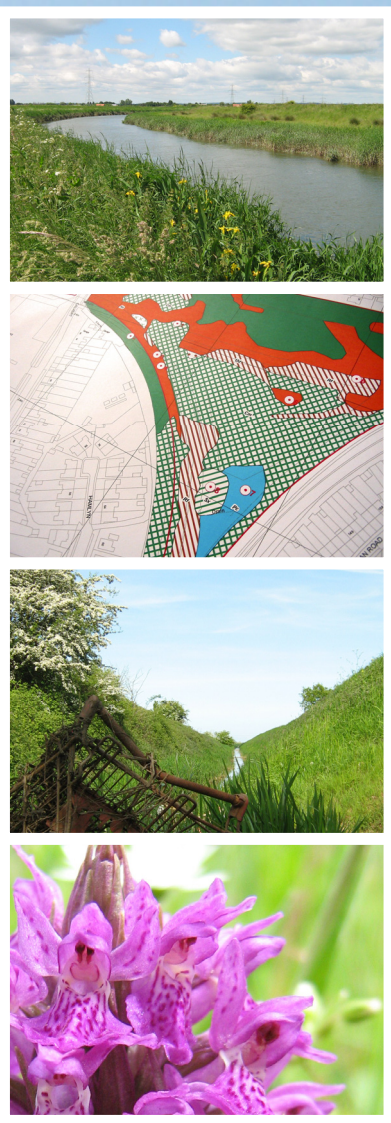
Kingston-Upon-Hull
Open Space Assessment

Sites of Nature Conservation Importance (SNCI)

Main Report

October 2008



Hull City Council

pmp

paa
Penny Anderson Associates Ltd
Consultant Ecologists

HULL CITY COUNCIL & PMC CONSULT LTD

KINGSTON UPON HULL OPEN SPACE ASSESSMENT – SITES OF NATURE CONSERVATION INTEREST (SNCI)

Penny Anderson Associates Limited
'Park Lea'
60 Park Road
Buxton
Derbyshire
SK17 6SN

Project Manager
Alistair Blackshaw BSc (Hons), MSc

October 2008

This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed:_____

C O N T E N T S

APPENDICES

1. INTRODUCTION

1.1 Penny Anderson Associates Ltd (PAA) was commissioned by Hull City Council, in February 2008, to undertake an audit of Sites of Nature Conservation Importance (SNCI) within the city boundary. The audit of SNCI was undertaken as part of a study to satisfy the requirements of Planning Policy Guidance 17 (PPG17) managed by PMP Consult Ltd.

1.2 The brief for the SNCI element of the study was to conduct an audit of the extent and type of natural habitat present on each site. The recognised methodology for such a study is Phase 1 Habitat Survey (JNCC 2003), under which a thematic map is produced to show the variation in habitat types on a site. Phase 1 maps were produced during field visits to each site and the maps then digitised using ArcGIS.

1.3 In addition to the Phase 1 Habitat Surveys, a brief list of the species encountered on each site was compiled and the sites were assessed agains t the criteria listed by DEFRA (2006) which are based on those chosen by Ratcliffe in his *Nature Conservation Review* (1977). By extending the scope of the project in this way PAA sought to provide a valuable baseline dataset against which future change in these sites could be measured and upon which policy decisions regarding SNCI could be based.

1.4 This report outlines, in detail, the methodologies used at each stage of the SNCI study, presents the results of the field work and quality assessments and makes recommendations on how the data could be used to further the conservation of biodiversity in the city of Hull at both a site and a strategic planning scale.

Legislative and Policy Context

1.5 The following is a brief summary of the legislative and policy context for Local Sites (non-statutory wildlife sites - in this instance SNCI). The Department of Environment Food and Affairs' 2006 publication *Local Sites – Guidance on their Identification, Selection and Management* provides a more comprehensive overview.

1.6 Non-statutory wildlife sites have been designated, by local authorities working with other local partners, in most areas of the country. In 2000, a review group set up by the then Department of the Environment, Transport on the Regions (DETR) formally recognised the value of Local Sites for nature conservation.

1.7 Planning Policy Statement 9 (PPS9), a statement of national planning policy for biodiversity and geological conservation, recognises the role of Local Sites in fulfilling national biodiversity targets. It recommends that policies should be established within Local Development Frameworks (LDFs), against which development proposals affecting Local Sites should be judged. It also recommends that all Local Sites are included on the LDF proposals map.

