

Rivers, Canals, Oxbows, Major Streams and Subsidence Flashes (RCF)

Habitat Action Plan

Doncaster Local Biodiversity Action Plan
January 2007



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Doncaster
Biodiversity
Action Partnership

1. Description

1.1 Within Doncaster, the River Don is the main large river, but its tributaries and other rivers such as the Idle, Torne, and Went are also important. The course of the Don contains a number of oxbows, now cut off from the river and there are several important subsidence flashes formed as a result of mining and river engineering. This Habitat Action Plan includes rivers, oxbows and subsidence flashes and, due to the close links between the navigation system and the river, the Habitat Action Plan also covers canals as a slow-flowing riparian environment.

1.2 Flowing water habitats and associated floodplain wetlands include aquatic habitats ranging from swiftly flowing rivers to slow, sluggish canals. The river valleys also include a number of wetland sites such as cut-off oxbows and riverside marshes. Rivers and canals support a diverse range of plants and animals including **otter** (*Lutra lutra*), **water vole** (*Arvicola terrestris*), **water shrew** (*Neomys fodiens*), and waterfowl such as grebes (*Podiceps spp.*), **swans** (*Cygnus spp.*), coot (*Fulica atra*), moorhen (*Gallinula chloropus*) and mallard (*Anas platyrhynchos*). Riverbanks provide nesting habitat for the elusive **kingfisher** (*Alcedo atthis*) and **sand martins** (*Riparia riparia*) will also burrow in sandy riverbanks. **Grey wagtails** (*Motacilla cinerea*) are typically seen bobbing up and down rivers, and **reed buntings** (*Emberiza schoeniclus*) are also frequent foragers. Riffles and pools support aquatic species and exposed sediments and shingle bars are important for a range of invertebrates and are also important fish spawning sites. Marginal and bank side vegetation support a variety of wild flowers and animals and the riverbank often provides a corridor linking fragmented habitat in otherwise intensively-farmed areas. Overhanging banks are particularly good for mining bees to make their solitary nest sites.

1.3 Rivers in the Doncaster area support a limited range of National Vegetation Classification (NVC)¹ aquatic plant communities including A2 *Lemna minor*, A9 *Potamogeton natans*, A12 *Potentilla pectinatus*, A15 *Elodea canadensis* and A16 *Callitriche stagnalis* in slower-flowing sections and backwaters and in controlled watercourses such as the Ea Beck and the Torne. Many sections of the main river have steep, and in places undercut, banks but where riverbanks slope more gently down to the water's edge narrow strips of swamp communities line the non-tidal river sections. These swamp communities include S4 *Phragmites australis*, S5 *Glyceria maxima*, S6 *Carex riparia*, S8 *Scirpus lacustris*, S12 *Typha latifolia*, S14 *Sparganium erectum*, S16 *Sagittaria sagittifolia*, S20 *Scirpus lacustris* spp. *tabernaemontani*, S23 *Other water-margin vegetation* and S28 *Phalaris arundinacea*. The Lower Don is tidal and as a result has a surprisingly large tidal range, which exposes steep mud banks at low tide. The dominant vegetation of these areas is S4 *Phragmites australis*. This Habitat Action Plan should also be taken to cover any major streams that are classified as rivers in terms of management responsibility, i.e. any large stream under the jurisdiction of the Environment Agency, including the Skell, Hampole Dike, Ea Beck and the River Went.

1.4 The slower flow conditions in Doncaster's canals should allow the establishment of a greater amount of aquatic, emergent and swamp vegetation. However, due to fact that many sections of canal are in embanked channels high above the surrounding farmland, problems of bank stability and leakage means that much of the canal system has been re-enforced with metal sheet-pile edging.

¹ Rodwell, J.S. (1995), *British Plant Communities (Volume 4) Aquatic Communities, Swamps and Tall-herb Fens*. Cambridge

1.5 The National Vegetation Classification (NVC) aquatic vegetation communities of the open canal include A1 *Lemna gibba*, A2 *Lemna minor*, A5 *Ceratophyllum demersum*, A6 *Ceratophyllum submersum*, A11 *Potamogeton pectinatus* – *Myriophyllum spicatum*, A12 *Potamogeton pectinatus*, A13 *Potamogeton perfoliatus* and A15 *Elodea canadensis*. Emergent vegetation which does survive on the landwards side of the sheet piling canal edges and in riverside washlands includes narrow stands of S4 *Phragmites australis*, S5a *Glyceria maxima*, S5b *Glyceria maxima* – *Alisma plantago-aquaticum* sub community, S12 *Typha latifolia*, S14 *Sparganium erectum*, very rarely, S16 *Sagittaria sagittifolia*, and S18 *Carex otrubae*.

1.6 Riverside washlands such as those at Bentley Ings SSI 3.30 (Site of Scientific Interest)² support limited populations of the locally uncommon greater duckweed A3 *Spirodela polyrhiza*. Other notable plants of Doncaster lowland rivers and canals include **great water parsnip** (*Sium latifolium*), greater tussock sedge (*Carex paniculata*), unbranched bur-reed (*Sparganium emersum*) and perfoliate pondweed (*Potamogeton perfoliatus*).

2. National status

2.1 Natural rivers are dynamic systems, undergoing constant modification of course and form. In many cases man-made flood defences or impoundments have arrested these natural geomorphological processes. Few rivers in the UK have not been physically modified by human intervention. Historically, rivers have formed the backbone of life throughout the country, but as a result have suffered many indignities, including use as open sewers and dumping grounds or the complete re-routing of major lengths of river. Despite this habitat degradation they still form vital wildlife corridors and support a wide range of animals and plants.

