Gedling Country Park
Nottingham

Ecology, Landscape and Management Plan 2017- 2021

Gedling Borough Council

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SITE HISTORY

Gedling Country Park is the former Gedling Colliery. The Colliery was the life blood of Gedling and many surrounding villages, based three-miles to the East of Nottingham. Surface works started in 1899 and the shafts commenced being sunk in 1900. In 1902 coal production started and this continued until 8th November 1991 when the colliery was closed. The colliery was originally owned by the Digby Colliery Company from Giltbrook, they merged with Bestwood Company to become Bestwood Amalgamated Collieries Ltd. Nationalisation took place in 1947 to form the National Coal board East Midlands No.6 Area and subsequently into the National Coal Board South Nottinghamshire Area from 1967.

From the early 1950′s to the late 1960′s Gedling was a “big hitter” and regularly produced a million tons of coal during this period. Maximum manpower of 2,500 was achieved in the 1950′s. After World War two Gedling became a receiving pit for many migrant miners from diverse locations around the world and became known as “the pit of all nations”. During the period of mining operation a total of 130 men lost their lives at the pit.

Shortly after the pit closed, the mining infrastructure was removed from site and the land underwent major restoration works including the importation of top soil, tree planting and re-profiling of the Lagoons to improve their appearance and in order to allow a wider diversity of wildlife to inhabit them. These works improved the visual element of the spoil heaps and provided important wildlife habitats. The site as a whole has a great variety of habitats including grasslands, woodlands, wetlands and lagoons.

Twenty years on, nature has been able to take over, notable species of fauna including short eared owls, skylarks, lapwings and rare butterflies amongst others have inhabited the land making the site extremely important for wildlife.

In 2013 Gedling Borough Council signed a lease with Harworth Estates (the then land owners) to develop the 238 ha site into a destination country park.

Since February 2014 major development works have taken place including the installation of new footpaths, making safe the old colliery drainage works and manholes, installation of boundary fencing and engineering works to the main header wall on the Ouse Dyke enabling efficient drainage of the site.

A new access road and car park from Spring Lane complete the development for public access, this area is also ideal for visitors to take advantage of the open panoramic views to the west, south and east.

Due to the openness and the height of the site, views of Lincoln Cathedral and Belvoir Castle can be enjoyed from the footpath around the east tip, along with views of the Trent Valley and into Leicestershire.

A solar Panel farm has been installed on the east tip of the spoil heap providing enough to power approximately 1,800 local homes per year. This facility is owned by a private business, with a

lease agreement in place with Gedling Borough Council. As this area is managed as a Solar Panel Farm it is not subject to this ecology management plan.

In June 2015 the freehold of the land was acquired by Gedling Borough Council from Harworth Estates.

During summer of 2016 the park was awarded a Green Flag Award. A children's play area was installed and during 2017 a Visitors Ccentre has opened along with development of a miner's memorial garden.

1. INTRODUCTION

1.1 This five year Landscape and Management Plan is the second version to be produced. The updated version has been worked on by Gedling Borough Council and Brian Osborne from the Friends of Gedling Country. It provides the details of the recommended ecological management of Gedling Country Park.

1.2 Gedling Country Park is located off Arnold Lane in Nottingham, 5km north-east of the city; centered on grid reference SK 613 441. The location of the site is shown on Figure 1 in Appendix 1.

1.3 In June 2014, EMEC Ecology carried out ecological surveys at the site, in order to inform the 1st version of the Management Plan. Further surveys have taken place. These included:

- Breeding bird surveys (EMEC Ecology 2014a)
- Invertebrate surveys (EMEC Ecology 2014b)
- Bat transects (EMEC Ecology 2014c)
- Reptile surveys (EMEC Ecology 2014d)
- Amphibian surveys (to be carried out in spring 2015)

The results of these surveys are presented in separate reports

1.4 The results of these surveys were then used to:

- Evaluate the nature conservation interest of the site
- Identify nature conservation management objectives
- Produce a prioritised list of management opportunities
- Initially develop a five year work plan to be reviewed periodically and to include recommended community activities to enhance the wildlife.

1.5 Building upon the surveys carried out by EMEC Ecology in 2014, ongoing wildlife surveys have been carried out by members of the friends group working in partnership with Nottingham Trent University Conservation students. See appendix 4 for most recent survey data. Further surveys will take place during the next 5 year period, more information can be found under 'Management Operations – Plan of work'

2. SITE INFORMATION

2.1 Gedling Country Park covers an area of approximately 588 acres/238ha and comprises a variety of habitat types including large expanses of open neutral grassland, woodland (including newly planted areas, areas of existing tree cover comprising dense scrub and small areas of semi-natural woodland) and several ponds.

2.2 The Country Park is located on the former Gedling Colliery Site, which was founded in 1900 and was used for coal production until its closure in 1991. In 2006, extensive landscaping works took place, which involved re-profiling through the movement of previously bunded earth across the site, as well as the spreading of top soil and the seeding of large areas with grass seed mix. More recently, extensive tree planting has taken place.

2.3 The suburb of Carlton lies to the south of the site and Woodthorpe and Arnold lie to the west. Farmland comprising of arable land and grassland occurs to the north and east. The River Trent lies approximately 2.5km to the east.

2.4 Gedling Borough Councils aspirations for the Park are to continually develop it into a destination that is sustainable into the future, for all sections of the community with particular interest in the following:

- Conserving the wildlife
- A place for families to enjoy
- Involving the community
- Education and promotion of the wildlife and industrial heritage of the site, particularly the uniqueness of the site in terms of energy production, historically with coal mining, more recently with methane gas extraction and the solar panel farm located on the east tip.

2.5 In order to ensure the maintenance and enhancement of the parks landscape and wildlife features, the five year Management Plan will continue to identify the sites important flora and fauna (through ecological surveys), with measures for conservation, management and maintenance

3. METHODOLOGY OF ORIGINAL ECOLOGY REPORT

3.1 Desk Study

This involved consultation to obtain any existing records of protected and/or notable species and designated nature conservation sites e.g. Sites of Special Scientific Interest (SSSI) and Local Wildlife Sites (LWS) from the site to a distance of approximately 2km (this will be referred to as the 'study area'). The following organisations were contacted:

- Nottinghamshire Biological and Geological Records Centre.
- Nottinghamshire Wildlife Trust (County Mammal Recorder).
- Multi-Agency Geographic Information for the Countryside (*Magic* web site for statutory nature conservation sites).

