

**TYNE CROSSING:  
PHASE 1 SURVEY**

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# **TYNE CROSSING: PHASE 1 SURVEY**

## **INTRODUCTION**

A Phase 1 survey of the proposed route of the new Tyne Tunnel was commissioned by Ove Arup. 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.

## **METHODOLOGY**

A baseline map with the site boundaries marked for the Phase 1 survey was obtained from Ove Arup. Other information and survey reports were also obtained, some of which are referred to in this report.

Permission was obtained by Jane Young for access to the grounds surrounding the northern entrance to the present Tyne Tunnel and to the Nissan Works.

An initial walkover determined the broad habitat types present and the different areas to be surveyed. A more detailed survey provided information to enable the broad vegetation types to be drawn on the baseline map. At several places a period of quiet observation was spent in order to determine the presence of more elusive fauna and nesting sites. A vegetation species list of species noted during the survey was also prepared. Any notable features and incidental records of fauna were also recorded.

The map was fair drawn and coloured using the colour scheme of the NCC methodology for a Phase 1 survey (1990). Notable features, if found, were target noted (Appendix 3). A short report was then made to describe the site and record the survey results with species lists (Appendix 1). The River Don Corridor is described in more detail in a separate report (YOUNG NATURE OV 83b.River Don Corridor). Features which may require further Phase 2 survey were also noted.

## **GENERAL DESCRIPTION**

### **Location**

The site lies both north and south of the River Tyne at Grid Reference NZ 330 660, at East Howdon in North Tyneside north of the river and at Jarrow, South Tyneside, south of the Tyne.

The northern section extends northwards from the river as far as the Metro railway line near Brewers Lane. It is bounded on the east side by the A 187 road, the East Howdon by-pass and the western boundary includes the perimeter fence of the land surrounding the entrance to the present Tyne Tunnel and an area of grassland west of the A 19 road.

The southern section extends southwards from the river for a short distance either side of the A 19 road as far south as the southern end of Jarrow Cemetery. It also includes

land on either side of the A 185 road and the land on either side of the River Don between Cemetery Road and its confluence with the River Tyne adjacent to the Nissan car works at Jarrow Slake.

The survey area includes a small part of Jarrow Slake Site of Nature Conservation Importance (SNCI) and the River Don Saltmarsh SNCI. Jarrow Slake (Grid Reference NZ 344657) is now mostly within the perimeter fence of the Nissan Works and consists largely of mudflats immediately north of the Nissan site. Two potential SNCIs are a pond and surrounding land at Straker Street at Grid Reference NZ 336647 and the River Don and adjoining banksides at Cemetery Road (Grid Reference NZ 333646). Both the River Tyne and the River Don are important wildlife corridors (Tyne and Wear Conservation Strategy 1994)

### **Site Description**

The site is urban with housing, public buildings, shops and industry. Although much of the area is built up, large scale landscaping has taken place in the past and there are many open areas of amenity grassland, shrub beds and trees. Some of these are in a formal setting alongside roads and in public parks but much of the landscaping has produced a natural appearance to public open space and to areas near the Tyne Tunnel entrances where the public are not admitted.

This more natural landscaping is now mature and rich in tree and shrub species. Many different native and exotic species have been planted in neutral grassland. Large areas of this grassland have been mown regularly and treated as amenity grassland but much has been left, particularly near trees and shrubs. In some areas the grassland has changed to a more 'weed dominated' ruderal habitat where young trees are regenerating.

Most of the length of the River Don has been developed to produce an attractive walkway and cycle route. The left bank of the upstream end of the river, near the Cemetery Road bridge, does not have a made up footpath and is less used. 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.

Two ponds have been created in the southern section of the site near the River Don. Both have been planted although the more northerly 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 (Straker Street) is immediately south of the A 185 between the A 185 and the railway. Both ponds are visited by members of the public.

A large area of land, on both sides of the A 19 road in the north of the site, is open grassland which has possibly developed on ground removed during the construction of the present tunnel. Footpaths cross this area but they appear to be little used. Entry to this area, under the Metro bridge, is not at all attractive.

## DESCRIPTION OF HABITATS

Phase 1 habitats are described using codes listed in the Phase 1 handbook (JNCC 1990). They are represented on the Phase 1 maps (Appendix 4) by the appropriate colour used in the Phase 1 handbook.

### **Broadleaved Plantation A 1.1.2**

Mature broadleaved plantations are located on land surrounding the northern entrance of the present Tyne Tunnel. Although the occasional *Pinus sylvestris* has been planted the majority of species are broadleaved so these plantations have been mapped as A 1.1.2. Trees planted include native species *Fraxinus excelsior*, *Sorbus aria*, *Pinus sylvestris*, *Ulmus glabra*, *Crataegous monogyna*, *Prunus avium*, *Populus spp*, *Sorbus aucuparia*, *Sambucus nigra*, *Alnus glutinosa*, *Salix spp*, as well as introduced species (i.e. species not considered to be truly native) such as *Acer pseudoplatanus*, *Acer platanoides*, *Sorbus intermedia*, *Chaemocypris lawsoniana*, *Tilia x europaea*.

Although some of the *Ulmus glabra* looked very healthy there were a few standing dead elms at this site (target note 3). These add considerably to the conservation value of this area by contributing dead wood habitat, a habitat which attracts a wide diversity of fungal and invertebrate species not usually found on living trees.

The ground between the areas of tree planting is kept mown but the field layer amongst the trees is species rich and dense with uncut vegetation.