² DMBC, Re-survey of Sites of Scientific Interest in the Doncaster Metropolitan Borough 1996/97, Volumes 1-9

3. Local status

3.1 The Doncaster Borough does not have any unmodified rivers, and virtually all channels of the main rivers have been altered in some way.

3.2 The River Went forms the northern boundary of the Doncaster Borough, from a point just below Brockadale SSSI (Site of Special Scientific Interest) - a limestone gorge near at Kirk Smeaton, to its confluence with the River Don at Went Green. Parts of the upper river have been straightened and meander sections bypassed by new embanked channels. The main meander cut-off is designated as the River Went Oxbow (SSI 7.23) however; its biodiversity value has been significantly reduced by progressive drying out and eutrophication. Other SSIs that include short sections of the river are located to the southern side of the river between Fenwick and Topham, at The Park near Sykehouse, and fields at Eskholme. Went Ings Meadows SSSI lies in the lower reaches of the river, on the southern bank of the Went.

3.3 The name Ea Beck is given to the combined flows of The Skell and Hampole Dike, which have their confluence near the Humber Head Bridge and flows to the River Don at Thorpe In Balne. According to Rackham (1986)³ the word 'Ea' is an Anglo-Saxon term used to refer to an artificial drainage channel in the Fenlands, rather than the assumed derivation from the French 'Eau'. The Old Ea Beck flows eastwards in a highly engineered and embanked channel. Within the upper River a small pocket of wetland and Wet Woodland at Size Ings (SSI 3.3) possibly represents an old route of the Beck. This course of the Beck has been greatly affected by mining subsidence and the banks have had to be raised in recent years and new pumps added to maintain arable agriculture on the low lying farmland on both banks. There are numerous flooded borrow pits and water-filled 'foot drains' along the whole route of the Beck and their biodiversity value is recognised by their designation as Bentley Tilts and Course of Old Ea Beck (SSI 7.25a). This SSI covers the mid section of the Ea Beck. Ponds in this area are known to

³ Rackham, O. 1986. The History of the Countryside. Dent, London.

support populations of **great crested newt** (*Triturus cristatus*). The Beck flows around the large ash heap at Thorpe Marsh (formerly a YWT Reserve and SSI) and the borrow pits in the area are particularly rich in wetland plants including great water dock (*Rumex hydrolapathum*). This lower section of the Beck and associated washlands and spillways near Almholme are included within the Norwood (SSI 3.20), Tilts Drain and Old Ea Beck SSIs (SSI 3.19).

3.4 A short section of the River Dearne flows through the western tip of the Doncaster Borough. The upper Dearne has a number of washlands operated by a barrier, or flow regulator, which can be raised across the river. Much of the upstream sections of the River Dearne have been severely affected by coal mining, and many sections have been re-routed to run in an entirely artificial straight channel. The section that flows from Adwick-upon-Deerne to the Don at Denaby is no exception. However recent work instigated by the Environment Agency's Fisheries Section reinstated many more natural river features including meanders and backwaters and has significantly improved the biodiversity value of the river. Mexborough Low Pasture (SSI 5.5) lies close to this improved section of river. The Doncaster section of the Dearne is unusual in that the original meandering channel remains as a broad flowing watercourse, although the lowest section has been affected by subsidence. This subsidence has created a significant area of open water, fen, swamp and wet woodland at Denaby Ings and the area has been designated a SSSI.

3.5 The River Don is the primary navigable waterway in the Doncaster Borough, augmented by the Stainforth and Keadby Canal that links with the Trent, and the New Junction Canal that links to the Aire and Calder Navigation. The river enters the Doncaster Borough at Mexborough and flows in parallel with the Swinton section of the Sheffield and South Yorkshire Navigation Canal. River meanders severed by the construction of the Doncaster to Sheffield railway line and mining subsidence near Old Denaby have created two floodplain wetland sites with significant biodiversity value at Old Denaby Ings and River Oxbow (SSI 5.2) and Old Denaby Area (SSI 5.3), collectively known as Old Denaby Wetlands and managed by DMBC. The adjacent Denaby Ings SSSI is maintained by Yorkshire Wildlife Trust. The

canal rejoins the river just upstream of the Don and Dearne confluence. The Don then passes through the Magnesian Limestone in a deep gorge surrounded by steep wooded slopes and crags and the high arches of the Conisbrough Viaduct. The natural profile of the Sprotbrough Gorge has been modified by extensive and industrial-scale limestone quarrying and the river itself been impacted by mining subsidence, resulting in the creation of riverside wetlands at Sprotbrough and Foulsyke Flash (part of Sprotbrough Gorge SSSI). The riverside, cliffs and crags of old Levitt Hagg quarry have also become re-colonised with the natural ash and lime-dominated limestone woodland at Levitt Hagg Quarries and Crags (SSI 2.13).

