

**TYNE CROSSING:  
RIVER DON CORRIDOR SURVEY**

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## **CONTENTS**

<b>INTRODUCTION</b>	<b>1</b>
<b>OBJECTIVES</b>	<b>1</b>
<b>METHODOLOGY</b>	<b>1</b>
<b>SITE LOCATION</b>	<b>2</b>
<b>SITE DESCRIPTION</b>	<b>2</b>
<b>Section 1</b>	<b>3</b>
<b>Section 2</b>	<b>4</b>
<b>Section 3</b>	<b>5</b>
<b>Section 4</b>	<b>6</b>
<b>SUMMARY</b>	<b>7</b>
<b>REFERENCES</b>	<b>8</b>

**APPENDIX 1 – SPECIES LISTS**

**APPENDIX 2 – MAP TO SHOW LOCATION OF RIVER DON**

**APPENDIX 3 – RIVER CORRIDOR SKETCH MAPS**



# **TYNE CROSSING: RIVER DON CORRIDOR SURVEY**

## **INTRODUCTION**

A River Corridor survey of the River Don was commissioned by Ove Arup as part of a wider survey of the proposed route of the new Tyne Tunnel. The fieldwork and report were carried out by Jane Young, Principal Ecologist for YOUNG NATURE Ecological Consultancy in May 2000. The fieldwork was carried out on 19<sup>th</sup> May, 21<sup>st</sup> May and 1<sup>st</sup> June 2000.

## **OBJECTIVES**

The aquatic and bankside vegetation along 1.4 miles of the River Don was surveyed as part of a Phase 1 Habitat Survey (ref. YOUNG NATURE OV 83a.Ph.1) in which the value of the River Don corridor is assessed. This more detailed study was made of the River Don corridor based on the Phase 1 Habitat survey using guidelines (1992) from the National River Authority (now Environment Agency) in order to provide a botanical species list, report and annotated sketch maps. Information concerning river profile as well as locations of flora and incidental records of fauna and faunal activity were recorded. Other observations considered to be of relevance to the ecological value of the watercourse such as incidental sightings of fauna and observations of water quality were also noted. The survey is based on recording major habitats, vegetation and physical features rather than detailed species or communities. Assessment of the river corridor, including habitats and species, can be found in the Phase 1 Survey (ref. YOUNG NATURE OV 83a.Ph1).

## **METHODOLOGY**

A baseline map was obtained from Ove Arup and used to make sketch maps suitable for use in a river corridor survey. The river was divided into sections for ease of description and the width of the river was exaggerated for convenience of recording. The survey sections are numbered in order, sequentially downstream to upstream.

Access permission to most of the River Don was not necessary as it is public open space. However access was restricted along the right bank of the downstream section adjacent to the Nissan Works. Permission was obtained to view this bankside from within the Nissan perimeter fence. Binoculars were used to aid description from the left bank.

The length of stream was walked and all observations of aquatic and bankside vegetation as well as the adjoining land use were noted and recorded. Incidental recordings or tracks and other signs of any other species were also recorded. Note was also made of any other observations considered to be of relevance to the ecological value of the River Don e.g. location/condition of grills/ obstructions; obvious signs of pollution e.g. oils, fly tipping.

A short report was then prepared of the survey results with annotated maps.

## **SITE LOCATION**

The River Don is a tributary of the River Tyne in South Tyneside. Its confluence with the R. Tyne is at Grid Reference NZ 339 659 and the stretch of river surveyed extends upstream for approximately 1.4 miles as far as the Cemetery Road Bridge at NZ 330 645.

## **SITE DESCRIPTION**

The River Don is an important wildlife corridor within South Tyneside (Tyne and Wear Conservation Strategy 1994). The corridor also includes the River Don Saltmarsh Site of Nature Conservation Importance (SNCI); as well as two potential SNCIs, Straker Street pond and Cemetery Road.

Most of the length of the River Don has been developed to produce an attractive walkway and cycle route which is well used by local people. Part of it passes St Paul's Church and the Bedes World popular tourist attraction. The upstream end of the river, near the Cemetery Road bridge, does not have a made up footpath on the left bank and is less used.

The riverside paths pass through open areas of amenity land with mown grass, longer unmanaged grass, ruderal (weed) species, trees and shrubs with additional habitats nearby including two ponds and marshy land. Most of the land surrounding the River Don has been landscaped and most of the plants appear to be introduced. They include both native and exotic species.

The two ponds have been created in the southern section of the site. Both have been planted although the more downstream one is more species rich. Species used are both native and exotic but these ponds may also have been partly colonised naturally. One pond is next to the Church Bank road bridge and the other is immediately south of the A 185 between the A 185 and the railway. Both ponds are visited by members of the public.