Land between Jarrow Park and the waterfront has also been planted with trees (and shrubs), some of which are now mature. Trees include *Prunus padus*, *Betula pendula*, *Acer pseudoplatanus*, *Prunus avium*, *Alnus glutinosa*, *Quercus sp* whereas smaller shrub species include *Viburnum opulus*, *Sambucus nigra*, *Hippophae rhamnoides*, *Rosa canina*. Ground beneath these trees and shrubs is mainly dominated by grasses with *Taraxacum officinale*, *Heracleum sphondylium*, *Rubus fruticosus* (including ornamental brambles), *Anthriscus sylvestris*, *Rumex spp*, *Galium aparine*, *Ranunculus acris*. Some species of horticultural origin have also been planted e.g. *Narcissus sp*.

Trees planted at the top of road embankments comprise species such as *Salix spp*, *Pinus sylvestris*, *Betula pendula*, *Rosa canina*, *Sorbus aucuparia*, *Quercus sp*, *Fagus sylvatica*, *Acer pseudoplatanus* and *Populus spp*. All major road verges have associated tree and shrub habitats.

Much of the vegetation along the banks of the River Don is broadleaved trees, most of which have probably been planted. Although many trees are *Salix spp* some of the plantations comprise a wide diversity of species including *Crataegous monogyna*, *Acer pseudoplatanus*, *Betula pendula*, *Populus alba*, *Populus nigra italica*, *Aesculus hippocastanum*, *Alnus glutinosa* and *Rosa sp*. Between the Church Bank road bridge and the A 185 some of the mature trees are dead (possibly *Populus alba*) – target note 6.

Trees planted between the River Don north of the A 185 road include *Alnus glutinosa*, *Populus alba*, *Acer pseudoplatanus*, *Betula pendula*, *Sorbus aucuparia*, *Salix spp*, *Quercus sp* and *Populus tremula*. Although probably originally planted in neutral grassland this habitat has changed to ruderal vegetation under the shade of the tree

canopy. *Narcissus sp* and occasional *Hyacinthoides non-scripta* have also been planted here.

Trees planted along the railway embankment include *Populus spp*, *Betula pendula*, *Sorbus aucuparia*, *Sambucus nigra*, *Fraxinus excelsior* and *Acer campestre*.

Young broadleaved trees have recently been planted on the level ground at the top of the slope east of the Straker Street pond. These trees are between 2 and 4 m in height. Species include *Sorbus aria*, *Sorbus aucuparia*, *Fraxinus excelsior*, *Prunus padus*, *Salix spp* and *Populus tremula* in a small plantation near the railway line.

Some of the plantations in the amenity area east of the A 19 road in the southern part of the site are particularly mature and dense. The tree canopy is so dense that the field layer is suppressed. Tree species include *Sorbus aria*, *Acer pseudoplatanus*, *Alnus glutinosa*, *Sambucus nigra*, *Crataegous monogyna*, *Rosa canina* and the occasional *Pinus sylvestris*.

#### **Coniferous Plantation A 1.2.2**

The only stand of coniferous trees within the survey area is a stand of *Chaemocyparis lawsoniana* in the landscaped ground surrounding the northern entrance to the Tyne Tunnel. In addition occasional *Pinus sylvestris* trees contribute to some broadleaved plantations.

#### **Scattered Broadleaved Trees A 3.1**

Trees growing amongst the grass and ornamental shrub beds on amenity land and alongside roads include *Sorbus intermedia*, *Sorbus aucuparia*, *Acer pseudoplatanus*, *Betula pendula*, *Populus spp* and *Salix spp*.

Trees in the grounds of St Peter's School, Dunn Street School and the Grange Nursing Home include *Acer pseudoplatanus*, *Prunus avium* and *Aesculus hippocastanum*.

Scattered trees alongside the River Don include *Acer pseudoplatanus*, *Salix spp*, *Alnus glutinosa*, *Sorbus aria*, *Sorbus aucuparia*, *Malus domestica* agg, *Sambucus nigra* and *Populus spp* planted with scrub species *Crataegous monogyna* and *Hippophae rhamnoides*. These trees have most probably been planted, although some of the willows and a few hawthorn appear to be older and may pre-date the landscaping of the River Don.

Single young trees recently planted east of the pond in the Straker Street area, on the higher level ground, include four *Tilia x europaea* and *Acer pseudoplatanus*. A single *Prunus padus* grows near the Straker Street pond in the south-east corner. More young broadleaved trees have recently been planted west of this pond, nearer to the River Don.

Recently planted trees are also found alongside some of the roads, in particular the road between the roundabout of the A 185 (Straker Street) and the B 1297 (Priory Road).

Another area of recent broadleaved tree planting is the top of the baffle mound between the Nissan Works and the River Don. Also near here, but on the left bank of

the River Don, young *Sorbus intermedia* and *Sorbus aucuparia* have recently been planted.

Along the churchyard wall of the Jarrow Parish Church, in the south-west part of the survey area, mature trees include *Acer pseudoplatanus*, *Sorbus aucuparia*, *Crataegus monogyna* and the occasional *Ulmus glabra*. Scrub and *Rubus fruticosus* with ruderal herbaceous species including *Heracleum sphondylium*, *Anthriscus sylvestris*, *Galium aparine* and *Stachys sylvatica* cover the ground beneath the mature trees and lower down the slope towards an area of neutral grassland "meadow".

