>
Rowan	<i>Sorbus aucuparia</i>
Rusty Willow	<i>Salix cinerea subsp oleifolia</i>
Silver Birch	<i>Betula pendula</i>
Slender St John's Wort	<i>Hypericum pulchrum</i>
Softrush	<i>Juncus effusus</i>
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>
Timothy	<i>Phleum pratense</i>
Tormentil	<i>Potentilla erecta</i>
Tufted Hair Grass	<i>Deschampsia cespitosa</i>
Tufted Vetch	<i>Vicia cracca</i>
Unbranched Bur-reed	<i>Sparganium emersum</i>
Water Mint	<i>Mentha aquatica</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
White Beak-sedge	<i>Rhynchospora alba</i>
White Clover	<i>Trifolium repens</i>
Whorled Water Milfoil	<i>Myriophyllum verticillatum</i>
Wild Angelica	<i>Angelica sylvestris</i>
Wild Carrot	<i>Daucus carota</i>
Yarrow	<i>Achillea millefolium</i>
Yellow Rattle	<i>Rhinanthus minor</i>
Yellow Sedge	<i>Carex demissa</i>
Yellow Water-lily	<i>Nuphar lutea</i>
Yorkshire Fog	<i>Holcus lanatus</i>
Bristly Stonewort	<i>Chara hispida</i>
moss	<i>Sphagnum capillifolium</i>

Fauna

Mammal paths cutting between the towpath and the bog areas were common, and mink scats were identified. Wetland species included heron, reed bunting and sedge warbler were recorded together with the usual typical countryside species.

Table 4.46-3 Animal species recorded from Blundell Aqueduct – 20th Lock

Common Name	Scientific Name
Mammals	
Mink	<i>Neovison vison</i>
Birds	
Reed Bunting	<i>Emberiza schoeniclus</i>
Pied Wagtail	<i>Motacilla alba yarrellii</i>
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>
Goldcrest	<i>Regulus regulus</i>
Heron	<i>Ardea cinerea</i>
Meadow Pipit	<i>Anthus pratensis</i>
Willow Warbler	<i>Phylloscopus trochilus</i>
Swallow	<i>Hirundo rustica</i>
Great tit	<i>Parus major</i>
Chiffchaff	<i>Phylloscopus collybita</i>
Coal Tit	<i>Periparus ater hibernicus</i>
Long-tailed Tit	<i>Aegithalos caudatus</i>
Hooded Crow	<i>Corvus corone cornix</i>
Jackdaw	<i>Corvus monedula</i>
Wren	<i>Troglodytes troglodytes</i>
Woodpigeon	<i>Columba palumbus</i>
Amphibians	
Common Frog	<i>Rana temporaria</i>
Invertebrates	
Common darter	<i>Sympetrum striolatum</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Ringlet	<i>Aphantopus hyperantus</i>
Green veined white	<i>Pieris napi</i>
Common carder bee	<i>Bombus pascorum</i>
Small copper	<i>Lycaena phlaeas</i>
Large white	<i>Pieris brassicae</i>
Brimstone	<i>Gonepteryx rhamni</i>
Small tortoiseshell	<i>Aglais urticae</i>
Beautiful demoniselle	<i>Calopteryx virgo</i>

5 ECOLOGICALLY SENSITIVE AREAS

5.1 ESA 1 - SHANNON HARBOUR

This ESA includes several disused old buildings in the village of Shannon harbour that would require consideration if any future development is proposed. They have become overgrown with tall grasses, herbs and shrubs and have very high potential as bat or barn owl roosts.



Old Buildings, Shannon Harbour

The other significant ecological feature in this area is the presence of the rare and protected aquatic plant Opposite-leaved pondweed. This submerged plant was present in a drainage ditch in soft mud, and was the only occurrence of this species in the study area.

5.2 ESA 2 - WET GRASSLAND AT L'ESTRANGE BRIDGE

To the west of L'Estrange bridge, this ESA encompassed a broad band of wet grassland extending from the northern towpath toward a drain along the hedgerow boundary. It was the most notable area of wet grassland in the study area directly connected to the towpath (i.e. not with a field separated by a hedgerow or treeline) covering a wide area and supporting a diverse range of species. The grassland is characterised by a range of species including sharp-flowered rush, marsh horsetail, marsh ragwort, common spotted orchid, crested dogstail, marsh



Wet grassland habitat

bedstraw, purple loosestrife, spear-tipped moss, meadowsweet, sweet vernal grass, lesser spearwort, wild angelica and hard rush. The wettest areas occur by the drain running to the north of the grassland, grading toward a slightly drier vegetation near the towpath.