1.8 Planning Policy Guidance Note 17 (PPG17) sets out the Government's policies for the protection and creation of open spaces, sports and recreational facilities. It recognises that the function of open space varies and recommends that local authorities take account of biodiversity when establishing policy on open space.

1.9 The 'Biodiversity Duty', introduced by Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. The act requires public authorities to "*have regard to the conservation of biodiversity in exercising their functions*" (DEFRA 2007). The Duty applies to all public authorities, including local authorities, recognises that "*public authorities can make a*

significant contribution towards the 2010 target to halt biodiversity loss". The key policy instruments for halting the loss of biodiversity are local and national Biodiversity Action Plans (BAPs). In this regard, the role of Local sites in meeting BAP targets has been widely recognised by central government.

2. METHODOLOGY

Phase 1 Habitat Survey

Field visits

2.1 The Phase 1 Habitat Surveys were conducted, following the methodology set out by JNCC (2003), during a single visit to each site over the period 28th April 2008 to 15th August 2008.

2.2 Briefly, the method used involved a structured walk around the site during which each distinct habitat type present was drawn onto a blank base map of the site and code using the JNCC standard codes. The dominant species in each habitat were coded and target notes were made when physical or biological features of note were encountered.

Data capture

2.3 The habitat maps made in the field were digitised using ArcGIS 9.0 in conjunction with the Phase 1 mapping palette published by the JNCC (http://www.jncc.gov.uk/page-4258).

Species Lists

Field visits

2.4 In addition to the habitat data, lists of the vascular plant species encountered during each site visit were compiled using a bespoke recording sheet (Appendix I). Plants were attributed to the following broad habitat categories, taken from the Hull Biodiversity Action Plan (HBAP):

- Estuary;
- Freshwater;
- Grassland;
- Woodland
- Scrub; and
- Hedgerow.

2.5 A further category of 'Other' was added to enable the recording of habitats which were not listed in the HBAP (e.g. tall ruderal vegetation).

2.6 Though species recording concentrated upon vascular plants, birds were also recorded extensively, particularly in the early part of the season when they were detectable through their songs. The following species groups were recorded sporadically, as they were seen:

- Invertebrates;
- Reptiles;
- Amphibians; and
- Mammals;

2.7 The above animal groups, including to a certain extent birds, require specialist survey techniques that were outside the scope of the study. The general shortfall of data for these taxa should not, therefore, be regarded as evidence of absence from a particular site. Indeed, where potential for a particular group has been noted on a site's quality assessment form it is highly likely that a significant number of species would be detected by a specialist survey.

2.8 The site visits were prioritised with reference to the file data supplied by Hull City Council. Where these data indicated that sites would be of a high quality, visits were delayed until later in the season so that the number of taxa recorded would be maximised.

Data capture

2.9 The species data collected during the field surveys were digitised using the Recorder 6 software package. Recorder, developed by the Joint Nature Conservation Committee, is a standards based tool for the collection and collation of biological recordings. All data collected during the study is held under a specific 'Survey' which can be disseminated to any other organisation running the software.

Quality Assessments

2.10 The quality assessment sheets were designed to give a quick overview of the value of a site in the context of the biodiversity resource within the city boundary. The assessment has been adapted from a set of criteria which appeared in the Natural Environment chapter of the Hull CityPlan (adopted May 2000). The criteria are those detailed by Ratcliffe (1977) and subsequently issued by DEFRA for the selection of non-statutory wildlife sites (DEFRA 2006).

2.11 The quality assessment methodology is highly technical and is based on subjective assessment of the features of a site by an experienced ecologist. It was, therefore, thought expedient to provide the methodology and a detailed justification for it as a separate appendix (Appendix II).