### **Scrub A 2**

This habitat of native scrub species is found throughout the survey area. In many places it has been planted e.g. alongside roads, and it often also comprises tree species as well as shrub species. However in most cases none of these young trees growing amongst the dominating shrubs has grown taller than 3 or 4 m. For this reason these areas have been mapped as scrub because the majority of species are scrub species but in a few years some of this habitat will be mature trees in scrub. Tree species include *Quercus sp*, *Fraxinus excelsior*, *Acer pseudoplatanus* and scrub species are *Crataegus monogyna*, *Sambucus nigra* and *Hippophae rhamnoides*. Where the plants are predominantly *Crataegus monogyna*, even if higher than 5 m, these areas have been included in this habitat category, in accordance with guidelines in the Phase 1 Handbook (JNCC 1990).

In many places the scrub species have been planted very close together and form a dense impenetrable thicket.

Larger stands of *Rubus fruticosus* are found near the bridge over the River Don at Church Bank; on the banks of the River Don at Cemetery Road; towards the top of the northern and eastern slopes around the Straker Street pond and next to the neutral grassland in the south-west of the site. These have also been mapped as scrub habitat in accordance with guidelines (JNCC 1990).

Areas which have been planted mainly with introduced and ornamental species have been mapped as introduced scrub (J 1.4). In some cases habitat J 1.4 includes native scrub species where these are not dominant.

Native scrub within the site boundary is mainly *Crataegus monogyna*, *Sambucus nigra* (and *Rubus fruticosus*) but small areas of *Ulex europaea* are found near the River Don in the upstream section of the survey area. *Cytisus scoparius* is also present near the River Don and in the Brewers Lane area in the northern part of the site. On the right bank of the River Don on a baffle near the Nissan Works, there appear to be several bushes of *Genista hispanica*. This is a species of horticultural origin which was in full bloom when the site was first visited. It is probably planted. Access is impossible to this part of the site so identification could not be confirmed.

*Rosa canina* is found throughout the survey area, but it never dominates the ground and *Corylus avellana* grows (probably planted) in the Cemetery Road area.

In the Brewer's Lane area and along the River Don several willow warblers were singing.

### Neutral Grassland B 2

A large expanse of this habitat is found in the north of the survey area, on either side of the A 19 and Brewers Lane. It is approached via Brewers Lane under the Metro Bridge. Although dominated by grasses there are areas of short perennial species amongst the grassland and taller ruderal species dominate some areas, particularly on sloping ground near the paths.

Much of the Brewers Lane grassland comprises fine leaved species such as *Cynosurus cristatus*, *Festuca ovina* and *Lolium perenne* but grassland shaded by scrub and taller ruderals near the eastern A 19 embankment comprises taller tufted species such as *Dactylis glomerata*, *Arrhenatherum elatius* and, particularly where the ground is badly drained, *Deschampsia cespitosa*.

Scattered scrub has colonised parts of this grassland near the A 19 embankment, particularly an area of *Cytisus scoparius* at the western end of the length of Brewery Lane which passes over the A 19 trunk road.

A small circular depression, badly drained, has been target noted (target note 1).

Other areas of neutral grassland, often with short perennial species, are found throughout the survey area, mostly alongside roads at the backs of verges where the grass is not mown, alongside tracks and in works car parks. In most cases these areas are too small to map.

South of the River Tyne neutral grassland is found extensively, both alongside roads and alongside the River Don walkway and cycle route. Neutral grassland is found everywhere where the grass is not kept regularly mown. Amongst planted trees this habitat often includes both grassland and ruderal species such as *Vicia cracca*, *Vicia sepium*, *Ranunculus acris*, *Plantago lanceolata*, *Trifolium repens*, *Trifolium pratense*, *Trifolium hybridum*, *Bellis perennis*, *Heracleum sphondylium*, *Anthriscus sylvestris*, *Galium aparine*, *Lamium album*, *Chamaenerion angustifolium*, *Cirsium arvense*, *Tussilago farfara*, *Senecio vulgaris*, *Pastinaca sativa*, *Centaurea nigra*, *Urtica dioica*, *Lamium purpureum*, *Rumex spp*, *Artemisia vulgaris*, *Equisetum arvense*, *Convolvulus arvensis* and occasional *Linum perenne*. The invasion of ruderal species often occurs as a result of the shading effect of the closing tree canopy.

In wetter parts of the amenity land between the A 185 road and the River Don, where the grass beneath the trees had not been cut, plants of *Dactylorhiza purpurella* were in flower at the time of the survey (target note 5). Unfortunately some of the grass where this species grows has been mown and many of the orchids have been prevented from flowering. Some of this amenity grassland was outside the survey area, but the orchids had been mown here as well.

Neutral grassland is found on the sloping ground around the Straker Street pond area. At this site part of the steep eastern grassy slope nearest the railway line is dominated by grasses with only a few dicotyledonous species. The grassland at the top of the slope on the level ground east of the pond area comprises grasses such as *Dactylis*

*glomerata*, *Holcus lanatus* and *Alopecurus pratensis* with *Rubus fruticosus*, *Anthriscus sylvestris*, *Heracleum sphondylium*, *Cirsium arvense*, occasional *Linaria vulgaris*, *Angelica sylvestris*, *Lotus corniculatus*, *Lotus pedunculatus*, *Equisetum arvense*, *Ranunculus acris*, *Lathyrus pratensis* and *Vicia cracca*.