3.2 Extended Phase 1 Habitat Survey

Several ecological walk-over surveys of the site were conducted and notes were made on the Phase-1 habitat types present (JNCC 2010) and their suitability for protected species. Target notes were used to record any habitats or features of particular interest and any sightings, signs or evidence of protected or notable faunal species or any potential habitat for such species, as detailed below:

- The suitability of habitats for badgers was recorded and any evidence of badgers including setts, dung pits, badger paths, hairs, bedding, footprints and scratching trees was noted.
- Trees with features suitable for roosting bats were noted, such as hollows, cracks and cavities within trunks and branches (e.g. old woodpecker holes), crevices behind loose bark and ivy growth.
- The suitability of habitats was assessed for amphibians (including great crested newt *Triturus cristatus*) and reptiles.
- The suitability of habitats was assessed for nesting birds.

EMEC Ecology visited the site on several occasions to carry out the above walk-over surveys between late April and late June 2014.

3.3 Limitations

Although every attempt was made to cover the survey area in as much detail as possible, due to the large size of the site, it is possible that infrequently occurring plant species, or signs of faunal species, such as badger latrines or small outlier setts, may not have been recorded.

3.4 Ecological Evaluation Criteria

Ecological evaluation was undertaken using a combination of evaluation criteria for both habitats and species although the general framework follows that provided by the Institute of Ecology and Environmental Management (IEEM 2006). Key categories are as follows:

- International value (internationally designated sites or sites supporting populations of internationally important species);
- National value (nationally designated sites (e.g. SSSI) or sites supporting viable populations of nationally important species);
- Regional value (sites exceeding county-level designations but not meeting SSSI criteria or supporting viable populations of species on the regional Biodiversity Action Plan, BAP);
- County value (county sites (e.g. Local Wildlife Site) and other sites which meet the published ecological selection criteria for county designation, a viable area of habitat identified on the county BAP);
- District value (sites/features that are scarce within the District and appreciably enrich the District's habitat resource);
- Parish value (areas of habitat considered to appreciably enrich the habitat resource within the context of a parish or neighbourhood);
- Sub-parish value (common, low grade habitats).

Additional criteria employed were from the following:

- Schedules and Annexes of UK and European wildlife legislation (e.g. Wildlife and Countryside Act (1981) (as amended) and The Conservation of Habitats and Species Regulations 2010 (as amended);
- International conventions on wildlife (e.g. Bern Convention, Bonn convention);
- Habitats and Species of Principal Biological Importance listed on Section 41 of the Natural Environment and Rural Communities Act (2006);
- UK Biodiversity Action Plan (UK BAP 2007);
- County Biodiversity Action Plan (Nottinghamshire BAG 1998);
- Taxa-specific conservation lists (e.g. RSPB Lists of species of conservation concern, RSPB 2009).

4. ECOLOGICAL BASELINE

4.1 Desk Study[1]

4.1.1 *Designated Nature Conservation Sites*

a) *Statutory Sites*
There are no statutory nature conservation sites (i.e. SSSI) within the survey or study areas.

b) *Non-statutory Sites*
One non-statutory designated site, e.g. Local Wildlife Site (LWS) occurs within Gedling Country Park, namely Gedling Colliery Site and Dismantled Railway. A further ten occur within one kilometer from the Park (Table 4.1).

Table 4.1: Summary of Non-statutory Nature Conservation Sites within 1km of the Site.

LWS	**Location and Approx. Distance from Gedling Country Park (at closest point)**	**Reason for Designation**
Gedling Colliery Site and Dismantled Railway LWS	SK 612 437 Located within Gedling Country Park.	A former colliery site with notable plant assemblage.
Harveys Plantation Meadow LWS	SK 619 432 Located 240m to the south-east.	A steeply sloping meadow.
Barrons Plantation with Gedling District Wood LWS	SK 626 437 Located 380m to the east.	A valuable woodland habitat with noteworthy species content.
Marshy Grasslands, Lambley LWS	SK 613 450 Located 420m to the north.	Two grasslands with a central species-rich marsh.
Grassland/Hedge, Lambley LWS	SK 605 450 Located 430m to the north-west.	Unimproved neutral grassland.
Lambley Dumble Grassland LWS	SK 624 449 Located 450m to the north-east.	Grassland with a notable community and pronounced ridge and furrow.
Mapperly Plains Paddocks LWS	SK 604 451 Located 460m to the north.	Grassland with a noteworthy and characteristic community.
Gedling Cemetry LWS	SK 613 429 Located 500m to the south.	Notable neutral grassland in a cemetery.
Lambley Dumble Pasture LWS	SK 620 451 Located 560m to the north.	Semi-improved neutral grassland with a relatively species-rich sward.
Lambley Dumble LWS	SK 623 451 Located 680m to the north.	A good example of a dumble, with many characteristic species.
Crock Dumble LWS	SK 631 440 Located 800m to the east.	A notable dumble.

[1] A copy of the full desk study data is provided in Appendix 4.

4.1.2 *Protected/notable Floral Species*

There are no previous records of protected or notable floral species for the study area. There are a number of records of Japanese knotweed (*Fallopia japonica*) from the southern site boundary, although, the most recent record is from 2005 and no Japanese knotweed was noted during the walk-over surveys.

4.1.3 *Protected/notable Faunal Species*

There are records of badger, bats and common amphibians from within Gedling Country Park and further records of protected and notable species for the study area (see Table 4.2). Protected species legislation details are provided in Appendix 2.