2.12 The quality assessments evaluated the site using the eight criteria listed below:

- Diversity;
- Naturalness;
- Rare or exceptional features;
- Typicalness;
- Fragility;
- Connectivity within the landscape;
- Recorded history and cultural associations; and
- Community value

2.13 For each criterion, the site received one of four possible scores (Table 1).

Table 1 Possible Criteria Scores Attributed to Sites during the Quality Assessments

Criteria Score	Interpretation of Value
Very High (VH)	The site was considered outstanding in the city for that criteria
High (H)	The site was considered important in the city for that criteria
Medium (M)	The site was considered good in the city for that criteria
Low (L)	The site was considered above average for that criteria

Limitations

2.14 The major limitation of the study is that it provides an indication of the state of each site at a single point in time. Phase 1 maps are less affected by this as habitats, generally, change at a relatively slow rate, particularly if a site is being managed consistently. Species, however, are often transitory as their requirements change throughout the year. Thus, a single site visit, or sample, is often insufficient to accurately/fully determine species presence or absence. As a result, it is difficult to state whether a site is important for a particular species or group. For example, some sites with hawthorn scrub may support a range of common breeding birds in the spring but with abundant berry crops may support important numbers of thrushes such as fieldfare and redwing in the winter. Examples of sites which are likely to be subject to strong seasonal variation in use are NE1 Mudflats South of Clive Sullivan Way and NE255 Mudflats to the South of Sammy's Point, both of which are likely to be important for wintering waders. It should therefore be noted that the quality assessments are based upon a single visit only and while the timing of that visit is likely to have minimised the number of species overlooked, policy or planning decisions should not be based solely upon the data collected during this study.

3. RESULTS

3.1 The principal outputs of the study were the Phase 1 maps (Appendix III – Phase 1 Habitat Survey Maps), the quality assessment forms, (Appendix IV – Quality Assessment Forms), and site species lists. The following statistics and tables summarise the data presented in Appendices III and IV.

3.2 Data were collected for 97 (663ha) of the 109 (684ha) listed SNCI. Twelve sites (21ha) on the list provided by Hull City Council were not surveyed as they had either been destroyed by development or had access issues (Table 2).

Table 2 List of SNCI not Surveyed during the Study

Site Code	Site Name	Area (ha)	Reason for No Data
2	Land north of railway line	1.02	ARCO board members did not grant access
89	Land to rear of Hymers Avenue	1.08	Palisade fence. No access
102	Land surrounded by railway east of Woodgate Road	1.08	Land surrounded by live railway
136	Golf links road allotments	3.58	Destroyed by development
172	Dismantled railway south of Sculcoates Lane	0.43	Destroyed by development
173	Dismantled railway south of dismantled Sculcoates Power Station	0.82	Destroyed by development
268	Land to the south of Sweet Dews Road	0.38	Jewish cemetery, locked
317	Mudflats east of Queen Elizabeth Dock	8.40	Land reclaimed from sea. No access due to damage lock gates
318	Jewish burial ground north of Hedon Road	0.52	Jewish cemetery, locked
342	Land north of Portobello Street, east of Holderness Drain	1.18	Allotment site, no keys available
343	Land west of Marfleet Lane, east of Bilton Grove	1.17	Allotment site, no keys available
364	Land to west of Northumberland Avenue almshouses	0.80	Allotment site, no keys available

3.3 Forty different habitats were recorded during the Phase 1 Habitat Surveys (see Appendix III). The three most frequently recorded habitats were amenity grassland (171ha), species-poor semi-improved grassland (110ha) and broad-leaved plantation woodland (57ha). Unimproved grassland accounted for only 1.2ha of the area surveyed and species-rich semi-improved grassland for 23ha. Aquatic habitats, excluding swamp vegetation, accounted for 49ha.

3.4 Eight habitats listed on the revised UKBAP were recorded (Table 3):

Table 3 Frequency of UKBAP Habitats on SNCI in Hull

UKBAP Habitat	Number of Sites where Habitat Recorded
Coastal Saltmarsh	2
Mudflats	3
Rivers	1
Eutrophic Standing Waters	15
Ponds*	7
Open Mosaic Habitats on Previously Developed Land	5
Lowland Meadows	11
Hedgerows	45

* In order to determine whether a pond conforms to the new UKBAP category, analysis of aquatic invertebrate data is required. The seven ponds noted in the table should therefore be treated as candidates for UKBAP status.