3.6 The River Don is impounded at Sprotbrough by Sprotbrough Weir and the gates of Sprotbrough Lock. Downstream the steep river valley supports limestone grassland and woodland at Church Rein and Hexthorpe Flatts (SSI 2.15a, b+c), whilst the river itself is traversed by embankments and bridge spans of the A1M and two mineral railway lines. To the north of the river lie Bell Pond and Sprotbrough Ings (SSI 3.34) and at Hexthorpe is a relict area of floodplain wetlands at Hexthorpe Ings (SSI 2.16). River embankment and flood defence work has now separated the Ings from natural flood cycles but it still supports an extensive area of Wet Woodland, sedge swamp and open water, and is the habitat of **great crested newt** (*Triturus cristatus*). The Crimpsall Island, on which Doncaster Prison now stands, is formed by the diverging routes of the canal and the River Don flood channel. Navigable river depths are maintained by Doncaster Lock beside St George's Church and by Crimpsall Sluice but the latter has now been replaced by an artificial rock chute that has been created by the Environment Agency on the adjacent Old River Don Oxbow (SSI 3.33b). New wetlands were created nearby to re-home the population of **water vole** (*Arvicola terrestris*), which was displaced by the river engineering work. The Don flood relief channel runs north from this point on the Don via Black Pond (SSI 3.33a) and under the flood arches of Lady Pitts Bridge on the old Great North Road and the arches beneath the A19, to return to the Don via Bentley Ings. Much of the route has been built upon since the last flood in 1947 but it will still operate in the event of a significant flood event.

3.7 The River Don eventually reaches the Humber Estuary after leaving the borough and flowing eastwards towards the coast. This estuarine link has resulted in a number of unusual species being spotted in the River Don and River Ouse, with porpoise, grey seal, common seal river and sea lamprey all being recorded in the Doncaster Borough!

3.8 Doncaster's forgotten river, the River Cheswold, still exists as underground culverts under parts of the Town Centre. A short open section of the Cheswold links the Sheffield and Yorkshire Navigation and the Old River Don, to the northeast of Crimpsall Island.

3.9 Downstream of St Mary's Bridge the River Don is naturally tidal but the old course of the River has largely been lost due to the construction of the Dun Navigation that cuts across many of the old sections of river. The construction of the canal resulted in the creation of backwaters such as the boatyard at Strawberry Island and oxbow lakes that were incorporated into the landscaped parklands of former Wheatley Hall. The relict oxbows of Wheatley Park and Old Don Oxbows (SSIs 2.30 & 2.31) support some of the only remaining natural lengths of alder-lined riverbanks in the entire Lower Don catchment but they are under increasing threat from expansion of industry and *Phytophthora* disease. Several areas of open water, marshes and water-filled drains and washlands are to be found on Bentley Ings (SSI 3.30), Arksey Ings (SSI 3.29) and Long Sandall Ings (SSI 8.13). The remains of an oxbow and partially disintegrated wooden sluice gates mark the old course of the Don at Grumble Hurst and old river sections also survive at the Barnby Dun Old Don Oxbows (SSI 8.7a & 8.7b) near to the village of Barnby Dun and in the loop of Broad Ings Oxbow (SSI 7.30).

3.10 The surplus flows not required to maintain navigable depths in the canal are diverted at Crimpsall Island into the embanked and straightened Flood Channel which runs to the north of the Dun Navigation. The scouring action of the river has resulted in significant lowering of the riverbed level, meaning that the relict oxbows of Wheatley, Barnby Dun and Broad Ings now lie at a significant height above the normal river levels. Reconnection of a former oxbow has taken place at Broad Ings (SSI 7.30) downstream of Barnby Dun, and other Oxbows, such as West Ings (SSI 7.33) near Bramwith may be considered for reconnection as part of future washland creation work.

3.11 The water levels in the Dun Navigation are maintained by locks at Long Sandall and Barnby Dun before the Navigation diverges into the New Junction Canal which takes direct line from Bramwith to Southfield Reservoir on the Aire and Calder Navigation, passing over both the River Don and the River Went in aqueducts. Borrow-pits associated with the canal system include Croft Ings (SSI 8.8a, b+c) and Bramwith Lock Woods (SSI 8.3) and Thorne Ashfields (SSI 9.13a & 9.13b). Parts of the route of the present day Stainforth and Keadby Canal reflect the floodplain the ancient River Don, particularly the stretches between Bramwith and Thorne (and around the site of the fabled 'Thorne Mere'). The canal runs between Thorne and Hatfield Moors, south of the village of Crowle, and out to the Trent at Keadby.

3.12 From Bramwith the River Don flows in a broad floodplain with embanked washlands on both sides at Thorne Watersides, Oxbows and Ings (SSI 9.12). Instead of heading east to the Trent near Adlingfleet, the River Don now takes a bend northwards at Thorne to run to the Dutch River which then flows east alongside the Aire and Calder navigation and into the River Ouse at Old Goole.

3.13 The southern half of the Borough drains into the Trent catchment via two main watercourses, the Torne and the Idle. The headwaters of the Torne drain the edge of the Magnesian Limestone between Braithwell, Sandbeck and Styrrup. The river then flows northwards towards Rossington before heading east between Branton and Auckley. Immediately upstream and downstream of

Auckley Bridge are areas of open water, damp grassland and swamp communities some of which have developed in recent years probably as a result of subsidence of the land. The river flows through flat arable farmland, eastwards between Hatfield Moors SSSI and Blaxton Common (SSI 4.47a). Much of the Torne Valley between Insley Plantation (SSI 4.33) and Candy Farm and its associated drains and subsidence wetlands are designated as part of the Torne Valley SSIs (4.48). The River Torne leaves the Borough at Candy Farm, near Wroot, and flows northwards around the Moors to join other drainage channels around the south of Thorne Moors to become one of the 'Three Rivers' at Pilfrey Bridge which eventually flow into the River Trent at Keadby. In the River Torne (at Tickhill) water crowfoot beds have been identified. This aquatic plant is associated with clean, limestone rich water.