The River Don itself is partly tidal and downstream sections have associated intertidal mud and saltmarsh habitats. The maritime influence is also found in the vegetation of the grassy banksides and in marginal vegetation further upstream from the tidal reaches.

The right bank of the downstream section of the River Don is not accessible but permission was obtained to view this area from within the perimeter fence of the Nissan car works. The vegetation immediately within the works appeared to be very similar to the vegetation in the survey area. Binoculars further aided observations of the right bank from the left bank.

Throughout most of the river's length there was rubbish e.g. car tyres dumped in the water but no signs of recent dumping. Garden rubbish, however, had been dumped near the houses in the Cemetery Road area.

### **Section 1 Grid Reference NZ 339 659 to NZ 337 653**

This part of the river extends from its confluence with the River Tyne as far as Church Bank road bridge.

This section is tidal and large expanses of mud are exposed at low tide. The downstream section of river nearest to the River Tyne runs in a straight channel. At low tide both right and left banks are exposed as steeply shelving mud with cobbles covered by *Fucus vesiculouis*. Green alga *Enteromorpha sp* is also present, particularly at the high tide mark. Saltmarsh species are found at the edges and neutral grassland then trees and shrubs have been planted on the left bank above the grassland. The right bank was inaccessible but species seen appeared to be similar to those on the right bank, except there were no trees and shrubs. Occasionally seedling and tiny trees of *Acer pseudoplatanus* and *Sorbus intermedia* were found. Similar grassland with a maritime influence was seen inside the perimeter fence of the Nissan Works.

Upstream from the Nissan fence which passes down to the river's edge, the River Don meanders at low tide. Here the mud forms a flatter intertidal habitat and is possibly used by waders as feeding territory. An island which is partially bare of vegetation has been created here, possibly as part of the mitigation measures taken when the Nissan Works were established. *Fucus vesiculosus* is still present here. A grass baffle mound has also been created between the Nissan Works and the river as far upstream as the abrupt bend in the river and its junction with a tributary which flows into the right bank of the River Don through the Nissan Works. The grass baffle mound is neutral grassland and, although inaccessible, appeared to have plants which thrive in more maritime conditions. It also had recently planted trees along the top and shrub plants of *Genista hispanica* and occasional *Salix spp*. The left bankside has a narrow band of saltmarsh species, particularly *Aster tripolium*, *Plantago maritima* and *Cochlearia officinalis* with a broad expanse of neutral grassland between the river and the River Don footpath and cycleway.

Vegetation within the Nissan Works alongside the river tributary seemed to be the same as the grassland river banks. However at the time of survey two species were very much in evidence here but not on the banks of the River Don. These are *Echium vulgare* and *Centranthus ruber*. Flat mud is exposed at low tide where the tributary joins the River Don. However the left bank of the River Don opposite the tributary has moderately steep mud banks with saltmarsh and grassland supporting several plants of *Armeria maritima*, the only place this species was seen. Young trees (*Sorbus intermedia* and *Sorbus aucuparia*) have also been planted here. Hopefully this tree planting will not lead to the decline of *Armeria maritima*.

Upstream from the confluence with the tributary stream, trees and shrubs have been planted on the right bank and these are now mature. A fence separates them from land further from the river. Nearer the St Paul's footbridge, the river meanders slightly and the moderately sloping mud of the left bank lies opposite a more steeply sloping right bank.

Between the footbridge and the Church Bank road bridge the banksides are well vegetated with a wide diversity of tree and shrub species such as *Populus alba*, *Crataegous monogyna*, *Fagus sylvatica*, *Acer pseudoplatanus*, *Populus nigra italica*, *Aesculus hippocastanum*, *Salix spp*, *Rosa sp*, *Alnus glutinosa*. Neutral grassland is being invaded by ruderal species (*Anthriscus sylvestris* was prolific here at the time of survey) because it is left unmanaged and the narrow band of saltmarsh habitat supports much *Aster tripolium*. The green alga *Enteromorpha sp* is attached to the high water mark on the mud.

## **Section 2 Grid Reference NZ 337 653 to NZ 335 649**

This section extends from the Church Bank road bridge upstream to where the A 185 road (Straker Street) passes over the River Don. The river channel narrows between section 1 and section 2. At a footbridge in the upstream part of this section the river is approximately 8 m in width. Several large stones in the bed of the river cause changes in the current with riffles as well as slacker places. At least four drains flow into the river in this section.

This part of the footpath and cycleway is well used by local people. Landscaping of a large area on the right bank extending as far as the A 185 road has included amenity grass which is kept mown, trees and shrub planting and the creation of a pond and marshy area. Although much of the vegetation has been planted with both native and exotic species (including the pond habitat), much of the vegetation has invaded naturally, including *Reynoutria japonica*, *Heracleum mantegazzianum* and *Oenanthe crocata*. *Artemisia absinthum* also grows on the left bank and was seen nowhere else in the survey area. *Elymus pycnanthus* grows on the right bank with *Aster tripolium* and *Cochlearia officinalis*. In places the mud banks are quite steep and up to 1.5 m in height. They are very steep upstream near a footbridge where trees are found almost at the edge of the bankside. Some of the mature trees in this region are dead. Beneath the footbridge the river banks are supported by armoured blocks of stone.