The neutral grassland below the churchyard wall and adjacent to the northbound carriageway of the A 19 trunk road was species-rich and very colourful at the time of survey (target note 14). It had not been cut and species include *Ranunculus acris*, *Taraxacum officinale*, *Trifolium pratense*, *Trifolium hybridum*, *Anthriscus sylvestris*, *Trifolium campestre*, *Vicia sepium*, *Rumex acetosa*, *Stellaria media* with *Alopecurus pratensis*, *Anthoxanthum odoratum*, *Festuca rubra* and *Agrostis tenuis*. This area is probably treated as a "meadow" and not cut until later in the summer in order to maintain its species diversity. The grassland on the upper slopes of this meadow is dominated by coarser grasses such as *Arrhenatherum elatius* and *Dactylis glomerata*. This area appears not to be mown at all and bramble scrub and ruderal 'weed' species are invading in places.

The right bank of the downstream section of the River Don had to be viewed from inside the perimeter fence at the Nissan works. Neutral grassland within the perimeter fence appeared to be very similar to the vegetation outside the fence but included two species not seen within the survey area i.e. viper's bugloss (*Echium vulgare*) and red valerian (*Centranthus rubra*). The Nissan Works incorporate a tributary of the River Don and these two very attractive species, found growing alongside the tributary near its confluence with the River Don, may appear at some time within the survey area. The neutral grassland on both banks of the lower reaches of the River Don is particularly species rich with the addition of species found in more maritime habitats such as *Plantago maritima* and *Daucus carota*.

At least five pairs of skylarks were observed in the neutral grassland in the north of the site.

### **Marshy Grassland B 5**

Marshy grassland is found next to the River Don (described in more detail separately – reference YOUNG NATURE OV 83b. River Don Corridor); west of the pond in the Straker Street area and adjacent to the pond between the River Don and the Church Bank road. Most of the area west of the Straker Street pond, which had been mapped as marshy grassland in a previous survey (Owen 1999) was here mapped as neutral grassland. Although the ground was wet in places, none of the species characteristically found in marshy grassland were present.

In marshy grassland areas species include *Juncus effusus*, *Phalaris arundinacea*, *Oenanthe crocata*, *Ranunculus acris*, *Ranunculus repens* and *Epilobium hirsutum*. *Cardamine pratensis* grows beneath alder trees in an extensive area of marshy grassland in the Cemetery Road area (target note 12). *Stachys palustris* was also found to be growing there. The marshy grassland at Cemetery Road also included taller perennials and ruderal species e.g. *Pentaglottis sempervirens* (probably of horticultural origin), *Urtica dioica*, *Lamium album*, *Potentilla anserina*, *Tussilago farfara*, *Cirsium arvense*, *Heracleum sphondylium*, *Chamaenerion angustifolium* and *Rumex crispus* so this area of marshy grassland may be becoming drier as a result of invasion by these species.

### **Bracken C 1**

Only one patch of bracken is present in the survey area. A stand which is approximately 16 m x 8 m is found on the left bank of the River Don in the Cemetery Road area. Between this area of *Pteridium aquilinum* and a patch of *Rubus fruticosus*, soil and garden rubbish have been dumped (target note 10)

### **Tall Ruderal C 3.1**

Tall ruderal or "weed" vegetation has been mapped north of the River Tyne. At the time of the survey this habitat was dominated by swathes of *Anthriscus sylvestris*. However other species such as *Rumex obtusifolius*, *Chamaenerion angustifolium*, *Cirsium arvense* and *Urtica dioica* will most probably dominate some of these areas later in the summer. These areas are found mainly on sloping ground near the paths and in shadier areas near tree plantations.

Ruderal species in the lorry park behind The Gas Light Public House include *Chamaenerion angustifolium*, *Rubus fruticosus*, *Linaria vulgaris*, *Plantago spp*, *Senecio jacobaea*, *Heracleum sphondylium* and *Reynoutria japonica*.

The ground beneath many of the maturing plantations was probably originally sown as neutral grassland but under the shade of the tree canopy it is now often dominated by ruderal species including coarser grasses, *Anthriscus sylvestris*, *Heracleum sphondylium*, *Urtica dioica*, *Rumex spp* and *Chamaenerion angustifolium*. Seedling trees such as *Quercus sp* are also found.

Alongside the River Don ruderal species include those found elsewhere on the site but *Reynoutria japonica*, *Heracleum mantegazzianum* and *Oenanthe crocata* also grow here. *Artemisia absinthum* is also found here at either side of the footbridge which is downstream from the A 185 road and in a few other places at the sides of the River Don. These species were found nowhere else within the site boundaries. *Reynoutria japonica* and *Heracleum mantegazzianum* are found in several places upstream from the Church Bank Bridge. Their present locations are shown in more detail in a separate river corridor report (YOUNG NATURE Ov 83b.River Don Corridor)

Ruderal species are becoming more frequent as they invade the neutral grassland near the Straker Street pond and along the River Don. *Anthriscus sylvestris* dominates the ground at the eastern boundary and in many other places near the River Don. Large areas of *Urtica dioica* have also invaded the marshy grassland alongside the River Don at Cemetery Road. Other invading ruderal species near the River Don include *Chamaenerion angustifolium* and *Cirsium arvense*.

Much of the marshy grassland which was previously mapped west of the Straker Street pond (Owen 1999) has here been mapped as neutral grassland and ruderal vegetation.