3.14 The Idle passes along a very short section of the Borough boundary at Bawtry at the very southeastern edge of Doncaster. This section of River and its associated washlands is important for waterfowl and other birdlife and is designated as the Idle Washlands SSSI. The majority of the site is wet grassland and is therefore covered in more detail in the Neutral and Wet Grasslands Habitat Action Plan.

4. Legal status

4.1 Sites identified as SSSIs and SSIs have a presumption against developments that would have an adverse effect on their conservation value.

4.2 Modification to main rivers requires consent from the Environment Agency. Discharges and abstractions require Environment Agency consent under the Water Framework Directive.

5. Links to associated habitats & species

5.1 The Rivers, Canals, Oxbows, Major Streams and Subsidence Flashes

Habitat Action Plan is linked to the following Habitat Action Plans:

- Minor Streams, Springs, Fens, Flushes, Mires and 'Fenny' Fields (SFM)
- Marshes and Swamps, Lakes and Ponds, Ditches and Drains (MLD)
- Neutral and Wet Grassland (NWG)
- Wet Woodland (WW)
- Urban Greenspace (UG)
- Reedbeds (RB)
- Post Industrial and Brownfield Land (PIB)
- Limestone Woodland (LW)
- Greenways (GW)
- Crags, Caves and Tunnels (CCT)

5.2 '**A Species Audit of Doncaster Borough**' has been produced as part of the Doncaster Local Biodiversity Action Plan. Species highlighted in bold within the Habitat Action Plans are identified within Doncaster's Species Audit and are conservation priorities. The Audit identifies **106** species associated with Rivers, Canals, Oxbows, Major Streams and Subsidence Flashes.

6. Current factors causing loss or decline

6.1 All the significant watercourses in the district have been canalised and have lost their original features, geomorphology and flow patterns. Some riparian wetland sites have been lost to, or are under threat from, direct drainage, water abstraction or lowering of the local water tables.

6.2 Urban development continues to take place in riverside sites. Future development at the Earth Centre site and Mexborough Old Power Station site will require sensitive design and appropriate mitigation to protect existing wildlife, and opportunities for floodplain habitat creation should be maximised. Similarly reclamation of the former Hexthorpe Plant Works site will affect an area of riverside habitat. Re-development of sites along Wheatley Hall Road has also affected river oxbow SSIs and future re-development may affect the canal-side habitats. The management of one of the Old Don oxbows is further complicated by the presence of a siphon linking the oxbow to the river Don (under the canal) and a storm-water discharge from Long Sandall sewage works into the oxbow lake. The construction of the St George's Bridge and developments associated with the Education City scheme have caused the loss of 'semi-natural' canal bank habitat near the centre of Doncaster, although the regeneration of the waterfront also includes proposals for an 'Ecology Park' with soft embankment habitat. Proposals for a marina at Stainforth may also affect canal side habitats.

6.3 Isolated oxbows and subsidence flashes are susceptible to silt accumulation, rubbish build-up and scrub invasion.

6.4 Flood prevention work may continue to have an impact on the river channels, although there is move away from controlled washlands and engineering solutions towards restoring natural floodplains, attenuating flood flows and the creation of new habitats.

6.5 Pollution, both point source and diffuse has a significant effect on water quality. Mine water discharges may also become more important as

groundwater levels rise. Low-level oil and diesel pollution arises from the use of powered watercraft on the navigable river. Water quality is being adversely affected by some agricultural and industrial operations and may be a factor in the reduction in species diversity although major improvement to Waste Water Treatment Works is improving water quality in discharges.

6.6 Rubbish and debris discarded into canals and rivers, degrades the river and environment and eventually contaminates open seas.

6.7 Although stricter controls of pollution have been very effective over recent decades, an historic legacy of pollution from heavy industry is still a serious problem in our rivers and canals. The biggest threat comes from dioxin contamination. Sediments in the Dearne are a particular problem, having an alarming range of toxic chemicals and heavy metals. Pollution from the upper Don enters the canal system and sediments and silts from the South Yorkshire Navigation are also seriously contaminated; dredging sediments therefore are polluted enough to be considered as hazardous waste. British Waterways have abandoned injection dredging and have adopted traditional dredging and licensed disposal for this reason. Flood events can release sediments from upstream (i.e. In Sheffield, Barnsley and Rotherham), which then settle out in the lower reaches, such as in the Lower Don. Sediments can also settle out in washlands and then dry out as water levels recede, making them prone to wind dispersal and ingestion by grazing animals.

6.8 In-stream features such as weirs and sluices have disrupted fish movement but the removal of weirs risks contamination from the disturbance of old sediment that accumulates behind these structures. Therefore, there are inherent difficulties in naturalising the river course upstream of Doncaster.

6.9 A return to using the canal system for transportation on an industrial scale could affect habitat on stretches of 'navigable river'. Although major straightening and widening took place in the 1970s, further modifications might be required to accommodate even bigger barges and increased wash action could cause erosion of riverbanks.

6.10 The maintenance of canal banks is a problem in the lower canal systems where leakage necessitates replacement with metal piling. This risks loss of emergent vegetation and otter and water vole habitat. Sheet piling raises wildlife welfare issues as there is a high risk of entrapment of any wildlife that attempts to cross the canals (this has resulted in deer and badger drownings). Stepping-out points need to be incorporated at regular intervals.

6.11 Water abstraction for maintaining navigation flows has implications for river channel flows, particularly around locks. This will become an increasingly important issue if navigation begins to develop significantly again. This will also be critical if and when self-sustaining salmon populations use the river systems. This migratory species requires minimum flows over sluices to allow passage upstream.