3.5 A total of 532 different taxa were recorded during the site surveys, grouped in Table 4.

Table 4 Taxonomic Groups Recorded during the Site Surveys

Taxonomic Group	Number of Taxa Recorded
Algae	1
Mosses	1
Vascular plants	441
Invertebrates	21
Amphibians	3
Birds	57
Mammals	8

3.6 A total of 11 UKBAP species, comprising ten birds and one amphibian, were recorded during the surveys (Table 5).

Table 5 UKBAP Species Recorded during the Site Surveys

Species Common Name	Species Latin Name	Number of Sites where Species Recorded
Common toad	*Bufo bufo*	2
Common bullfinch	*Pyrrhula pyrrhula*	6
Common linnet	*Cardeulis cannabina*	19
Common starling	*Sturnus vulgaris*	53
Hedge accentor	*Prunella modularis*	41
House sparrow	*Passer domesticus*	59
Northern lapwing	*Vanellus vanellus*	2
Reed bunting	*Emberiza schoeniclus*	9
Sky lark	*Alauda arvensis*	3
Song thrush	*Turdus philomelos*	25
Yellowhammer	*Emberiza citrinella*	1

4. RECOMMENDATIONS

SNCI Policy

4.1 All of the sites surveyed during the study are considered important in terms of maintaining Hull's biodiversity. Sites with high 'Diversity' and 'Rarity' are clearly important for their intrinsic biological features. Less diverse sites, or those without rare features, were often found to be of high value, as part of an ecological network providing permeable corridors for the dispersal of wildlife in an otherwise hostile urban landscape, or for the opportunities for direct contact with nature they offered to local residents.

4.2 It is PAA's opinion that all 97 of the sites surveyed should be protected by policies in the forthcoming Local Development Framework (LDF). It is, however, recognised that there is variation in the quality of these SNCI. Consequently, adopting a two-tier system, whereby the best sites (i.e. those that score highly for the intrinsic biological criteria: *Diversity, Naturalness, Rarity, Typicalness and Fragility*) are given stricter protection than those that do not, is recommended.

4.3 Furthermore, any policies to protect SNCI in the LDF should be developed in consultation with the local Wildlife Trust and Natural England area team.

Candidate Sites for Local Nature Reserve Status

4.4 At present Hull does not have any Local Nature Reserves (LNRs). Natural England's recommendation in 1996 was that LNRs should be provided at a level of 1ha per thousand population. There is clearly a shortfall of LNR provision in the city. To this end, however, a number of SNCI are suitable for LNR status. These are:

- NE1012 'Bransholme Fishing Lakes and Associated Land';
- NE182 Rockford Fields; and
- NE42 & NE43 Calvert Sidings

4.5 Sites NE1012 and NE182 are ideal as LNR; both are considered 'ecologically excellent' in the city, supporting many UKBAP and LBAP priorities, they have good existing access within the site and have excellent green links enabling people to reach the sites easily.

4.6 Sites NE42 and NE43 are 'ecologically outstanding' within the city, supporting several UKBAP and LBAP priorities and many rare species. An added dimension to these sites is their strong links to the city's industrial past, which may help public engagement with the site (providing adequate information is available). Unfortunately, NE42 suffers from poor access with entry to the site only available via the railway bridge on Calvert Lane.

4.7 The Natural England area for Yorkshire and the Humber region should be consulted for further information on designating LNRs. Should designation not be possible, alternative funding mechanisms should be found to ensure the future management of both NE42 and NE43.

Management Issues

4.8 Almost all of the important sites in the city with high quality grassland habitats receive no active conservation management. These are considered the most vulnerable sites and it is reasonable to expect that, without management, the remaining habitat patches of these communities will diminish in size due to encroaching coarse grasses, scrub and eventually woodland. This

recommendation highlights the management issues associated with, and provides broad management advice for, the UKBAP grassland types (BRIG 2007) found in the city.

Open mosaic habitats on previously developed land

4.9 Many of the important grassland habitats identified in the quality assessments represent an early successional stage, meaning they are among the first of a series of habitat changes that lead to a stable or climax community such as woodland. Conservation of these seral communities therefore depends on halting succession through active management.

4.10 The grassland communities recorded during the site surveys that accorded with this habitat were usually comprised of fine leaved grasses such as red fescue (*Festuca rubra*) and common bent (*Agrostis capillaris*) together with bird's-foot trefoil, common vetch (*Vicia sativa*) and a range of flowers preferring base-rich conditions such as fairy flax (*Linum catharticum*) (NE42), yellow wort (*Blackstonia perfoliata*) (NE88 & NE322) and common toadflax (*Linaria vulgaris*) (NE42, NE43, NE88 & NE331). The annuals early hair grass (*Aira praecox*) and silver hair grass (*Aira caryophyllea*) were also often recorded. Patches of the rhizomatous grass wood small-reed (*Calamagrostis epigejos*) were usually found amongst the finer leaved species and in more mature stands the more common coarse leaved species false oat-grass (*Arrhenatherum elatius*) and cock's-foot (*Dactylis glomerata*) were frequent. Two particularly noteworthy taxa associated with the habitat were adder's tongue fern (*Ophioglossum vulgatum*) and a marsh orchid (*Dactylorhiza* sp.).