A peacock butterfly was observed on *Urtica dioica* plants growing in the flat ground alongside the River Don at Cemetery Road. It is likely that this area supports large populations of butterflies later in the summer. An orange tip butterfly was also flying in this vicinity, possibly attracted to *Alliaria petiolata* which also grows here.

### **Marginal Vegetation F 2.1**

Marginal vegetation habitat comprises a stand of *Phragmites communis* adjacent to the River Don (target note 4) and an area, approximately 8 m x 3 m, of *Calamagrostis sp* at the eastern end of the Straker Street pond (target note 8). This species had no sign of flowering shoots at the time of survey but its non-flowering vegetation resembled both *Calamagrostis epigejos* (wood small-reed) and *Calamagrostis canescens* (purple small-reed). This stand may be a hybrid species. *Phalaris arundinacea*, *Epilobium hirsutum* and *Carex acutiformis* grow in small stands alongside the River Don in the more upstream sections and a stand of *Typha latifolia* grows here as well, on the left bank a few metres downstream from the Cemetery Road bridge (target note 13).

### **Pond G 1**

Two ponds are situated within the survey area.

A pond adjacent to Church Bank near the bridge over the River Don, has been created with two vegetated islands, one with a tree (*Salix sp*), and appears to have been planted with native and exotic species. Other species have possibly arrived more naturally. Although the field survey took place before many species of aquatic plant had emerged above water level, aquatic and semi-aquatic plants present included *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.

The Straker Street pond is much larger and had just been used for canoeing at the time of the first of two visits for this survey. Fewer aquatic plant species are in evidence here when compared with the Church Bank pond and algae was suspended in the water at the eastern end. Species include *Ranunculus sceleratus*, *Elodea canadensis* and *Potamogeton crispus*. A large mature *Salix fragilis* dominates the eastern end of this pond. Marginal species include *Phalaris arundinacea* and a stand of *Calamagrostis sp* approximately 8 m x 3 m at the eastern end of the pond. This species had been reported at a meeting between Ove Arup and South Tyneside Council in January 2000. It had no inflorescence visible at the time of this survey but its vegetation exhibited characteristics of both *Calamagrostis epigejos* (wood small-reed) and *Calamagrostis canescens* (purple small-reed) (target note 8).

This 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.

The Church Bank pond contained frog tadpoles and was home to a mallard duck with one duckling.

Although the water of the Straker Street pond contained much suspended silt at the time of the first visit, a moorhen was swimming on the surface. Swallows were flying over this pond and a frog was seen in the pondside vegetation.

A period of quiet observation at this pond produced no sighting of a water vole. The absence of many emergent plants and the periodic disturbance of the water by children do not make this pond ideal water vole habitat. However a water vole has been recorded here (meeting between Ove Arup and South Tyneside Council January 2000). The nearness of the River Don, and some planting of suitable plant species in the future, would greatly improve this pond for wildlife.

### **Running Water G 2**

The shores of the River Tyne comprise cobbles with areas of sand and gravel and are described as intertidal habitat H 1.

The River Don habitat is partly tidal and is vegetated throughout much of its length within the site by saltmarsh species such as *Aster tripolium*, *Plantago maritima* and *Cochlearia officinalis* as well as emergent marginal species e.g. *Phragmites communis* (target note 4), *Carex acutiformis*, *Phalaris arundinacea* and *Typha latifolia* (target note 13). Green *Enteromorpha sp* algae is frequently found at the high tide mark in the lower stretches.

Above the muddy banks of the River Don are several habitats including neutral grassland; areas of tall ruderal vegetation including *Reynoutria japonica* and *Heracleum mantegazzianum* and the extremely poisonous *Oenanthe crocata*; an area of *Pteridium aquilinum* as well as trees and shrubs. Many of the trees are mature and it is not known whether they were all planted. They have been mapped as scattered trees and shrubs as well as plantation because they include non-native species. In some places the trees and shrubs, particularly some *Salix cracca* and *Crataegus monogyna*, appear to be older than other trees and may represent a former more natural habitat. Along some parts of the river banks the trees overhang the water.

During the second site visit to the River Don at Cemetery Road, a water vole was seen swimming a short distance alongside the left bank about 15 m upstream from the footbridge. This animal disappeared into a riverbank burrow (target note 9).

Families of mallard ducks were seen swimming and were disturbed in the marshy vegetation beside the River Don at Cemetery Road, where they probably nested.

A heron was also observed flying away from the River Don at Cemetery Road. A pied wagtail was also seen here.

### **Intertidal H 1**

The intertidal zone of cobbles with occasional sand and gravel along the River Tyne is polluted with rubbish including bricks and tyres. A large number of rubber car tyres on the right bank of the river are searched systematically and productively every day for shore crabs to be used as bait for fishing. Occasionally ragworms are also found at low tide. Occasional empty mussel and cockle shells are found on the shore. *Senecio squalidus* grows on the wall embankment and the seaweeds *Fucus vesiculosus* and *Enteromorpha sp* are also present.

The intertidal mud habitat is located alongside the River Don upstream as far as St Paul's Bridge with *Fucus vesiculosus* and *Enteromorpha sp* present in the lower reaches. In downstream sections there are flat areas of mud exposed at low tide but further upstream the mud habitat forms vertical or steeply sloping sides to the river.

At the time of survey the only bird seen was a herring gull.