Table 4.2: Protected and Notable Faunal Species within the Study Area

Species	**Approx. Distance of from Gedling Country Park**	**Legislation / Conservation Status**
Amphibians		
Common toad *Bufo bufo*	Records from north and south lagoons within Gedling Country Park, from surveys carried out in 2010. Several additional records within the vicinity.	Protected from sale under UK legislation. UK Priority BAP Species. SoCC in Nottinghamshire.
Common frog *Rana temporaria*	Records from north and south lagoons within Gedling Country Park, from surveys carried out in 2010. Numerous additional records within the vicinity.	Protected from sale under UK legislation. SoCC in Nottinghamshire.
Smooth newt *Lissotriton vulgaris*	Records from the north lagoon within Gedling Country Park, from surveys carried out in 2010. Several additional records within the vicinity.	Protected from sale under UK legislation. SoCC in Nottinghamshire.
Mammals		
Badger *Meles meles*	Due to the sensitive nature of such records the exact grid references will not be given Four set records from within Gedling Country Park. Numerous further set records and casual sightings from the immediate vicinity.	Protected under UK legislation from willful killing, injury, taking, or cruel treatment. It is also illegal to intentionally or recklessly interfere with a badger sett. SoCC in Nottinghamshire.
Pipistrelle bat *Pipistrellus* spp.	The closest roost record is from the disused railway tunnel under Mapperley Plains Road (most recently from 2007), the entrance to which is adjacent to the southern boundary of Gedling Country Park. Several further roost records occur within close vicinity, in private residences in Mapperley, Arnold and Lambley.	Animal and roost fully protected under UK and European legislation. County BAP Priority Species.
Brown long-eared bat *Plecotus auritus*	The closest roost record is from the disused railway tunnel under Mapperley Plains Road, (most recently from 2007), the entrance to which is adjacent to the southern boundary of Gedling Country Park. Further roost records from Gedling Parish Church and Lambley.	Animal and roost fully protected under UK and European legislation. UK BAP and County Priority Species.

Noctule bat *Nyctalus noctula*	Casual record from the southern section of Gedling Country Park from 2007.	Animal and roost fully protected under UK and European legislation. UK BAP and County Priority Species
Species	**Approx. Distance of from Gedling Country Park**	**Legislation / Conservation Status**
Daubenton's bat *Myotis daubentonii*	Casual records of foraging bats over the lagoons within Gedling Country Park, from 2005 and 2008.	Animal and roost fully protected under UK and European legislation. County BAP Priority Species.
Natterer's bat *Myotis nattereri*	The closest roost records are from the disused railway tunnel under Mapperley Plains Road, (most recently from 2004), the entrance to which is adjacent to the southern boundary of Gedling Country Park.	Animal and roost fully protected under UK and European legislation. County BAP Priority Species.
Whiskered / Brandt's bat *Myotis mystacinus* / *M. brandtii*	Roost record from 1.1km north from 2009.	Animal and roost fully protected under UK and European legislation. County BAP Priority Species.
Water vole *Arvicola amphibius*	The most recent record is from 1996, which occurs 1km north-east.	Animal and resting places are fully protected under UK legislation. UK and County BAP Priority Species.
Brown hare *Lepus europaeus*	Several records from around Lambley. The most recent is from 2011, 700m north.	UK BAP Priority Species. SoCC in Nottinghamshire.

SoCC = Species of Conservation Concern

4.2 Extended Phase-1 Habitat Survey

4.2.1 *Habitat Types*
The following Phase-1 habitat types were recorded:

- Bare ground
- Dense scrub
- Dry ditch
- Open water
- Paths and tracks
- Poor semi-improved grassland
- Scattered broadleaved trees and scattered scrub
- Semi-improved neutral grassland
- Species-poor hedgerow
- Tall ruderal
- Wet flushes
- Woodland: Semi-natural broadleaved woodland
  New plantations
  Existing woodland/tree cover)

Habitat and target notes descriptions are provided below. Nomenclature follows that of Stace (1997). In the text species are referred to using their English names, Appendix 2 provides a list of species including their scientific names.

4.2.2 *Habitat Descriptions*

a) *Bare ground*
Temporary areas of bare ground were present alongside the new paths and tracks which had been created as a result of the recent construction works.

Areas of bare ground formed a mosaic with the lower growing grassland in places, particularly on the south-facing banks in the south-west of the site (SNG 4).

b) *Dense scrub*
Dense scrub, dominated by hawthorn and bramble, occurred along the boundaries of Woodland 1. Further dense bramble occurred at the eastern end of woodland 2; large numbers of lupin were also recorded here.

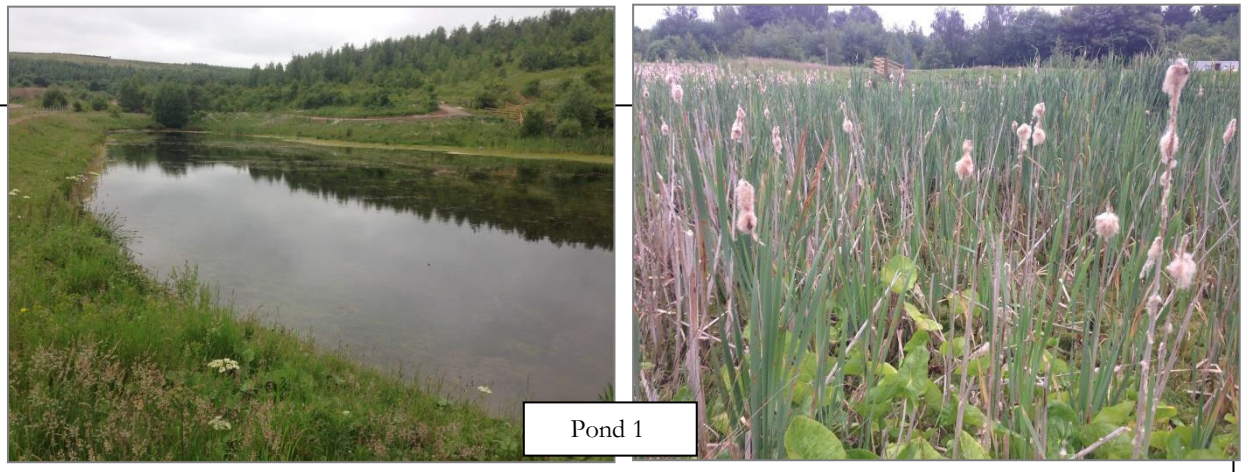
c) *Dry ditch*
A number of drainage ditches and channels occurred throughout the site. These were generally dry at the time of the surveys, although a few areas of shallow standing water occurred. Occasional small stands of bulrush were noted in some of the ditches but no other aquatic or marginal vegetation was present.

d) *Open water*

A number of ponds occurred within the Park. All of these had some level of the invasive plant New Zealand pigmyweed present. The worst effected ponds were Ponds 1 and 2.

- Pond 1

Pond 1 measured approximately 3,800m^2 and was estimated to be up to approximately 1m deep. A stand of bulrush occurred on the eastern side of the pond. Other marginal species included marsh marigold, water dock, hard rush and jointed rush. Aquatic plants included common water crowfoot and New Zealand pigmyweed, a highly invasive, non- native species. On the visit to the site in late June 2014, New Zealand pigmyweed was covering one third of the pond area.