6.12 Maintaining the riffle-flow regime to the edge of the tidal limit on the Don near St Mary's Bridge is vital to provide the gravel bed habitats suitable for spawning **brown trout** (*Salmo trutta*). This is the only section of suitable habitat on the lower River Don.

6.13 Management of vegetation in watercourses and on banks is often determined by the needs of flood management and may be inappropriate for aquatic or wetland species. The planting of trees on riverbanks is not generally encouraged by the Environment Agency, nor are scrub and trees usually permitted on embankments because they are believed to attract burrowing animals and increase the risk of bank collapse. Many sections of floodbank are managed by sheep or cattle grazing. This management may be suitable for maintaining grasslands but is less likely to promote diverse riverside habitats including bank side trees. Riverside willows require management to stop them falling into the river and causing erosion.

6.14 Native plant diversity has been reduced due to invasion by introduced plants. Alien plant species associated with Doncaster's river habitats include Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Fallopia japonica*), and, to a lesser extent, giant hogweed (*Heracleum mantegazzianum*) and *Crassula helmsii*.

6.15 Non-native animals such as signal crayfish (*Pacifasticus leniusculus*) and introduced coarse fish species threaten native populations. The Chinese mitten crab (*Eriocheir sinensis*) is another invasive alien species that has been found on the Humber and could affect lower section of the tidal River Don. Mink (*Mustela vison*) is an introduced predatory mammal that has had a significant effect on river wildlife, especially the **water vole** (*Arvicola terrestris*).

6.16 Spread of disease is also a significant threat to riparian wildlife. *Phytophthora*, a waterborne fungal infection kills riverside alder trees (*Alnus glutinosa*). Crayfish plague, carried by the introduced signal crayfish also kills the native white-clawed crayfish (*Austropotamobius pallipes*). The use of crayfish as bait for angling has led to pathogen movement from watercourse to watercourse. Angling can also lead to the littering and vegetation trampling of watercourses and bank sides.

6.17 Unauthorised wildfowling and shooting takes place on and near riverside wetlands. This activity causes disturbance to riparian wildlife.

7. Current local action

Research & Monitoring

7.1 The Environment Agency undertakes periodic River Corridor Surveys of most sections of Main River in Doncaster. Information on Doncaster's rivers is held by both the Ridings Area and Midlands Region Environment Agency offices.

7.2 British Waterways have undertaken biodiversity surveys of canals in the Doncaster area.

7.3 The borough has a diverse series of Sites of Scientific Interest (SSIs), illustrating the variety of species and habitats that are represented on sites throughout Doncaster. All SSIs were surveyed in 1996/1997 and again in 2004/2005, when additional candidate sites were also identified. Limited sections of main watercourses are included within the boundaries of adjacent wetland or wet grassland SSIs, or are under consideration as candidate SSIs and several sections of the smaller watercourses are designated in their own right.

7.4 The Doncaster Naturalists' Society holds regular field meetings and has carried out detailed surveys of several river and canal sites. The Society routinely submits biological records to the Local Record Centre at Doncaster Museum.

Communications & Publicity

7.5 The Environment Agency has published a history of the River Don (Author Chris Firth) and produces many public leaflets and guides to local riparian wildlife. British Waterways also promote the wildlife found in the canal system through the provision of canal-side information boards, leaflets and publications. Subsidence wetlands at Sprotbrough Flash and Denaby Ings are nature reserves, run by the YWT, which offer interpretive information, guided walks and reserve leaflets and are open to the public.

7.6 The Yorkshire & Humber Biodiversity Forum has produced a leaflet on wetland and water management; outlining current issues, local action and conservation priorities. This and further information is available from www.yhbf.org. The leaflet was launched at a 'Planning for a wetter future' Conference, organised in partnership with the Yorkshire & Humber Assembly.

Safeguarding & Management

7.7 The Environment Agency has a duty generally to promote the conservation and enhancement of the natural beauty and flora and fauna of inland and coastal waters and associated land. Since 1995, the Agency has also been involved with the UK BAP as lead partner for some UK priority species. The needs of riparian biodiversity are, therefore, one of the issues that should be accommodated within river maintenance programmes and flood defence schemes. British Waterways are also a lead partner in many Local Biodiversity Action Plans.

7.8 The risk of wildlife drowning in canals has been reduced through research and partnership working lead by Mr C. Howes, to create stepping-out points at intervals along the sheet-piling bank reinforcement.

7.9 Denaby Ings and Sprotbrough Flash are designated SSSIs and are nature reserves managed by the Yorkshire Wildlife Trust. Management Plans have been prepared and implemented for these SSSIs.

7.10 The Environment Agency has carried out restoration schemes on the Don, including improvements to the lake at Sprotbrough Flash SSSI, re-connection of Broad Ings Oxbow (SSI 7.30), and the creation of new lakes and ponds as part of the Sykehouse barrier bank improvements.

7.11 The Environment Agency is currently reviewing the washland provision in the Lower Don as part of the flood management strategy and is considering the conversion of washlands to non-regulated flood storage. 18 SSIs lie within existing washlands and impacts upon these (both positive and negative) may result from increased flood frequency or period. The creation of new areas of permanent water would be beneficial, particularly considering the past threats to washlands such as drainage and conversion to arable. The Agency is looking into permission to create new stretches of watercourse in response to canalisation. One possible site is downstream of Stainforth bridge.