However partway along the right bank, the grassy riverbank curves and has allowed a wider expanse of flatter mud to develop at the edge of the water. Almost opposite this mud there is a stand of *Phragmites communis*. The river bed here has a few stones causing riffles.

The small pond has been created with two vegetated islands and planted with both native and exotic species. A young tree (*Salix sp*) grows on one of the islands. Other species have probably colonised the area naturally. Although the field survey took place before many species of aquatic plant had emerged above water level, aquatic and emergent plants include *Potamogeton natans*, *Sparganium sp*, *Elodea canadensis*, *Iris pseudacorus*, *Oenanthe aquatica*, *Mentha aquatica*, *Glyceria fluitans*, *Ranunculus sceleratus*, *Ranunculus lingua*, *Eleocharis palustris*, *Crassula helmsii*, and *Alisma plantago-aquatica*.

A small area of marshy grassland with *Epilobium hirsutum*, *Dactylorhiza purpurella* and the extremely poisonous *Oenanthe crocata* lies adjacent to this pond which is only a few metres from the River Don. Most of the surrounding habitat is regularly mown amenity grassland.

Between the footbridge and the A 185 roadbridge the river has very steep banks with coarse grass vegetation, *Anthriscus sylvestris* and *Urtica dioica* and trees (*Salix caprea* with a few *Alnus glutinosa*) which overhang the left bank. A narrow band of saltmarsh vegetation comprises *Cochlearia officinalis* growing above *Aster tripolium* on both banks. Unmanaged neutral grassland with scattered *Salix sp*, *Acer pseudoplatanus*, *Sambucus nigra* and *Crataegus monogyna* and some ruderal species grows on the right bank.

At the time of survey the pond in this section contained tadpoles and was home to a mallard duck with one duckling. A pied wagtail was seen flying near the river. The trees and shrubs planted near the river supported several species of birds including willow warblers.

### **Section 3 Grid Reference NZ 335 649 to NZ 334 647**

The river here runs in a steep sided channel and passes under the A 185 road, the railway line and the A 19 road. It passes upstream from the A 185 road bridge to the A 19 road bridge. Part of this length is culvetted. The water channel is approximately 7 m in width.

The water quality was poor in this section.

Straker Street pond and surrounding grassland and ditches are located on the right side of the river in this section. The footpaths under the bridges are not so attractive and are well used by people crossing these major roads.

The pond and immediate vicinity are a potential Site of Nature Conservation Importance. The pond itself is larger than the Church Bank pond but is not very well vegetated, having occasional stands of marginal *Phalaris arundinacea* and *Calamagrostis sp* at the eastern end. The *Calamagrostis sp* had no inflorescence visible at the time of survey but its vegetation exhibited characteristics of both *Calamagrostis epigejos* (wood small-reed) and *Calamagrostis canescens* (purple small-reed). An occasional *Ranunculus sceleratus*, *Potamogeton sp* and *Elodea canadensis* grow as emergent and submerged aquatics. Other vegetation may appear later in the season but at the time of survey the other pond near Church Bank supported more aquatic plants. On one visit the Straker Street pond was being used for canoeing by local children and the water was very silty. The eastern end of this aquatic habitat is dominated by a large mature *Salix fragilis* and contained large amounts of algae at the time of survey.

The pond is surrounded by neutral grassland, tall ruderal species and a large area of *Rubus fruticosus* near the A 185 road. Immediately east and north of the pond the ground slopes quite steeply upwards. The part of the steep slope at the eastern end of the pond which is nearest to the railway line is dominated by grasses with few dicotyledonous species. Mixed broadleaved trees grow adjacent to both the A 185 road and the railway line north and south of the Straker Street pond.

A short length of river is exposed in the culvetted section. This is found between the railway and the A 19 road in an area of amenity grassland. Here the grassy banksides are very steep with *Anthriscus sylvestris* growing and *Cochlearia officinalis* growing

near the water's edge indicating a maritime influence. Three drains flow into the river in this short stretch.

Swallows were flying and feeding over the Straker Street pond during the time of survey and on both visits a moorhen was swimming on the water surface. A single frog was found in the pondside vegetation.

#### **Section 4 Grid Reference NZ 334 647 to NZ 330 645**

This section extends from the A 19 road bridge upstream as far as Cemetery Road. This section is a potential Site of Nature Conservation Importance.