Pond 1

- Pond 2

Pond 2 measured approximately 4,400m^2 and was also estimated to be around 1m deep. The north-western side of this large pond was dry and was blanketed by New Zealand pigmyweed. A small stand of bulrush was present in the southern margin. Other aquatic plant species included water dock and common spike-rush.

Pond 1

b

Pond 2; showing the carpet of New Zealand pigmyweed (b) on the north-western side of the pond.

- Pond 3

Pond 3 measured around 2,400 m^2 and was dominated by common reed, making the depth of the water difficult to estimate. Only a relatively small area of open water occurred in the centre of the pond. Brooklime was recorded in the pond and hard rush, round-fruited rush and common spike-rush occurred in the margins. Aquatic species included a water milfoil, duckweed and New Zealand pigmyweed.

Pond 3

- Pond 4

The majority of Pond 4 was dry at the time of the surveys and appeared to have been dry for some time due to the occurrence of well-established grassland species on much of the substrate. A small amount of common reed occurred at the eastern end of the pond. This area contained shallow standing water at the beginning of May but had dried completely by mid-June. Small amounts of New Zealand pigmyweed were noted.

- Pond 5

This was very shallow, up to approximately 15cm deep. Common spike-rush covered much of the ponds surface and a relatively large amount of filamentous green algae was also present. False fox-sedge and hard rush was present in the margins and New Zealand pigmyweed was also noted.

Pond 5

e) *Paths and tracks*

Paths and tracks, some suitable for vehicles access, had recently been installed throughout the site. A new access road and small car park had also been constructed off Spring Lane in the north of the site.

f) *Poor semi-improved grassland*

Poor semi-improved grassland occurred in the north of the site between Spring Lane and the woodlands. These areas comprised of unmanaged swards with large amounts of scattered scrub in places, including goat willow, hazel and alder saplings with occasional bramble. Tall ruderal species were dominating the grassland in some places, particularly wild teasel and creeping thistle. The dominant grass species in these areas was Yorkshire fog, false oat-grass and cock's-foot with herbs including abundant ribwort plantain, creeping thistle, great willowherb and wild teasel. Common bird's-foot trefoil, spear thistle, hairy tare, broadleaved dock, common nettle, white clover, red clover, creeping buttercup and common knapweed were recorded frequently and occasional oxeye daisy, colt's-foot, field forget-me-not and meadow vetchling occurred. Red fescue was locally abundant and hedge woundwort and field horsetail occurred close to the ditch, beneath the overhang of the trees and scrub.

Poor semi-improved grassland in the north of the site, close to Spring Lane.

Grassland in the centre of the site on banks around new plantations and Pond 3 were less species-rich than the surrounding grasslands and in some places were dominated by common grasses and tall ruderal species. Yorkshire-fog, false oat-grass and cock's-foot were the most common grasses and herbs included abundant creeping thistle, spear thistle, common nettle, great willowherb, hairy tare and common bird's-foot trefoil.

g) *Scattered broadleaved trees and scattered scrub*

A line of scattered broadleaved trees and scrub bordered the site to the north, along Spring Lane. Species included sycamore, ash, pedunculate oak, cherry species, hawthorn, elder, dog rose and blackthorn. A number of the trees along this boundary were mature.

Scattered scrub occurred throughout the site, particularly around the ponds and on steep banks in the south of the site. Scrub also occurred through the neutral grassland on the pit top (SNG 1) and in the west of the site (SNG 3). Species recorded frequently included dog rose, hawthorn, buddleia, goat willow and silver birch saplings.
No semi-mature or mature trees occurred within the site other than on the northern boundary and within the semi-natural woodland.

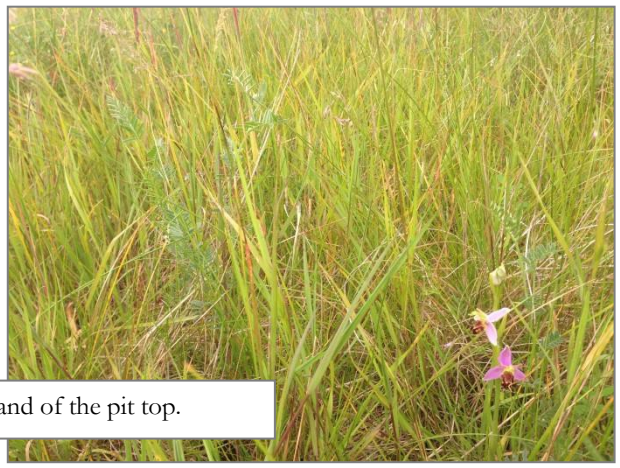
h) *Semi-improved neutral grassland*

The majority of the grassland within the site was species-rich and comprised a number of interesting floral species, as described below. The grassland areas were sown with a grass seed mix in 2006, following the application of top soil.

SNG 1

The main grassland area on the pit top, close to and within the boundary of the proposed solar farm, comprised a number of grasses including Yorkshire fog, crested dog's-tail, red fescue, sweet vernal grass, yellow oat-grass, false oat-grass, common bent, cock's-foot and tufted hair-grass. Hard rush also occurred frequently and locally abundant garden lupin was noted. Commonly recorded herbs in this area included colt's-foot, common bird's-foot trefoil, ribwort plantain, hoary willowherb, black medick, hop trefoil, hairy tare, perforate St John's-wort, oxeye daisy, white clover and creeping buttercup. Also recorded frequently were yellow-wort, wild carrot, bristly ox-tongue, meadow vetchling, bush vetch, red valerian and square-stemmed St John's-wort. Goat's-beard, red bartsia, lady's bedstraw and cut-leaved crane's-bill were recorded occasionally and a small area of zig-zag clover was noted. Particularly notable, on the northern edge of the pit top, a rather high number of bee orchid were recorded. On the southern banks of the pit tip, where the vegetation was more sparse, common centaury and lesser stitchwort were noted. Common spotted orchid were also noted in the grassland on the northern edge of the woodland to the north of Ponds 1 and 2.

Scattered scrub and areas of tall ruderal vegetation occurred frequently within SNG 1.



SNG 1; Grassland of the pit top.

SNG 2

Dominant species in this grassland, in the north-west of the site, were red fescue, Yorkshire-fog, crested dog's-tail, hairy tare, creeping cinquefoil, ribbed melilot, black medick, meadow vetchling, red clover, white clover, tufted vetch and oxeye daisy.