7.12 Funding from the Big Lottery's Transforming Your Space initiative has enabled the development of a range of biodiversity initiatives, including the resurvey of the Borough's SSIs, research projects, production of site management plans and the provision of resources (equipment, educational, activity and promotional materials) to help raise awareness and encourage participation in the management and enhancement of local biodiversity. A number of management plans have also been produced.

7.13 A River Don Trust is currently in the process of being established, to provide a forum for the various different interest groups to discuss and coordinate river issues and opportunities.

Species Protection & management

7.14 The Environment Agency is currently in the process of producing Eel Management Plans for each of England's River Basin Districts identified under the Water Framework Directive.

7.15 Natural England has recently completed a report on otters in the area and is working with the Environment Agency to implement the report's recommendations.

Funding & Resources

7.16 The new Environmental Stewardship Scheme 'higher level scheme' targets the creation of new habitat on land adjacent to, buffering, or linking SSSIs or UK BAP habitats. It also targets the maintenance and restoration of habitats in Sites of Importance for Nature Conservation, known locally as SSIs.

Advisory

7.17 DMBC has introduced a programme of continuous professional development based on planning related issues, including 'Protected species' and 'Trees and Hedgerows'. The Environmental Planning Team has produced a suite of Supplementary Planning Documents, providing guidance on: Planning for Trees and Hedgerows, Nature, Sustainable Construction and Landscape Planning on Development Sites in Doncaster

Links to other Strategies & Plans

7.18 The Don Gorge Strategic Management Plan has been produced on behalf of the Don Gorge Strategic Partnership, a body of key organisations and stakeholders active in the Don Gorge. The Plan includes a series of time framed action plans for key issues including; visitor management, access and recreation; geological, biological, archeological and heritage interest; management of the river and banks; and species and habitat management.

8. Objectives, targets & proposed actions

Please refer also to the Generic Actions in the LBAP Introduction & Overview document

Objective	Target	Ref	Action	Lead Partners	Costs	Category
1) To ensure the protection and maintenance of existing river, river wetlands and canal habitats.	Continuous.	1.1	<p>Prevent degradation and loss of river and river wetland habitats resulting from development and/ or the delivery of statutory functions by:</p> <p>1) Having regard to the protection and enhancement of habitats when considering the allocation of sites, in line with the approach set out in PPS9 and the priorities set out in the LBAP.</p> <p>2) Having regard to the assessment, retention and enhancement of habitat types when formulating and making Development Control Policies and decisions, in line with the approach set out in PPS9 and the priorities set out in the LBAP.</p>	DMBC, Natural England (NE), Environment Agency (EA), Internal Drainage Boards (IDBs)	Staff costs	Advisory/ Safeguarding & Management

Objective	Target	Ref	Action	Lead Partners	Costs	Category
			<p>3) Providing advice to Development Control and Developers on appropriate types of survey i.e. ecological and/or hydrological, the interpretation of survey results and methods of incorporating habitat retention and enhancement into development proposals (for both designated sites and non-designated features of biodiversity value, as identified in the LBAP.</p> <p>4) Having regard to the priorities set out in the BAP in the interpretation of UDP/LDF policies (and any supporting SPGs/SPDs).</p> <p>5) Providing technical advice on the severity, implications and nature of suspected breaches in planning control (either conditions or unauthorised development).</p>			

Objective	Target	Ref	Action	Lead Partners	Costs	Category
			<p>6) Awarding appropriate site protection through designation, based upon routine environmental monitoring and assessment.</p> <p>7) Ensuring that all Partners and relevant landowners, service providers and operational contractors are informed of the existence and importance of river, canal and river wetland habitats (both designated and non-designated).</p>			
	Continuous.	1.2	Continue to collect and maintain up-to-date, standardised, biological data using the Museum's Local Record Centre. Promote and initiate appropriate management, monitoring and the exchange of environmental data, to ensure the maximum level of site protection is awarded and habitat condition is maintained.	DMBC, NE, Doncaster Naturalists' Society (DNS), Yorkshire Wildlife Trust (YWT), EA, IDBs, British Waterways (BW), Don Gorge Strategic Partnership (DGSP)	Staff costs and volunteer time. Other costs to be evaluated	Future Research & Monitoring
	By 2008.	1.3	Expand DMBC's Environmental Planning protected species protocol to include LBAP habitats and species.	DMBC	Staff costs	Advisory

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	By 2008.	1.4	Prepare a list of habitat quality 'indicator' species for rivers, canals and oxbows, to use as a quick checklist to assess habitat quality.	EA	Staff costs	Future Research & Monitoring
	Continuous.	1.5	Request the use of permeable surfaces and soak-aways in new development and promote measures to remove salt and other roadway contamination from surface water drainage before it enters freshwater systems.	DMBC, Private landowners and developers	Staff costs	Safeguarding & Management/ Advisory
	In place by 2008.	1.6	Liase with DMBC Highways Section to ensure environmental best practice in the use and storage of road salt, and measures to remove contamination from surface water drainage. Highways to provide an annual update on progress, research into new methods/products etc.	DMBC	Staff costs	Safeguarding & Management
	Continuous.	1.7	Review any proposals to allow tidal backflow (in the Torne catchment), through Environmental Impact Assessments. Ea to consult DBAP Partnership regarding any such proposals.	EA, BW	Staff costs and volunteer time	Safeguarding & Management