#### **Saltmarsh H 2.6**

Saltmarsh vegetation, in particular *Cochlearia officinalis* is found throughout most of the length of the River Don within the site surveyed. Situated immediately above the intertidal mud on both sides of the river channel plants include *Aster tripolium*, *Plantago maritima* and *Cochlearia officinalis* which form a narrow zone between the mud and neutral grassland. Scattered communities of *Cochlearia officinalis* occur further upstream than the tidal zone. Several plants of *Armeria maritima* were found on the left bank opposite the tributary of the River Don which flows next to the Nissan Works. *Elymus pycnanthus* grows upstream from Church Bank and *Plantago maritima* was seen throughout the grassland of the lower reaches of the River Don. Other plants with an affinity for maritime conditions which were seen during this survey include *Atriplex patula* and *Daucus carota*.

#### **Amenity Grassland J 1.2**

Amenity grassland is grassland which is regularly mown. It has usually been sown with a species mix suitable for amenity use and is not particularly species rich. Large areas of this habitat are found throughout the survey site at Jarrow Park; in land at the entrances to the Tyne Tunnel and in land adjoining major roads; alongside the River Don walkway and cycle route and in land adjacent to houses. Species include *Lolium perenne*, *Trifolium repens* with *Bellis perennis*, *Taraxacum officinale*, *Plantago lanceolata* and *Veronica chamaedrys*.

Amenity grassland is also found associated with public buildings including St Peter's School, Dunn Street School and the Grange Nursing Home.

Large areas of neutral grassland between the A 185 road and the River Don are regularly mown and have been managed as amenity grassland. This area includes typical species of such areas such as *Bellis perennis*, *Taraxacum officinale* agg, *Lotus corniculatus*, *Trifolium dubium*, *Trifolium pratense* and *Trifolium repens* but occasionally orchids (*Dactylorhiza purpurella*) are found. Unfortunately these plants are being damaged by the mowing regime (target note 5).

One area of amenity grassland on the right of the River Don, between the River Don at Cemetery Road and the Jarrow Parish Churchyard had been re-seeded at the time of survey (target note 11).

Much of the grassland along the River Don cycleway and footpaths has been mapped as amenity grassland because it is regularly mown. In places the grassland is badly drained and supports *Ranunculus repens* and rosette forming species such as *Bellis perennis* and *Plantago spp*. In some places there is little or no grass, merely bare mud. These areas have also been mapped as amenity grassland rather than marshy grassland because they do not support typical marshy grassland species.

### **Ephemeral/Short Perennial J 1.3**

Habitat dominated by short perennial species such as *Tussilago farfara*, *Medicago lupulina*, *Lotus corniculatus*, *Bellis perennis*, *Trifolium repens* and *Plantago lanceolata* with little grass are found in neutral grassland areas north of the river as well as in part of the parkland in Jarrow Park.

### **Introduced Shrub J 1.4**

Formal beds of introduced shrubs have been planted around the northern entrance to the Tyne Tunnel, in parks and public amenity open space and on some of the roundabouts. Species include *Cotoneaster sp*, *Berberis sp*, *Juniperus sp*, *Prunus laurocerasus*, *Mahonia sp*, *Kerria sp*, *Escallonia sp*, ornamental *Rubus fruticosus* and a pink-flowering cultivar of *Crataegous laevigata*. A small formal shrub bed is also present in the Amec Yard. In Jarrow Park formal shrub beds border the footpaths.

### **Ditch J 2.6**

Only two ditches found during the survey supported wetland vegetation. A few plants of the rush *Juncus effusus* and *Epilobium hirsutum* grow in a ditch east of Straker Street pond (target note 7). Other ditches seen in this vicinity were choked with coarse grasses and other vegetation from the surrounding habitat so it is possible that some of the ditches on the site were overlooked during the survey.

Another prominent ditch was found crossing an area of flat marshy grassland in the Cemetery Road area.

### **Bare Ground J 4**

This habitat has been mapped around the gas holder south of the River Tyne, where it consists of gravel, and in a nearby lorry park behind The Gas Light Public House. Bare ground is also found on the island in the lower part of the River Don. Some of this may be intertidal mud.

## **ASSESSMENT OF THE SITE**

The survey area includes two SNCIs, part of Jarrow Slake and the River Don Saltmarsh and two potential SNCIs, Straker Street and Cemetery Road. All SNCIs are protected in the South Tyneside Unitary Development Plan.

The River Tyne and River Don are also parts of important wildlife corridors (Tyne and Wear Strategy 1994).

The lower stretches of the River Don and the River Tyne are tidal and contribute brackish water, saltmarsh and intertidal habitats. The intertidal mudflats at Jarrow Slake and the lower reaches of the River Don represent a locally rare habitat and are important feeding and roost sites for waders, terns and gulls (ref Jarrow Slake SNCI May 1998). A mudflat community of invertebrates is easily damaged by changing water levels, pollution and excessive disturbance of the substrate. At this site this would potentially put a valuable feeding resource at risk. This mudflat habitat has already been severely reduced in size here making the remaining mudflats even more important for wildlife.

Saltmarsh too is a fragile habitat and saltmarsh communities are also very rare in the region. These areas are of high local and regional nature conservation interest.

The site surveyed is in the middle of the Tyneside conurbation and contributes a large area of vegetation to this built up area. Most of the survey site has been landscaped and does not represent "natural" countryside. However much of it has matured and provides a valuable resource for local people and for wildlife.