Further species recorded regularly included common ragwort, curled dock, common cat's-ear, spear thistle, meadow buttercup and bush vetch. Goat's-beard, creeping thistle, colt's-foot, common knapweed, bramble and red valerian were noted occasionally.

Damper areas supported locally abundant hard rush and false fox-sedge.

SNG 2

SNG 3

Much of the grassland in this area was less species-rich and more dominated by grasses although still comprised a number of floral species. Grasses included false oat-grass, common bent, creeping bent, Yorkshire fog, cock's-foot, red fescue and tall fescue, along with herbs such as common ragwort, oxford ragwort, creeping thistle, prickly sow-thistle, cow parsley, cleavers, wild carrot, spear thistle, bristly ox-tongue, black medick and cut-leaved crane's-bill.

Further to the west, more open areas with lower-growing grasses occurred; additional floral species were recorded in these areas, including oxeye daisy, meadow vetchling, rough hawkbit, mouse-eared hawkweed, colt's-foot, common centaury, goosefoot, scented mayweed, common cat's-ear, yellow wort, autumn hawkbit and false fox-sedge. A few areas of wild strawberry were also noted, where the ground had been recently disturbed.

Scattered scrub and areas of tall ruderal vegetation were common within this grassland area.

SNG 3 showing low-growing, open areas in the foreground and taller vegetation beyond.

SNG 4

Areas of low-growing, sparse grassland, interspersed with areas of bare ground, occurred on the steep, south-facing banks in the south of the western arm. Commonly recorded species in this area included wild strawberry, common centaury, common bird's-foot trefoil, oxeye daisy, yellow-wort, black medick and wild teasel with occasional common evening primrose. Scattered scrub occurred frequently in these areas; species included silver birch and occasional gorse.

Grassland on steep south-facing banks (SNG 4)

i) *Species-poor hedgerow*

A hedgerow occurred along the north-west site boundary. This was dominated by hawthorn with occasional goat willow, field maple and pedunculate oak. The hedgerow was approximately 1.5m high and relatively immature.

Hedgerow on the north-west site boundary

j) *Tall ruderal*

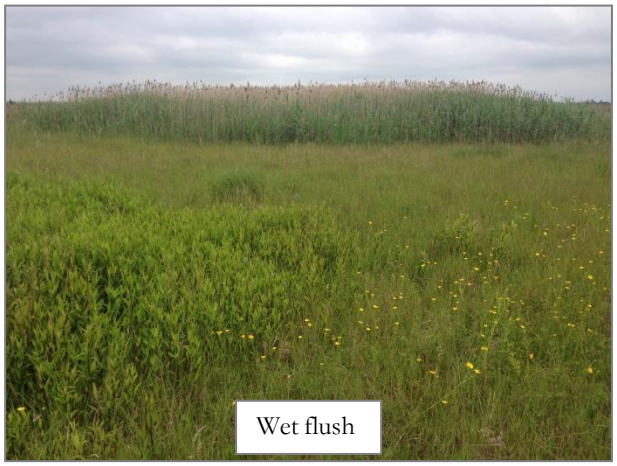
Large areas of tall ruderal vegetation occurred regularly within the grasslands, particularly in SNG 3 and within the poor semi-improved areas in the centre of the site. Further tall ruderal areas occurred where the ground had been disturbed to install the new tracks, particularly close to the entrance from Spring Lane. Creeping thistle, common nettle, great willowherb, cow parsley and hogweed were the dominant species in these areas.

A relatively large area, dominated by spear thistle and creeping thistle, was noted within SNG 1, on the southern boundary of the proposed Solar Farm. Prickly lettuce, hogweed and cleavers were also recorded regularly in this area.

k) *Wet flush*

A number of wet flushes and small reed beds occurred within the grassland on the pit top. Many of these areas comprised of small stands of common reed with little or no standing water. A small area of bulrush occurred on the eastern side of the site.

Other floral species recorded in these areas included canary reed-grass, false fox-sedge, hard rush, soft rush and amphibious bistort.



Wet flush

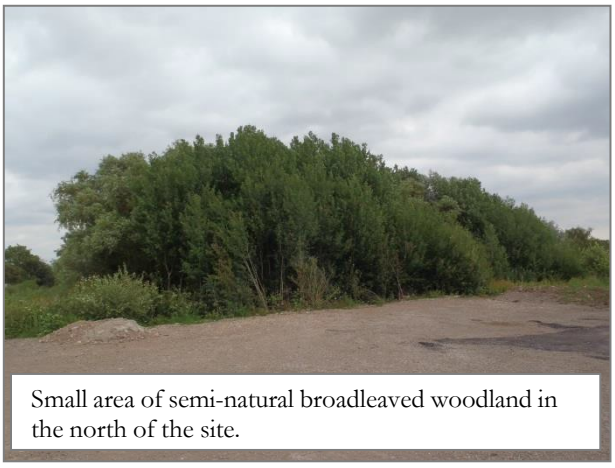
A further small flush occurred on the north-west boundary, close to the pedestrian access track. This comprised a muddy area containing common spike-rush, false fox-sedge, amphibius bistort and occasional hard rush.

l) *Woodland*

- Semi-natural broadleaved woodland

Mature semi-natural woodland occurred on the south-western site boundary (W15). Sycamore was the most common tree species within this woodland although silver birch, ash and willow species were recorded regularly. The understory was relatively sparse but comprised hawthorn and elder with dense bramble in the edges. The ground flora was sparse with many areas of bare ground, although wood avens and common nettle were recorded frequently and wood forget-me-not was noted occasionally. Bracken was abundant in the woodland edge, particularly on the steep south-facing bank running down to the woodland.