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	British Waterways representative to be invited to attend a DBAP meeting by end of 2007.	1.8	British waterways and DBAP to liase regarding the sustainable use of water on navigable stretches of river in the Doncaster Borough, to ensure the best possible outcomes for biodiversity. Other BW functions to be explained and discussed include dredging and silt disposal.	BW, DBAP, DGSP	Staff costs and volunteer time	Advisory/ Safeguarding & Monitoring
	By 2008.	1.9	Set up a Doncaster Rivers Trust to provide a forum for the various different interest groups to discuss and coordinate river issues and opportunities, including habitat and species conservation as identified within the LBAP.	All LBAP partners, and river users and stakeholders. (EA lead)	EA staff costs	Advisory/ Safeguarding & Management
	By 2008.	1.10	1) Produce an article for magazines of groups and trusts such as the narrow boat/ waterways trusts to raise awareness of the problem of wildlife entrapment in canals and help to raise money for bank steps. 2) Investigate the possibility of BW introducing a levy for pleasure craft to fund biodiversity improvements.	DBAP, BW, Boating/ pleasure craft organisations, DGSP	£384	Safeguarding & Management/ Communications & Publicity

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	By 2009.	1.11	Identify locations of shingle bars and exposed sediments and carry out invertebrate surveys at identified locations.	DBAP, DNS, EA		Future Research & Monitoring
	Continuous.	1.12	Invite partner consultation on the main EA habitat restoration and enhancement projects CAMS and AMP.	EA, DBAP		Advisory/ Strategies & Plans
2) To restore degraded sites and ensure appropriate management of river, river wetlands and canal habitats.	1 km of riparian habitat enhanced with emergent planting techniques by 2010.	2.1	1) Promote the reinstatement of natural morphological features, such as cuts and meanders. 2) Enhance waterways through the creation of riparian emergent habitat, e.g. through the use of planting pockets, floating pontoons, coir rolls and other similar measures to create strips of emergent vegetation along rivers, major streams, canals and oxbows.	EA, BW	To be evaluated	Habitat Creation & Restoration
	2 wildlife stepping out points created by 2010.	2.2	Construct wildlife 'stepping-out' points on re-enforced sections of canal bank.	EA, DMBC, BW	To be evaluated	Safeguarding & Management

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	1 habitat linkage project from British Waterways riparian habitat to wider countryside by 2009.	2.3	British Waterways-owned land (which often includes adjacent field fragments) to be the focus for strengthening habitat links to adjacent countryside.	BW, DMBC	To be evaluated	Safeguarding & Management
	Continuous.	2.4	Research and implement measures to control the introduction and spread of invasive, non-native plant species, within riparian habitats owned and managed by LBAP partners. Prioritise work in the uppermost parts of river catchments.	All LBAP partners	To be evaluated	Future Research & Monitoring Safeguarding & Management
	Continuous.	2.5	Investigate the acquisition (where necessary, and feasible) of wetland sites of local significance, in order to ensure their future management for the benefit of biodiversity.	YWT, DMBC, local Trusts	Approx. £5000 per ha	Safeguarding & Management
	All known important spawning areas by 2009.	2.6	Develop and implement sympathetic management plans for protecting and enhancing important fish spawning areas. Maintain the riffle-flow regime to the edge of the tidal limit downstream of St Mary's Bridge, which is the only area in the lower River Don with gravel bed habitats for spawning.	EA, Angling groups, DBAP	To be evaluated	Safeguarding & Management/ Species Protection & Management

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	1km of riverbank by 2009 under Environmental Stewardship.	2.6	Encourage and implement sympathetic bank management to allow the development of natural features, riverside tree cover and diverse marginal vegetation.	NE lead, but all DBAP partners to assist in finding and encouraging landowners	Staff costs & volunteer time	Safeguarding & Management/ Habitat Creation & Restoration
	Continuous.	2.7	Prevent disturbance to the wildlife of riparian and canal habitats owned by the local authority and the Environment Agency by the control of i) inappropriate recreation access (unlicensed fishing, and motorbikes) and ii) prevention of damaging activities such as shooting/uncontrolled wildfowling.	EA, DMBC, SY Police, DGSP	Staff costs. (£510 per annum in ranger patrol time)	Safeguarding & Management
	5 sites by 2010.	2.6	Identify all wetland sites where Priority Species are known to be present and implement appropriate specialist management schemes to benefit these species. (Priorities to include: kingfisher, brown trout, eel, water crowfoot and sand martin).	DMBC, NE, IDBs, EA, BW, FWAG, Private landowner, DGSP	To be evaluated	Species Management & Protection
3) To create 2ha of riparian wetlands linked to existing river and canal systems and a further 0.5km of semi	By 2008.	3.1	Research and provide other partners with contact details for local contractors with suitable experience and expertise on the creation and management of diverse wetlands.	NE, EA, DMBC, YWT	Staff costs and volunteer time	Advisory

Objective	Target	Ref	Action	Lead Partners	Costs	Category
natural emergent vegetation on existing river and canal banks, (where eroded or reinforced).	0.5km of emergent habitat creation by 2009.	3.2	Install coir rolls (or equivalent) at angling sites, where vegetation is sparse or the bank-side has been eroded or reinforced.	EA, DMBC, BW	To be evaluated	Habitat Creation & Restoration
	Continuous.	3.3	All DBAP partners to support the EA policy of only cutting 2/3 of the emergent vegetation in a river/canal cross-section.	All DBAP partners	Negligible	Policy & Legislation
4) Raise public awareness of the importance and special characteristics of rivers, canals, and riparian wetlands.	By 2009.	4.1	Produce a guidance sheet for river and riverside leisure users to highlight local biodiversity interest, issues affecting the habitat and associated species, and appropriate management and behaviour. Promote relevant partner publications, legislation and codes of conduct.	EA, BW, YWT, DGSP	£3780	Communications & Publicity
	1 workshop by 2009.	4.2	Run a river species survey and identification workshop open to the general public.	DNS, DGSP	£256	Communications & Publicity
	By 2009.	4.3	Continue the programme of LNR designation to include one riparian site close to the urban centre e.g. Wheatley Old Don Oxbows.	DMBC, NE	To be evaluated	Safeguarding & Management