4.11 The combination of open flower-rich grassland with patches of bare ground creates ideal conditions for invertebrates. Indeed, the invertebrate faunas of similar sites elsewhere in Britain are known to be exceptionally rich, particularly in solitary bees and wasps. There is a good chance (although not investigated during these surveys) that some of the sites where this habitat occurs in Hull (Table 6) support red data book invertebrates.

Table 6 Sites in Hull where the UKBAP Habitat Open Mosaic Habitats on Previously Developed Land Occurs

Site Code	Site Name	Approximate area of grassland (ha)
NE42	Dismantled Railway Junction East of Calvert Lane	1.0
NE43	Dismantled Railway Junction West of Calvert Lane	0.6
NE88	Hymers College grounds	0.3
NE322	Land South of Former Withernsea railway line	0.1
NE331	Former Withernsea railway line	0.03

4.12 In the absence of management, the grassland communities within these sites had probably persisted for decades due to their nutrient-poor, free draining substrates (usually railway ballast). Despite this, the stands surveyed during the study appear to be shrinking due to the encroachment of coarse grasses, competitive ruderals and woody species.

4.13 The principles of managing early successional grassland on previously developed land will be the same as managing lowland meadows. Specifically, management should seek to maintain the current area of grassland by preventing further encroachment of coarse grasses and woody species. 'Cut and collect' mowing will suffice for more mature stands, but the interval between cutting events in these grasslands may be longer than for a hay meadow (see para 4.18) as the substrate is likely to be much poorer in nutrients.

4.14 It will also be desirable to maintain a certain amount of bare ground for invertebrates and natural colonisation by warmth loving annuals, thereby maintaining a diversity of seral stages. Patches of bare ground could be created by stripping small areas of mature vegetation back to the underlying substrate. This must, however, be done carefully and should be fully informed by an up-to-date biological audit to minimise the risk to individual species. Vegetation stripping could also be carried out within certain areas of less valuable habitats (e.g. patches of bramble scrub), in order to increase the area of grassland. Nonetheless, while the grassland is perhaps the rarest, the virtue of the open mosaic is that several habitats are juxtaposed together. This, therefore, has major benefits for invertebrates and it is important not to be over-zealous vegetation stripping in favour of one species group.

4.15 It is recommended that management plans are drawn up for all sites identified in Table 6**,** in conjunction with the local Wildlife Trust and Natural England area team who will be able to provide more detailed advice and support.

Lowland meadows

4.16 There are several sites in the city (Table 7) which support vegetation communities approaching the lowland meadows habitat defined in the UKBAP.

Table 7 Sites in Hull where the UKBAP Habitat Lowland Meadows Occur

Site Code	Site Name	Approximate area of grassland (ha)
NE168	River Hull	0.02
NE182	Rockford Fields	5.3
NE212	Land East of Cumbrian Way	0.5
NE298	Land to the South of Westwood Close	1.6
NE1012	Bransholme Fishing Lakes and associated land	12.3

4.17 The grassland communities recorded during the site surveys that accorded well with the Lowland Meadows habitat were usually comprised of a range of fine leaved and coarse grasses such as red fescue, common bent, false oat-grass and cock's-foot. In this sense, there were obvious similarities between this habitat and that found within the open mosaic habitat but with a wider range of grasses found in the former communities, including meadow foxtail (*Alopecurus pratensis*), Yorkshire fog (*Holcus lanatus*), crested dog's tail (*Cynosurus cristatus*), tall fescue (*Festuca arundinacea*), meadow barley (*Hordeum secalinum*) and yellow oat-grass (*Trisetum flavescens*). On sites with heavier soils, rushes, particularly hard rush (*Juncus inflexus*), were associated with the habitat. The commonest forbs were common knapweed (*Centaurea nigra*), bird's-foot trefoil, selfheal (*Prunella vulgaris*), common mouse ear (*Cerastium fontanum*), meadow vetchling (*Latyrus pratensis*), red clover (*Trifolium pratense*) and white clover (*Trifolium repens*). Rarer species associated with this habitat type included common meadow rue (*Thalictrum flavum*), greater knapweed (*Centaurea scabiosa*), bee orchid (*Ophrys apifera*) and crow garlic (*Allium vineale*).