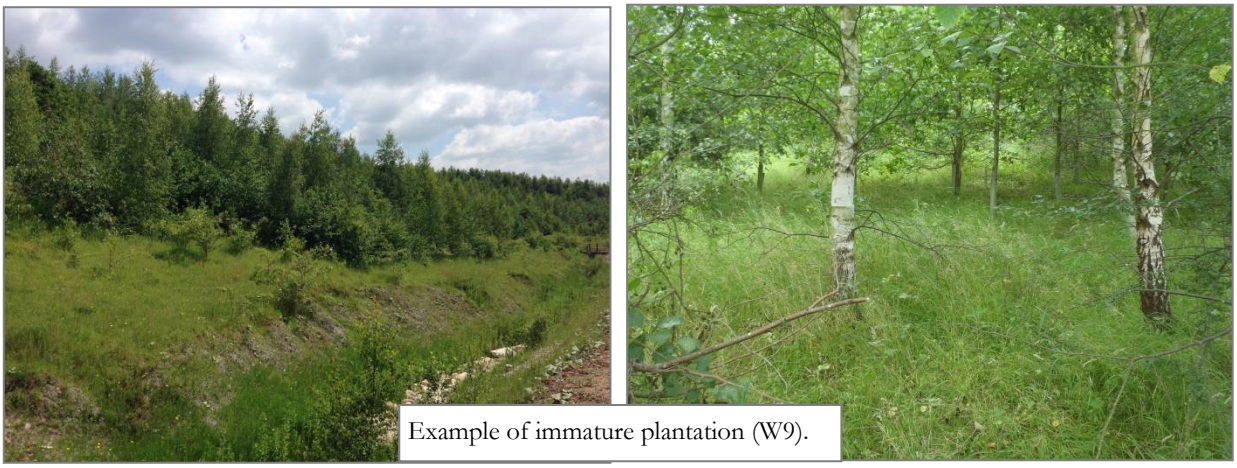
A further small area of semi-natural woodland (measuring approximately 7000m^2) occurred on the northern boundary (W2). This comprised a number of semi-mature to mature white poplar, crack willow, white willow and aspen with occasional ash. The understory comprised hawthorn and dog-rose with occasional elder and honeysuckle. The ground flora was dominated by common nettle although bramble, wood avens, wood forget-me-not, cleavers, broadleaved willowherb, red fescue and rough meadow grass were recorded.



Small area of semi-natural broadleaved woodland in the north of the site.

- New plantations

A large amount of tree planting had been carried out over the last few years at the site. All of the plantations were immature and relatively open. Woodland ground flora was currently lacking and dominated by grasses with dense bramble occasionally present.
Many of the plantations were dominated by silver birch with a variety of additional species, including horse chestnut, hawthorn, alder, sessile oak with occasional pedunculated oak and scot's pine. No dominant tree species were apparent in plantations W4 and W12 but comprised similar species to those described above. W11, on the north-western site boundary was an immature willow plantation.



Example of immature plantation (W9).

- Existing woodland/tree cover

Areas of more mature tree cover occurred within the site, although these generally comprised of dense scrub with occasional semi-mature trees.

W3 was dominated by alder and hawthorn with frequent blackthorn (especially in the woodland edges), dog rose, ash sapling and bramble. Ground flora was very sparse due to the dense nature of the woodland, although great willowherb and other tall ruderal species were dominant in the boundaries. W6 was of a similar composition although frequent gorse was noted within the woodland edge.

W7, on the south-east boundary, was dominated by hawthorn with frequent dog rose, silver birch, ash saplings, *Sorbus* species and bramble. Again, ground flora within the woodland itself was limited to grasses, although large amounts of goat's-rue, hedge woundwort and oxeye daisy were present within the edges.

W8, to the north of Ponds 1 and 2, was dominated by hawthorn with frequent goat willow, field maple, dog rose, whitebeam, ash saplings, bramble and infrequent semi- mature crack willow and white poplar.

4.2.3 *Target Notes*

The locations of target notes are shown on Figure 2 in Appendix 1.

1. Large badger sett in the semi-natural woodland on the south-west site boundary.
2. Badger trails leading from Spring Lane through the grassland.

4.2.4 *Faunal Species*

a) *General*

EMEC Ecology carried out a suite of ecological surveys at Gedling Country Park over the summer of 2014, in order to investigate the assemblages of flora and fauna currently present and to inform the management recommendations.

The full details and results of these surveys are available in individual reports. A summary of the results of each of the surveys are given below.

Further surveys are planned each year – see management plan objectives

b) *Amphibians (2014)*

All of the ponds within the site were considered to provide potential breeding habitat for amphibians. Very high numbers of tadpoles were observed in all of the ponds during the first site visit in late April, and dead toads and frogs, which had been predated probably by fox (*Vulpes vulpes*), were noted close to Pond 3. Ponds 1, 2 and 3 were noted to contain fish.

An amphibian survey was carried out at the site in 2007 (Osbourne, J.E. 2007). No great crested newts were recorded during this survey, although smooth newts, frogs and toads were recorded in all of the ponds. The greatest numbers of smooth newts were recorded in Ponds 1 and 3.

c) *Badger*

A large badger sett (Target note 1) comprising of around 12 active holes was recorded in the semi-natural woodland on the south-west site boundary (W15). A number of fresh latrines were also noted in the area suggesting that the sett is active. Trails led from the sett, up the steep bank to the east and into the open habitats of the Park.

a. One of the sett entrances, and b. a latrine within the semi-natural woodland on the south-west boundary.

A mammal trail (Target note 2), very likely to be that of badger, was also noted in the grassland close to Spring Lane, although no sett was found in this area. Although four sett records exist from within the Park from 2007, three of these records relate to Target note 1. The additional sett record relates to a single hole sett close to Pond 1 which could not be located during the surveys.

The further, more mature areas of woodland and scrub, were also considered to provide potential for sett-building and the grasslands were considered to provide foraging opportunities for badger. The immature plantations are likely to provide more potential for sett-building as they mature.

d) *Bats*

The semi-mature to mature trees that occur within the site boundaries and within the semi-natural woodland are likely to provide features with the potential to support roosting bats. Few mature or semi-mature trees occur within the Park itself, other than a small number within W2 and W8.

The linear features within the site, in particular the woodland edges and hedgerows, are likely to provide foraging and commuting routes and the water bodies were considered to provide further foraging opportunities for bats.

For the results of bat transects carried out at Gedling Country Park and further information on bat use of the site, see EMEC Ecology 2014c

e) *Invertebrates*

Gedling Country Park supports a very diverse invertebrate fauna with 258 species of invertebrate being known to the site. Many of these species are grassland and meadow specialists which rely on specific plant species as their food source. Other species found are associated with newly disturbed land and rely on the complex habitat mosaics found at the Gedling site.

Notably, the Gedling Country Park is one of only two locations in Nottinghamshire which supports the dingy skipper (*Erynnis tages*), a Priority Species in Nottinghamshire (Nottinghamshire BAG 1998). Several species which are new to Nottinghamshire have been recorded at the Park, i.e. are recorded nowhere else in Nottinghamshire, including a small weevil (*Microplontus campestris*), a ground beetle (*Microlestus minutulus*) and the turtle shield bug (*Podops inuncta*). Of the species found 5 species of Coleoptera are considered as nationally notable and are listed as Species of Conservation Concern on the Nottinghamshire BAP.