In the short stretch of river corridor between the A 19 road bridge and a footbridge overlooking the Cemetery Road area the river channel flows between steep grassy banks which pass down to the water and support *Anthriscus sylvestris*.

At the footbridge the river is approximately 5 m wide.

Upstream from the footbridge there are stands of *Cochlearia officinalis* growing just above the water's edge and there are several stands of marginal aquatic plants such as *Phalaris arundinacea*, *Carex acutiformis* and *Sparganium sp.* Near the Cemetery Road bridge there is a stand of *Typha latifolia*. This is the only place within the survey area where this species is represented. Other species seen at the water's edge in this upstream section, but not seen elsewhere, are *Alliaria petiolata*, *Hesperis matronalis* and *Brassica rapa*. A small island with *Salix fragilis* near Cemetery Road supports a single plant of *Rumex hydrolapathum*. Again, this was the only place that this species was observed.

The lowest parts of the river banks are muddy and contained a large number of holes. These may be places where stones have fallen out but some are more likely to be burrows.

The river flows more slowly along this stretch, possibly because of the presence of meanders.

The banksides support neutral and marshy grassland vegetation with ruderal species and many stands of trees and shrubs have been planted. Some areas of marshy grassland are species rich. Ruderal species include alien invaders *Reynoutria japonica* (there is a particularly large stand on the right bank) and *Heracleum mantegazzianum*. On the left bank near the end of the houses garden rubbish has been dumped. There is also a stand of *Pteridium aquilinum*, approximately 17m x 8m at this location and several *Ulex europaeus* plants. The first three species mentioned can have a devastating effect on local native vegetation. In places, particularly where the bank is steep, the trees grow right down to the water's edge. Tree species have mostly been planted and are very diverse in the downstream parts of this section. They include *Crataegous monogyna*, *Rosa sp.*, *Acer campestre*, *Sorbus aria*, *Sorbus intermedia*, *Sorbus aucuparia*, *Populus alba*, *Populus tremula*. Further upstream species are mainly *Salix sp.*, *Crataegous monogyna*, *Sambucus nigra* and *Rosa sp.* on the left bank but larger trees such as *Acer pseudoplatanus*, *Salix sp.*, *Fraxinus excelsior* contribute to the canopy on the right bank where shrub species are very dense. A single *Syringa vulgaris* grows here as well.

Further away from the water the grass is regularly mown as an amenity area. Part of the amenity grassland on the right bank has recently been re-seeded. Official footpaths pass through the amenity grass on both sides but on the left bank this path turns away from the river at the end of the houses. It continues as beaten down grass between scattered bushes of *Crataegous monogyna* but is little used.

All the flatter areas on the left bank support marshy grassland, in places species rich, with ruderals and stands of swamp species, particularly *Phalaris arundinacea* and *Epilobium hirsutum*. There is also a small stand of *Iris pseudacorus* near the fence which passes down to the water's edge at the end of the housing. A prominent ditch crosses one area of marshy grassland downstream from this fence where the principal plant species are *Epilobium hirsutum* and *Urtica dioica*. The former species is characteristic of marshy ground but the latter species thrives in areas where there has been soil enrichment, particularly with phosphates. Another species present which indicates soil enrichment is *Galium aparine*. Nearer to Cemetery Road another ditch is situated near a stand of *Alnus glutinosa*. The ground is quite marshy here and several plants of *Cardamine pratensis* were in flower at the time of the survey. Adjacent to the fence which passes down to the water's edge at the end of the housing, there is a pipe.

Between marshy vegetation and neutral grassland there are large stands of *Chamaenerion angustifolium*, *Anthriscus sylvestris*, *Cirsium arvense* and *Urtica dioica*. Other ruderal species found where the neutral grassland has been left unmown are *Heracleum sphondylium* and *Centaurea nigra*.

A water vole was seen from the footbridge overlooking the Cemetery Road area swimming a few metres alongside the left bank and then into a hole in the mud.

A heron which was standing in the water was disturbed. Walking through the swamp and marsh vegetation disturbed two families of mallard ducks with ducklings.

Butterflies seen in the marshy grassland include several orange tip butterflies and a peacock butterfly. It is possible that the spread of *Urtica dioica* will further encourage populations of the peacock and other butterflies, such as small tortoiseshell and red admiral, butterflies seen more frequently later in the summer.

## SUMMARY

The River Don Corridor has been surveyed from its confluence with the River Tyne at Grid Reference NZ 339 659 for a distance of approximately 1.4 miles upstream as far as the Cemetery Road bridge at NZ 330 645.

This survey is part of a Phase 1 Survey made of a wider area in order to provide baseline ecological information for the proposed Tyne Tunnel.

Most of the species recorded for the wider area were found within the corridor of the River Don.

An assessment of the River Don site is included in the Phase 1 Survey report.

## REFERENCES

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