5.3 ESA 3 - ESKER GRASSLAND

Between Belmont and Judge's Bridges on the southern towpath verge there is an exposed calcareous esker bank. This area supports a variety of calcareous species such as quaking-grass, carline thistle, yellow-wort, field scabious, rough hawkbit, common knapweed, yarrow, lady's bedstraw, eyebright and the mosses *Rhytidiadelphus squarrosus*, *Ctenidium molluscum*, *Pseudoscleropodium purum* and *Calliergonella cuspidata*. To the south of this bank is an esker woodland dominated by oak, ash and hazel. The grassland habitat aligns with Annex I habitat 'orchid-rich calcareous grasslands (6210)', and the esker woodland is a rare habitat in the study area. This area corresponds to KTCullen/WhiteYoungGreen (2002) Area D, and Dromey et al (1992) Area of High Ecological Interest 8.



Carline thistle on esker bank

5.4 ESA 4 - GALLEN TOWPATHS

This ESA encompasses the towpaths between 32nd Lock, Glyn Bridge and Macartney Aqueduct. It includes an area within the northern towpath between Glyn Bridge and Armstrong Bridge, Gallen, noted by BSBI as being of particular botanical interest, and the towpaths east to Maccartney Aqueduct which support a species rich canal verge. At Gallen the BSBI have records of an unusual flora including bee orchid, skullcap, bog pimpernel, zig zag clover, marsh fragrant orchid, fragrant orchid, marsh helliborine and lesser clubmoss. The southern towpath canal verge between Glyn and Armstrong Bridges in particular supports an unusual abundance of grass of Parnassus together with carline thistle, yellow rattle, quaking grass and field scabious. The towpaths between Gallen and Maccartney Aqueduct include abundant fragrant, twayblade and common spotted



Species-rich grassland along towpath

orchid, together with other species such as lady's bedstraw, wild carrot, red clover, quaking grass and bird's foot trefoil. This calcareous element of the canal verge corresponds with the Annex I habitat 'orchid-rich calcareous grasslands (6210)'. This area is also notable for the presence of the Annex I (Birds Directive) species Kingfisher.

5.5 ESA 5 TURRAUN PEATLANDS AND TOWPATH

This ESA includes remnant raised bog habitat and areas of regenerated bog woodland on cutover bog. The degraded raised bog, which is being cut at the northern edge, may align with the Annex I habitat 'degraded raised bogs still capable of natural regeneration (7120)' if the hydrology of the bog can be repaired. Characteristic species include sphagnum mosses, ling, cross-leaved heath, bog cotton, bog asphodel and white-beak sedge. Dense areas of birch woodland have developed on former cutaway and have



Turraun remnant raised bog

been included in the ESA.



The southern towpath adjacent to the bog and woodland was particularly diverse in species. The reedbed, wet grassland, marsh and dry grassland elements all supported a wide range of species. The dry grassland habitat included a mix of both acid and calcareous loving species. The calcareous element corresponds with the Annex I habitat 'orchid-rich calcareous grasslands (6210)'. Characteristic calcareous grassland species present included orchids (common spotted, fragrant, twayblade), quaking grass, yellow rattle, bird's-foot trefoil, common and glaucous sedges, wild carrot, lady's bedstraw, ox-eye daisy). The complex of bog, woodland and canal habitats support a diverse range of plant species, and have the potential to support a number of protected and threatened animal species. This area corresponds to KTCullen/WhiteYoungGreen

(2002) Area C, and Dromey et al (1992) Area of High Ecological Interest 7.

5.6 ESA 6 DERRYCOOLEY PEATLANDS

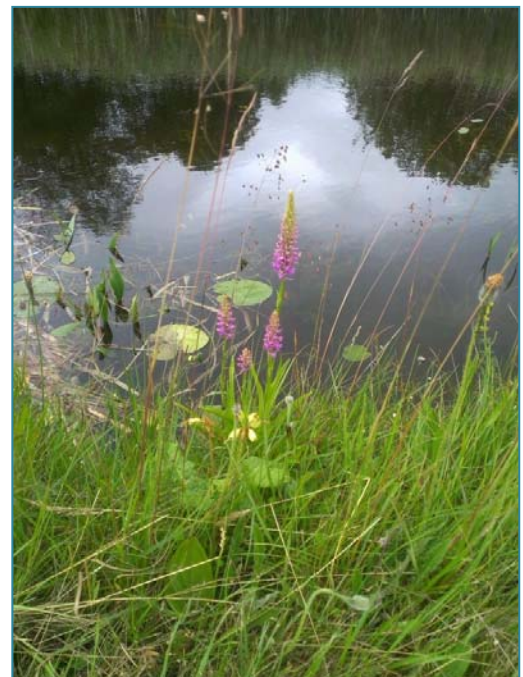
Another area of remnant raised bog is found to the south of the canal in the section between Pollagh and Cornalaur. Extensive peat cutting is ongoing to the south of this area. As for the Turraun peatland the habitat may align with the Annex I habitat 'degraded raised bogs still capable of natural regeneration (7120)' if the hydrology of the bog can be repaired. Characteristic species include sphagnum mosses, ling, cross-leaved heath, bog cotton, bog asphodel and white-beak sedge. Bog woodland, with a ground flora dominated by heathers and purple moor grass, occurs in some areas between the raised bog and the canal towpath. The diversity of bird species in and around Derrycooley bog was particularly high.