Objective	Target	Ref	Action	Lead Partners	Costs	Category
	1 demonstration led by EA by 2010.	4.4	Promote good management practice for fishing lake management through the use of demonstration sites and workshops.	EA, BW, NE, YWT, BTCV	To be evaluated	Advisory

9. Indicative Habitat distribution & Opportunities map

The map for Rivers, Canals, Oxbows, Major Streams and Subsidence Flashes shows the locations of Rivers and Canals within the Borough. In order to show how these link with other watercourses in the Borough, the Streams and Springs are also shown. Subsidence Flashes are shown by the areas of washlands as taken from the 1998 Doncaster Unitary Development Plan Proposals maps.

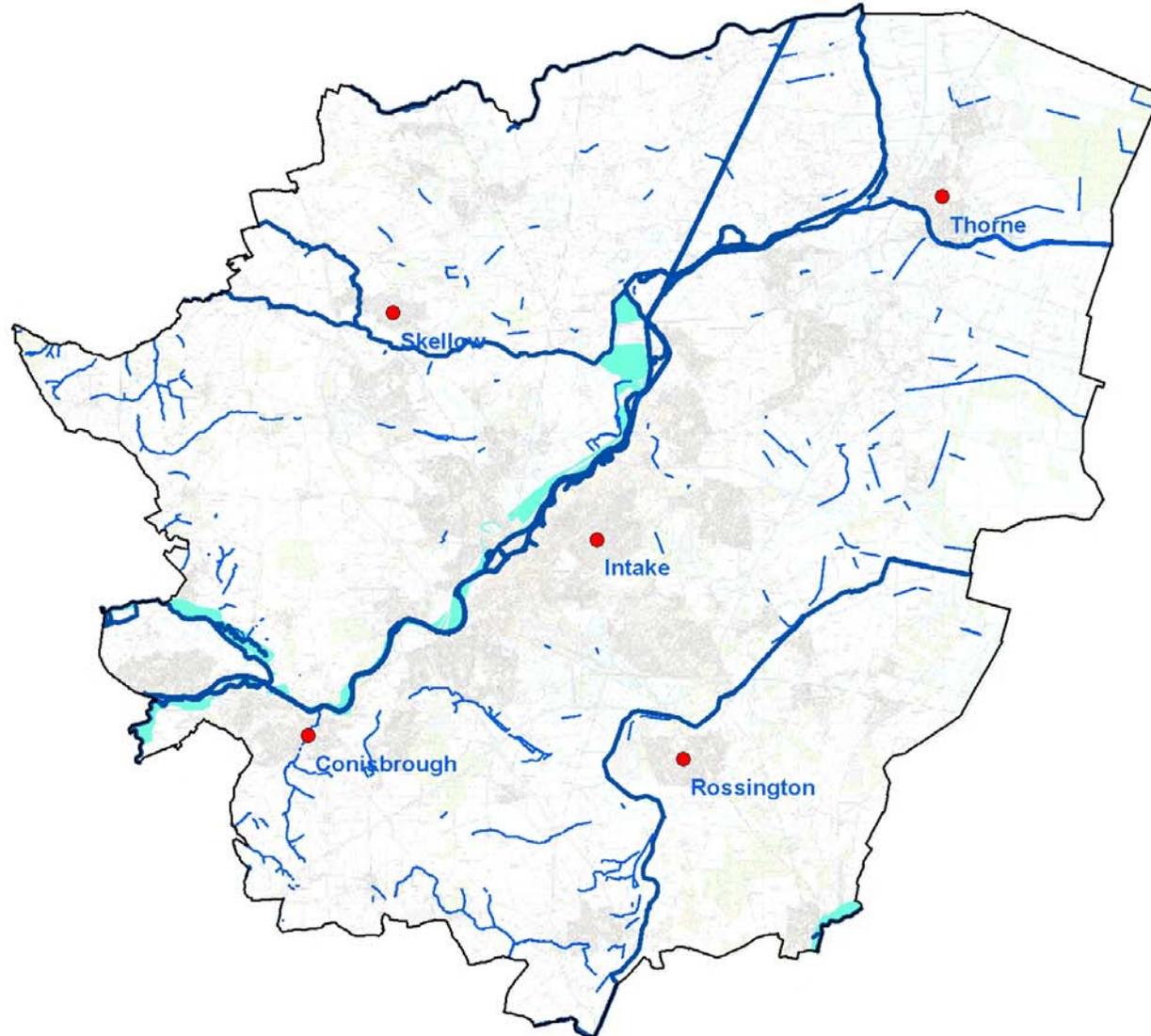
-  Rivers / Canals
-  Streams / Springs
-  Subsidence Flash

Rivers, Canals, Oxbows, Major Streams and Subsidence Flashes

DATE: January 2007
 SCALE: 1:160,000
 DRAWING NO: HAP/1/RCF

LEGEND

- Doncaster Borough Boundary
- Village
- River/Canal
- Stream/Spring
- Subsidence Flash



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