4.18 Management of lowland meadows usually comprises annual cutting in June / July where the resulting hay is dried in the field and subsequently removed from the site. From a nature conservation perspective, the removal of plant biomass helps to maintain low nutrient levels in the soil, thereby maintaining the integrity of the habitat. Cutting is usually followed by 'aftermath' grazing until early October (English Nature 1999).

4.19 Grazing of sites in Hull is probably impractical due to the cost of fencing and high probability of conflicts between local residents and stock. Mowing would therefore need to take the place of

grazing, meaning that several cuts may need to take place annually to keep the growth of vigorous grasses in check. Likewise, it may not be feasible to use tractor mounted cutting equipment on sites with limited access or uneven terrain. In these cases, petrol driven pedestrian operated mowing machines can be a viable alternative but are labour intensive. Pedestrian operated machines would be most effective on sites with small patches of grassland.

4.20 It is recommended that management plans are drawn up for all sites identified in Table 6**,** in conjunction with the local Wildlife Trust and Natural England area team who will be able to provide more detailed advice and support.

Conservation management priority list

4.21 Table 8 is a list of ten sites which are considered the most important publicly owned sites in Hull. These sites should be prioritised if sufficient funding for conservation management, including capital works and the production of management plans, become available.

Table 8 Publicly Owned Sites that should be Prioritised for Conservation Management

Site Code	Site Name	Recommended Management Activities	Recommended Further Survey Work
NE42	Dismantled railway junction east of Calvert Lane	Grassland management, scrub management, pond restoration	Terrestrial invertebrate survey, reptile survey
NE43	Dismantled railway junction west of Calvert Lane	Grassland management, scrub management, pond restoration	Terrestrial invertebrate survey, reptile survey
NE168	River Hull	Grassland management, riparian woodland planting	Water vole survey
NE169	Beverley and Barmston drain	Grassland management	Water vole survey
NE182	Rockford fields	Grassland management	None
NE212	Land east of Cumbrian way	Grassland management, woodland / scrub management to increase light levels reaching the main drain	Water vole survey
NE298	Land to the south of Westwood close	Grassland management, hedgerow management	None
NE316	Holderness drain	Grassland management	Water vole survey
NE322	Land south of former Withernsea railway line	Grassland management	Terrestrial invertebrate survey, reptile survey
NE1012	Bransholme fishing lakes and associated land	Grassland management, de-silting of ponds	Amphibian survey, reptile survey, bird survey

4.22 The privately owned sites shown in Table 9 would also benefit from increased conservation management.

Table 9 Privately Owned Sites that would Benefit from Conservation Management

Site Code	Site Name	Recommended Management Activities	Recommended Further Survey Work
NE88	Hymers college grounds	Management of unimproved grassland	Terrestrial invertebrate survey in unimproved grassland, amphibian survey of pond
NE196	Haworth hall	Woodland management	Bird survey, amphibian survey of pond
NE280	Holderness house	Woodland management, less intensive management of lawn	Bird survey

Monitoring

4.23 It is important that the SNCI are monitored regularly so that changes in the habitats, as the result of natural succession, human activities such as recreation or pollution, or management activities can be detected. Monitoring is also important for providing feedback and directly informing management and can highlight positive as well as negative changes within sites. The data outputs from this study (the Phase 1 data and Recorder database) are an important baseline against which future site surveys can be compared. It may also be possible to adapt monitoring techniques from the Joint Nature Conservation Committee's (JNCC) Common Standards approach for sites that receive conservation management.

4.24 Monitoring on SSSI in England currently takes place on a rolling monitoring cycle with every designated feature assessed within a six year period. It is therefore suggested that the sites listed in Tables 8 and 9 are monitored on the same basis. The remaining SNCI which scored highly in the quality assessments for 'Diversity' and 'Rarity' should also be monitored on a six year cycle where possible. The remaining sites could be monitored on a ten year cycle.