Derrycooley remnant raised bog

5.7 ESA 7 POLLAGH-CORNALAU TOWPATH

A very narrow strip of calcareous grassland was found along the canal verge in this section. Although adjacent to a roadway, management practices (irregular mowing) have allowed quite an open sward to develop, with orchids, sedges and other flowering plants flourishing along this narrow strip. The calcareous element corresponds with the Annex I habitat 'orchid-rich calcareous grasslands (6210)'. Characteristic calcareous grassland species present included orchids (common spotted, fragrant, twayblade), quaking grass, yellow rattle, bird's-foot trefoil, common, glaucous and pill sedges, wild carrot, lady's bedstraw and ox-eye daisy.



Species-rich towpath vegetation

5.8 ESA 8 26TH-25TH LOCK TOWPATH

Between the 26th and 25th Lock/Cappincur Bridge, the dry edge of southern canal verge habitat was again consistent with the Annex I habitat 'orchid-rich calcareous grasslands (6210)'. A low open grassland has had the opportunity to develop on the edge of the towpath. Characteristic calcareous grassland species present included orchids (common spotted, fragrant, twayblade), quaking grass, yellow rattle, bird's-foot trefoil, common and glaucous sedges, wild carrot, fairy flax, lady's bedstraw and ox-eye daisy.



Fragrant orchid on canal verge

5.9 ESA 9 BALLYCOMMON WOODLAND AND BOG



Recovered bog habitat

This ESA incorporates a mature woodland on peat and a good quality recovered bog. The bog woodland was characterised by a range of mature tree species including birch, ash, hawthorn, holly, oak, beech and sycamore. The ground flora included hard shield fern and bracken. Adjacent to this an area of cutaway bog that has regenerated significantly, is found just east of the woodland. It is wet with extensive depressions of *Sphagnum papillosum*, *Sphagnum cuspidatum* and white beak sedge, together with hummocks of

Sphagnum capillifolium and bog asphodel, bog cotton, ling and cross-leaved heath. Drier edges around the bog include purple moor grass, sweet vernal grass, devils bit scabious and tormentil. There is some bogbean in an adjacent drain together with reed canary grass and meadowsweet.

5.10 ESA 10 DAINGEAN FEN

To the west of Daingean, in the study area south of the canal, a species rich wet grassland grades into an area of poor fen. This then grades into a vegetation that best fits with the Fossitt category transition mires (PF3). An area of species-rich wet grassland is mapped on peat soils, grading southwards into poor fen and transition mire habitat with bog woodland at the edges. The wet grassland is characterised by common spotted orchid, early marsh orchid, grass of Parnassus, purple moor grass, marsh cinquefoil, marsh thistle, purple loosestrife, devils bit scabious, sweet vernal grass, bog bean and tufted hair grass. This grades into the poor fen characterised by sphagnum mosses together with ling, cross-leaved heath, bog asphodel, white beaked sedge, cladonia, bog cotton and bog bean. There is also an area with sedges (long-stalked yellow sedge and lesser tussock sedge) more dominant and some mosses characteristic of more base-rich conditions (*Campylopusium stellatum*, *Calliergon cordifolium* and *Scorpidium cossonii*) which has been mapped as transition mire. The GSI maps show an area of mineral soils/limestone subsoils just to the southeast which may account for the basic influence.

The wet grassland section aligns with the Annex I habitat Molinia meadows on calcareous, peaty or clayey-silt laden soils (Moninion caeruleae) (6410), while the Transitional mires and quaking bogs (7140).



Fen habitat at Ballycommon

5.11 ESA 11 TOBERDALY BOG

Toberdaly Bog, a dry degraded remnant raised bog, is characterised by bog cotton, bog asphodel, ling, cladonia and white beak sedge, with *Sphagnum capillifolium* and *S. papillosum*. The degraded raised bog, which is being cut at the northern edge, may align with the Annex I habitat 'degraded raised bogs still capable of natural regeneration (7120)' if the hydrology of the bog can be repaired.



Toberdaly remnant raised bog

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APPENDIX A

Habitat Maps



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