See EMEC Ecology 2014b for full details of invertebrate survey

f) *Breeding Birds*

A rich assemblage of breeding birds was recorded during the 2014 breeding season. A total of forty seven species were recorded within the site and its vicinity, of which thirty five were considered to be breeding. Of the breeding species, four were red listed species of conservation concern (Eaten *et al.* 2009); song thrush (*Turdus philomelos*), skylark (*Alauda arvensis*), cuckoo (*Cuculus canorus*) and lapwing (*Vanellus vanellus*). In addition, four species were considered to be possible breeders including the red-listed linnet (*Carduelis cannabina*).

A mosaic of habitat was present throughout the site providing nesting opportunities for a variety of species. The grassland on the Pit Tip (SNG 1) provided nesting habitat for ground nesting birds including skylark of which approximately forty four territories were recorded, and lapwing of which three pairs were recorded. Reed bunting (*Emberiza schoeniclus*) and meadow pipit (*Anthus pratensis*) were also recorded breeding within this

habitat. The scrub and woodland habitat provided nesting habitat for a variety of woodland birds including song thrush, blackcap (*Sylvia atricapilla*), garden warbler (*Sylvia borin*), and willow warbler (*Phylloscopus trochilus*) of which there were good numbers. The waterbodies onsite and associated reedbeds also provide nesting habitat for common water birds including coot (*Fulica atra*), moorhen (*Gallinula chloropus*) and little grebe (*Tachybaptus ruficollis*) which were recorded breeding. A pair of reed warbler was also recorded breeding within the reeds of Pond 3.

See EMEC Ecology 2014a for full details of breeding bird surveys

g) *Reptiles*

No reptile species were recorded during the reptile surveys (EMEC Ecology 2014d). However, many of the habitats within the site were considered to provide potential habitat for reptile species. In particular, the south-facing bank in the south of the site, with sparse grassland (SNG 4) and areas of bare ground, was considered to provide good foraging and basking opportunities. In general, areas of low growing or tussocky grassland with scattered scrub or bare ground providing structural diversity with areas for basking and vegetation for shelter were considered to provide the most opportunity for reptiles.

Mosaic of low-growing grassland and bare ground on south-facing bank (SNG 4); ideal potential reptile habitat.

For the results of reptile surveys carried out at Gedling Country Park, see EMEC Ecology 2014d

5. EVALUATION

5.1 Habitats

The evaluation of the habitats within the site is based on the guidelines from CIEEM (IEEM 2006). As indicated the habitats within the site are considered to be of moderately high 'County' value to low 'Sub-Parish' value.

Gedling Country Park, as a whole, is considered to be of high 'County' value. An interesting variety of habitats have developed on the site since the closure of the colliery and the subsequent landscaping works in 2006 which support diversity of flora and fauna, including numerous notable species. The site comprises a variety of habitats which form a landscape-scale mosaic of habitats, from open, bare ground and grassland with wet flushes, to mature woodlands, all of which support an abundance of flora and fauna. 'Open Mosaic Habitats on Previously Developed Land', such as those present at Gedling, are a UK BAP Priority Habitat (UK BAP 2007). Features present at the Park, such as areas of disturbed ground, bare ground and temporary pools, flower rich grassland and a large degree of spatial and temporal variation within a relatively small area of land, meet the criteria for the Open Mosaic habitat classification. 'Urban and Post-Industrial Habitats' are a Priority Habitat on the Local BAP (Nottinghamshire BAG 1998).

Habitat	Reason for Valuation
County Value	
Semi-improved neutral grassland	The grassland covering the majority of the site is species-rich and supports notable flora, including a number of orchid species. The grassland also provides breeding habitat for a very high number of skylark, a red listed bird species as well as a number of other notable bird species. 'Lowland meadow' is a priority habitat type on the UK BAP (UK BAP 2007) and 'lowland neutral grassland' is a priority habitat on the local BAP (Nottinghamshire BAG 1998). The neutral grassland areas are likely to qualify as a Local Wildlife Site.
District Value	
Semi-natural broadleaved woodland	Although only a small area of mature woodland it represents an uncommon habitat type within the area. Although the ground flora generally lacks species indicative of long-established woodland, the habitat provides good habitat for nesting birds, foraging bats and invertebrates.
Parish Value	
Dense scrub	Areas of dense scrub are valuable in providing habitat for nesting and foraging birds, as well as shelter for a variety of faunal species and sett-building potential for badgers.
Open water	The ponds provide breeding habitat for common amphibian species and nesting and foraging habitat for a variety of birds, including some notable species. However, the invasive plant species, New Zealand pigmyweed, is likely to reduce the value of the habitat for flora and fauna and should be treated as a priority.
Poor semi-improved grassland	The poor semi-improved grassland supports a number of common floral species and provides potential foraging habitat for badger and pollinating insects.
Reedbed	The small reedbeds provide potential shelter for a number of groups including reptiles, amphibians and small mammals as well as providing some nesting opportunity for notable birds.

Habitat	Reason for Valuation
Scattered broadleaved tree	Mature broadleaved trees provide excellent bird nesting habitat as well as potential for roosting bats and various invertebrates.
Species-poor hedgerow	The hedgerow is dominated by hawthorn and would not qualify as 'important' (using ecological criteria) under the Hedgerow Regulations (1997). However, all hedgerows are of ecological value, providing potential bird nesting habitat, bat foraging and commuting routes, amphibian and reptile cover and sheltering opportunities for small mammals.
Woodland (Existing woodland/tree cover)	The majority of the existing tree cover on site, other than the new plantations, comprises dense scrub with occasional semi-mature trees. However, these areas do provide a resource for a variety of faunal species, including high numbers of nesting and foraging birds, potential for badger sett-building and cover for amphibians and small mammals.
Woodland (New plantations)	The new plantations are currently immature and lack a woodland ground flora. They do provide bird nesting and foraging habitat and as they mature, their value will increase.
Sub-Parish Value	
Dry ditch	The dry ditches support a number of grassland and tall ruderal species as well as a few areas of bulrush. They provide potential dispersal routes for amphibians, reptiles and mammals.
Scattered scrub	Scattered scrub provides potential bird nesting and foraging habitat as well as shelter for a variety of other faunal species. Scattered scrub also often provides a refuge in otherwise open habitat.
Tall ruderal	Generally botanically species-poor, although the habitat may provide some foraging and sheltering opportunities for birds and mammals and a resource for pollinating insects.