Invasive Species

4.25 Invasive plants are usually non-native, vigorous, robust, patch forming species that are able to take over an area to the exclusion of native flora. They can reduce the extent of an important habitat or species increasing its vulnerability to disturbance and environmental change. Two invasive species were recorded frequently during the study:

- Japanese knotweed (*Fallopia japonica*); and
- Giant hogweed (*Heracleum mantegazzianum*)

4.26 The sites on which these species occur are shown in Table 10.

Table 10 Hull Sites with Invasive Species

Site Code	Site Name	Invasive Species Recorded
NE42	Dismantled railway junction east of Calvert lane	Giant hogweed, Japanese knotweed
NE88	Hymers College grounds	Giant hogweed
NE86	Land to the east of the Circle cricket ground	Giant hogweed
NE109	Land to south of Queens road	Japanese knotweed
NE168	River Hull	Japanese knotweed
NE169	Beverley and Barmaston drain	Japanese knotweed
NE171	Land south of Sculcoates lane, west of Air street	Japanese knotweed
NE175	Land north of the junction of Air street and Bankside	Japanese knotweed
NE177	Foredyke stream cycle track - south of Chamberlain Road	Japanese knotweed
NE179	Foredyke stream cycle track - north of Chamberlain Road	Japanese knotweed
NE182	Rockford fields	Japanese knotweed
NE196	Haworth Hall	Japanese knotweed
NE270	Hedon road cemetery	Japanese knotweed
NE280	Holderness house	Japanese knotweed
NE283	Dismantled railway west of Dansom Lane	Japanese knotweed
NE301	Land to the north of the church, Church Street	Japanese knotweed
NE348	Alderman Kneeshaw recreation ground	Japanese knotweed
NE1012	Bransholme Fishing Lakes and associated land	Giant hogweed, Japanese knotweed

4.27 Notably, Himalayan balsam (*Impatiens glandulifera*), a common invasive weed of river banks and woodland (Preston *et al.,* 2002) was not recorded during the study even on the banks of the city's major waterways. This might be because it cannot tolerate the apparently regular cutting that the banks of the River Hull and the land drains currently undergo.

4.28 It is recommended that removal of invasive species is prioritised toward the sites listed in Table 7. However, it is very important that removal of invasive species within sensitive habitats is carried out extremely carefully. Only contractors familiar with working within conservation sites should be used in such cases.

Revision of the Hull Biodiversity Action Plan (HBAP)

4.29 Penny Anderson Associates were asked by the Hull Biodiversity Partnership (HBP) to suggest review the list of species included on the LBAP with a view to making it more effective in promoting conservation of SNCI. Table 11 lists the current HBAP species, assesses how frequently they were recorded in the study and proposes changes to the list.

Table 11 Recording of HBAP Species during the Study and Proposed Changes to HBAP List

Common Name	Recorded Frequency	Proposed Changes
Lichens	Recorded quite frequently, though surveyors lacked the specialised knowledge to determine genera	None
Wall ferns	Hart's tongue was recorded on three sites. Black spleenwort and maidenhair fern were noted during the survey but were found outside SNCI. The wall of the marina adjacent to site NE369 is an excellent site for this group	None
Bee orchid	Recorded once during the study at NE1012. If a justification were made using the quality assessment forms further sites with this species could be brought within the SNCI register	None
Cowslip	Not recorded but targets specific sites outside the study area	None
Elms	Frequently recorded though the health of trees varied with the best specimens found within cemeteries and parks	None
Yellow-wort	Recorded on three SNCI sites and some incidental records. There is a definite association with 'waste ground'	None
Salt marsh snails	Not recorded as specialist survey was beyond the scope of the study	
Dragonflies	Three records for blue-tailed damselfly, two for common blue and one for banded demoiselle	There maybe a case for explicit naming of species in the HBAP list. Though more data may be needed on their distribution in the city before priorities can be chosen. There may also be a case for creating a separate entry for small red-eyed damselfly
Brimstone	Not recorded in the survey. Of its larval food plants alder buckthorn was recorded once (as an introduction). Purging buckthorn was not recorded	Review habitat creation work and carry out specific survey in early spring.
Common blue	Recorded frequently. Many semi-natural sites have the potential to support this species	None
Common toad	Recorded only twice, both records being provided by allotment holders. Most sites with freshwater have the potential to support this species	Specific surveys of potentially key sites e.g. NE187, NE211 NE1012
Great crested newt	Not recorded but specific surveys were beyond the scope of the study. High potential on several sites	Specific surveys of potentially key sites e.g. NE187, NE211 NE1012