As a result of landscaping the tree species used are very diverse and include both native and exotic species. In any one part there are more different tree species than would be found in a natural environment. Different trees are host to different invertebrate species and these in turn attract different species of birds and other predators. For this reason the bird population is likely to be more diverse than would normally be expected.

Although the tree communities in different parts are diverse they are mostly uniform across the site i.e. everywhere plantations comprise the same wide diversity of tree species. The only places where a more restricted species diversity is found are the River Don corridor where waterside willows fringe the banksides and clumps of hawthorn and occasional clumps of alders are growing. All landscaped trees have originally been planted in neutral grassland and this too contains the same suite of species across the site. The grass has been allowed to grow longer in many places providing excellent habitat for small mammals, ground living invertebrates and their predators.

However with maturity these habitats are changing and many grassland areas are becoming invaded with ruderal "weedy" species and with brambles and scrub. The trees are now mature enough for them to produce seedlings, many of which may be found in the unmown habitat between the trees.

Most of the site is well used as amenity area by local people but large areas of landscaped habitat are not appropriate for access, particularly around the northern entrance to the present Tyne Tunnel. For this reason these areas are particularly valuable as wildlife havens.

As mentioned, the maturing landscape is producing a range of habitats by natural succession. Two ponds also add to this habitat diversity. Ponds are regarded as a priority habitat in the Durham Biodiversity Action Plan because they have suffered a huge decline (more than 75% lost) over the last hundred years.

A few trees appear to older than the planted trees, particularly the crack willow at the Straker Street pond, occasional willows and hawthorn near the River Don and trees alongside (and within the walls of) the Jarrow Cemetery. Age diversity is also important in any habitat and these few trees contribute an older age element to the trees planted for landscaping purposes and to the young seedlings already becoming established. The importance of this age difference of trees will increase in the future as some of the trees will start to decay and produce a dead wood habitat. A dead wood habitat is not common in built up areas but supports a large number of species. Dead wood habitat has already appeared amongst some of the wych elm trees in the

northern part of the site, where there is no public access, and near the River Don (target notes 3 and 6).

Much of the importance of the site for wildlife is centred around the River Don which provides an important wildlife corridor (Tyne and Wear Conservation Strategy 1994). Here landscaping has greatly improved the value of this aquatic habitat by adding planted trees and shrubs with grassland to the vegetation which was already present.

The maturing landscape has added considerably to the nature conservation value of the whole site.

Four faunal species of conservation importance were observed – water vole, skylark, song thrush, and frog.

#### **Status and Protection of the Water Vole (*Arvicola terrestris*)**

Numbers of water voles have declined (Strachan and Jefferies 1993). The species is listed in the Mammal Red Data Book (Morris 1993) and is on the UK short list of priority species in need of conservation action. A national Species Action Plan has been produced by the UK Biodiversity Steering Group (1995) because numbers are estimated to have dropped to 1,200,000. For this reason the presence of water vole at this site is of great local importance and the first tranche of the Durham Biodiversity Action Plan (1999) includes a plan for the water vole.

The Species Action Plan provides guidance on water vole conservation. According to the Species Action Plan, current factors causing loss or decline include:

- Loss and fragmentation of habitats
- Disturbance of riparian habitats
- Predation by mink
- Pollution of watercourses and poisoning by rodenticides

Permanent water and the slow-flowing nature of parts of the River Don with the occasional meander provide ideal conditions for water voles. A single water vole (target note 9) was seen during the course of this survey from the footbridge at Cemetery Road and an individual has been reported from the Straker Street pond, although no signs were seen during this survey. Dense bankside vegetation in places provides cover and protection from predators which may include mink, heron (presence at this site confirmed), fox, badger and domestic cats (presence confirmed).

The water vole (*Arvicola terrestris amphibius*) is protected under Schedule 9 (parts 4a and 4b) of the Wildlife and Countryside Act 1981. Under this Act the presence of water voles must be taken into account when their habitat is under threat by intentional activities which destroy, obstruct or damage sites where water voles are present.

A water vole survey and appropriate mitigation measures should be undertaken in accordance with recommendations in the Water Vole Conservation Handbook (Strachan 1998). Measures could also be taken to improve this habitat for water voles.

#### **Status and Protection of the Skylark**

The skylark (*Aluada arvensis*) is listed on the UK short list of species of conservation importance in need of protection. A national action plan (1995) has been produced and

it is listed in the Red Data book for Northumberland, which covers North Tyneside (Kerslake 1998). It is listed on the British Trust for Ornithology High Alert list (BTO 1997) and the national Red List (RSPB 1996). Although it has not suffered so much in this area as it has nationally, it is not usual to find this species in urban areas. At least five pairs were seen and heard to be proclaiming territory in the northern part of the survey area. It is unusual to find such a large expanse of undisturbed grassland in a built up area.

The skylark is protected under the Wildlife and Countryside Act (1981) which makes it an offence to damage or destroy its nest whilst being built or in use or its eggs.

#### **Status and Protection of the Song Thrush**

The song thrush (*Turdus philomelos*) is listed on the UK short list of species of conservation importance in need of protection. A national action plan (1995) has been produced and it is listed in the Red Data Book for Northumberland (Kerslake 1998). It is listed on the British Trust for Ornithology High Alert list (BTO 1997) and the national Red List (RSPB 1996). It is still quite common in this area but suffers from continued loss of habitat and pesticide use. The song thrush may benefit at the study area by the wide diversity of tree and shrub fruits which serve as food to replenish energy supplies in migrating birds when they arrive in the autumn. The large areas of amenity grassland which are kept mown during the breeding season also give provision for the easy retrieval of worms. Longer grass will provide a source of slugs and snails, a favourite food.

The song thrush is protected under the Wildlife and Countryside Act (1981) which makes it an offence to damage or destroy its nest whilst being built or in use or its eggs.

#### **Other Bird Species**

The herring gull, blackbird, willow warbler, pied wagtail and swallow, seen during this survey, are also listed on the Amber list of birds of conservation concern (RSPB 1996).

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In addition the kingfisher and various species of duck were reported during a meeting between Ove Arup and South Tyneside Council in January 2000.

The kingfisher is listed on the RSPB Amber list of species of conservation importance (1996) because of its unfavourable conservation status in Europe.

Many species of ducks and waders are listed on the Amber list (and Red list).

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#### **Status and Protection of the frog**

The common frog (*Rana temporaria*) is on the UK national long list of species in need of protection and a local biodiversity action plan is being prepared for the second tranche of Durham Action Plans.

## Plants

A stand of a small-reed (*Calamagrostis sp*) is located on the eastern bank which slopes down to the Straker Street pond (target note 8). This is a rare plant in the region and may have been planted. The wood small-reed *Calamagrostis epigejos* is described by Graham (1988) as a native and a colonist and rare though abundant to profuse where it does occur.

Perennial flax (*Linum perenne*) is listed as a priority species for a local action plan (1999) but no plan has yet been produced. Graham (1988) describes it as very rare and at its northern limit.

A plant found in the Church Bank pond, fine-leaved water dropwort (*Oenanthe aquatica*), is described by Graham as being very rare (only one known location). It has probably been planted in this pond.

Common scurvy grass (*Cochlearia officinalis*) and sea couch grass (*Elymus pycnanthus*) are described by Graham (1988) as rare, though sometimes abundant.

Other species of interest which are recorded in this survey are black horehound (*Ballota nigra*), viper's bugloss (*Echium vulgare*) and red valerian (*Centranthus ruber*), although the two latter species were only seen east of the Nissan fence, just outside the survey area. *Ballota nigra* and *Echium vulgare*, as well as marsh woundwort (*Stachys palustris*) and sea pink (*Armeria maritima*) are described by Graham (1988) as occasional. *Centranthus rubra* is a very attractive species which is introduced from the Mediterranean.

Two non-native species which are extremely invasive are the giant hogweed (*Heracleum mantegazzianum*) and Japanese knotweed (*Reynoutria japonica*). They are found in several places along the River Don (see separate report Ov 83b) and should be eliminated if possible. The former species is particularly dangerous to touch, containing furocoumarins which cause hypersensitivity to the sun resulting in disfiguring skin blisters. Both species have devastating effects on the local native vegetation. Two other species found in areas which are well used by local people are hemlock water dropwort (*Oenanthe crocata*) and *Laburnum anagyroides*. Both species are extremely poisonous. The former species is described as occasional by Graham (1988).

A stand of bracken (*Pteridium aquilinum*) in the Cemetery Road area is also a threat to the adjacent plant communities (target note 10). At present it forms an additional habitat but it is likely to spread very quickly along the riverbanks, obliterating other vegetation.

Garden rubbish has also been dumped in the Cemetery Road area (target note 10). This too threatens the species diversity of a potential Site of Nature Conservation Importance by encouraging the spread of 'weed' species and possibly attracting rats.

## SUMMARY

- The survey area includes two SNCIs, part of Jarrow Slake and the River Don Saltmarsh and two potential SNCIs, Straker Street and Cemetery Road. All SNCIs are protected in the South Tyneside Unitary Development Plan.
- The River Tyne and River Don are also parts of important wildlife corridors (Tyne and Wear Strategy 1994).
- Intertidal and saltmarsh habitats are very rare locally and fragile. These areas are of high local and regional nature conservation interest. They are easily damaged by changing water levels, pollution and excessive disturbance of the substrate. At this site this would potentially put a valuable feeding resource for gulls, terns and waders at risk. This mudflat habitat has already been severely reduced in size here making the remaining mudflats even more important for wildlife.
- Two ponds add to the habitat diversity of the site. Ponds are regarded as a priority habitat in the Durham Biodiversity Action Plan.
- The site contributes a large area of vegetation, with many different habitat types, to this built up area. Most of the survey site has been landscaped and has matured to provide a valuable resource for local people and for wildlife.
- Landscaping has used a wide diversity of both native and exotic tree and shrub species which in turn attract a large number of different bird species. Management of the open space areas has also helped to increase the number of different habitats.
- Three faunal species of high importance were observed – water vole, skylark, song thrush.
- The presence of water voles may require a separate specific survey.
- Several other birds seen during the survey are on the Amber list.
- Tadpoles were seen at the Church Bank pond and a frog was seen near the Straker Street pond. This species is also of conservation concern.
- A number of plant species are described as rare in the region including *Calamagrostis sp*, *Linum perenne*, *Oenanthe aquatica*, *Cochlearia officinalis* and *Elymus pycnanthus*. Some of these may have been planted.
- Three species present could cause devastating effects on the nearby native vegetation; *Reynoutria japonica*, *Heracleum mantegazzianum* and *Pteridium aquilinum*.
- *Heracleum mantegazzianum* can cause painful skin blisters when touched and *Oenanthe crocata* and *Laburnum anagyroides* are extremely poisonous.

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