Common Name	Recorded Frequency	Proposed Changes
Common lizard	Not recorded but specific surveys were beyond the scope of the study. High potential on several sites	The only known colony is on site NE102. This suggests that the species may disperse along the live railway network. Surveys of similar sites (e.g. NE42, NE88) may lead to the discovery of new populations
House martin	Frequently recorded	None
Linnet	Surprisingly frequent, a good 'flagship species' for SNCI as it is also a UKBAP species	None
Mute swan	Recorded on five sites. A good 'flagship species' for parks	None
Sky lark	Recorded from three sites usually at the edge of the city though several singing birds on 'waste ground' along River Hull	Specific survey concentrating on River Hull may provide justification for new SNCI
Reed bunting	Recorded from six sites and was sometimes found in large numbers (NE168, NE1012).	None
Song thrush	Recorded from 25 sites. An excellent 'flagship species' for sites that may be amenity managed and support few other 'rare' species	None
Spotted flycatcher	Not recorded during the study or during the 2006-07 bird survey of the city	It is questionable whether this species is still present in Hull. Adoption of house sparrow instead would bring a greater number of sites within the scope of HBAP. House sparrow is also now a UKBAP species
Tree sparrow	Not recorded during the study but targets specific sites outside the study area	None
Harvest mouse	Not recorded due to lack of scope for specialist surveys. High potential recorded on many sites	Survey of sites with high potential
Water vole	Not recorded due to lack of scope for specialist surveys. High potential recorded on many sites	Survey of main waterways in the city to determine distribution.
Hedgehog	Not recorded due to lack of scope for specialist surveys. High potential recorded on many sites	None
Pipistrelle bat	Not recorded due to lack of scope for specialist surveys. High potential recorded on many sites	Encourage local bat groups to visit SNCI to carry out bat detector surveys

Summary

4.30 Superficially, the city of Hull is a highly developed urban area with few obvious opportunities for wildlife. On closer inspection, however, the city is, ecologically speaking, very rich and diverse and boasts an integrated network of green spaces that facilitates the movement of wildlife. Due to its small size and well defined city limits, the fauna incorporates not only urban specialists, such as house sparrow, but also those species generally associated with the countryside, such

as linnet and sky lark. 'Countryside species', such as lady's bedstraw or greater knapweed, are relatively rare amongst the city's flora, though they are still found on some sites. Perhaps the best sites for plants were those where these species were found together with others whose ecology seems to be well suited to urban situations such as yellow wort and common centaury, creating unique sites full of character.

4.31 The study is specifically intended to inform future Hull City Council policy on SNCI though it must be remembered that it provides only a 'snap-shot' of the sites and the function of many is likely to change considerably with the seasons. This limitation should be taken into account, and extensive consultation on any policies based upon it is recommended. The study will also provide an important baseline against which future changes in the SNCI can be measured. Hopefully, some of these changes will be positive as more and more of the sites come under conservation management and perhaps more sites are added to the register.

REFERENCES

Biodiversity Reporting and Information Group (BRIG), 2007. *Report on the Species and Habitat Review*. BRIG, UK.

Department for Environment Food and Rural Affairs (DEFRA), 2007. Guidance for Public Authorities on Implementing the Biodiversity Duty, DEFRA, UK. http://www.defra.gov.uk/wildlife-countryside/pdfs/biodiversity/pa-guid-english.pdf

Department for Environment Food and Rural Affairs (DEFRA), 2006. *Local Sites – Guidance on their Identification, Selection and Management*. DEFRA, UK. http://www.defra.gov.uk/wildlife-countryside/ewd/local-sites/localsites.pdf

English Nature, 1999. *The Lowland Grassland Management Hanbook – Second Edition*. English Nature, Peterborough, UK.

Joint Nature Conservation Committee (JNCC), 2003. *Handbook for Phase 1 habitat survey – A technique for environmental audit*. JNCC, UK.

Preston, C.D., Pearman, D.A. and Dines, T.D., 2002. *New Atlas of the British & Irish Flora – An atlas of the vascular plants of Britain, Ireland, the Isle of Man and the Channel Islands*. Oxford University Press.

Ratcliffe, D. A., 1977. *A Nature Conservation Review.* Cambridge University Press, Cambridge.