5.2 Faunal Species

a) *Amphibians*

Ponds 1, 2 and 3 were noted to contain fish. Common amphibians can co-exist with fish, although their ability to do this differs between species. Common toad tadpoles for example are distasteful to fish and smooth newt larvae and common frog tadpoles, although vulnerable to predation by fish do often breed successfully in stocked ponds. This is likely to depend on the availability of refuges and shallow areas for the larvae. It is considered unlikely that great crested newts would use these ponds for breeding however, as fish are a major negative factor for great crested newt survival. Since great crested newt larvae, unlike smaller newt species, swim and drift within the water column, they are extremely vulnerable to predation by fish (Beebee and Griffiths 2000).

Pond 4 contains only very shallow water at the eastern end although it has held water throughout the spring and early summer of 2014 and Pond 5 is an ephemeral pond which also dries regularly. These ponds provide the most potential for great crested newt, although none have yet been recorded at the site. The lack of bank side vegetation to provide shade, and leafy aquatic plants suitable for egg-laying, are a negative factor for great crested newt breeding in Pond 5.

The value of the site for amphibians will be further evaluated following the amphibian surveys planned within the management objectives

b) *Badger*

The active sett recorded in the mature woodland and the badger trails recorded in the north of the site confirm that badgers are active in the area. The variety of habitats on the site all provide excellent foraging habitat for badger and the further woodlands and areas of dense scrub provide additional potential sett-building habitat. As the new plantations mature, they will also provide further potential.

c) *Bats*

The mature trees within the woodland and in the site boundaries are likely to provide some roost opportunities for bats such as cracks and crevices and areas of flaking bark.

The linear features within the site, particularly the woodland edges and hedgerows provide commuting routes for bats and the ponds provide further foraging habitat.

A full evaluation of the Bat survey can be found in EMEC 2014c

d) *Invertebrates*

The invertebrate fauna at Gedling Country Park is rich and diverse and the mosaic of habitats at the site support a number of locally rare species, including at least three species which are found nowhere else in Nottinghamshire. The presence of the dingy skipper is particularly notable and management will be required to ensure its protection at the site.

A full evaluation of the invertebrate fauna can be found in EMEC 2014b.

e) *Breeding Birds*

According to Fuller (1980) the value of a site for breeding birds may be assessed on a scale of importance ranging from Local Importance to National Importance by counting the numbers of breeding species. Gedling holds at least thirty five species of breeding birds and therefore the site is considered to be of 'District Importance' (25 – 49 breeding species). As discussed above, the site currently holds large numbers of breeding skylark; therefore the site is considered an important breeding area for this species. In addition, the presence of three pairs of breeding lapwing is a notable number for a semi-urban site.

A full evaluation of breeding birds at the Park can be found in EMEC 2014a.

f) *Reptiles*

Although no reptiles were recorded during the surveys and no records of any reptile species occur from within the site, some of the habitats were considered to provide good basking and foraging opportunities, particularly the south-facing slopes comprising low-growing grassland and areas of bare ground on the south-west boundary.

Although habitats surrounding the site comprise generally of improved grasslands and arable land, which offer sub-optimal reptile habitat, pockets of suitable habitat also occur in the vicinity. For example, Lambley Dumbles and Lambley Marshy Grasslands, both approximately 400m to the north, are Local Wildlife Sites which offer suitable reptile habitat. Areas of suitable habitat such as these are connected to the Country Park by hedgerows, although much of the Park itself is bordered by relatively busy roads. If reptiles are present in the area therefore, it is possible that they may colonise the Park in future, although this is likely to take some time.

6. MANAGEMENT OPERATIONS

6.1 Management Objectives

Management objectives are listed below. The aim of the management objectives is to maintain and where possible enhance the habitats currently present within the site. As Gedling Country Park is already an important site for wildlife, particularly birds and invertebrates, emphasis will be on maintenance/enhancement rather than habitat creation.

The rationale for the objectives and outline management operations is given in Section 4.2.

The management objectives are:

1. **Woodlands:** Maintain and enhance the woodland areas to encourage the healthy growth of trees and maintain a mosaic of woodland habitats. Increase the diversity within the woodlands by improving the ground flora.

2. **Grasslands:** Maintain and enhance the structural and floristic diversity of the grassland areas. Enhance the grasslands for invertebrates. Create additional meadow areas.

3. **Hedgerows:** Maintain and enhance the hedgerows.

4. **Breeding birds:** Prevent disturbance to nesting birds whilst maintaining the amenity value of the site and providing provision for the public to enjoy the wildlife. Maintain and enhance the habitat for birds.

5. **Ponds and invasive species:** Treat New Zealand pigmyweed. Maintain and enhance marginal vegetation in the ponds.

6. **Site access and interpretation:** Ensure the site is accessible, its amenity value is maintained and provision is made for interpretation.

7. **Litter and vandalism:** Ensure the site is secure from off-road vehicles and is free of litter and vandalism.

8. **Monitoring:** Monitor the effects of management on flora and fauna.

9. **Legal obligations:** Fulfil all legal obligations.

10. **Community Involvement including Education and Local Community Wildlife Benefits**

11. **Capital and Revenue Funding and Staffing**

6.2 Management Rationale

6.2.1 Objective 1: Woodlands

- Rationale

Maintain and enhance the woodland areas to encourage the healthy growth of trees and maintain a mosaic of woodland habitats.

Increase the diversity within the woodlands by improving the ground flora.

New Plantations

A large amount of tree planting has been carried out over the last few years at Gedling Country Park. All of the plantations are currently immature and many are relatively dense. There is no one dominant tree species in the plantations, although the most commonly planted species are silver birch and alder with frequent horse chestnut and hawthorn with occasional sessile oak, pedunculate oak and scot's pine. Non-native cherry was noted in some of the plantations.

In the next 3 years, thinning will be required in order to encourage the broadening spread of tree crowns and prevent 'leggy' or spindly growth form. Recommendations for thinning are given below and in Section 6.3.1.

The plantations already provide a resource for a variety fauna, including birds. However, further resources will become available as the habitat matures and further enhancement of the woodland will make it more attractive to a wider range of birds, small mammals and other faunal species.

- Prescription

Thinning
Depending on the rate of tree development, thinning of the plantations is usually necessary between 5 – 8 years following planting or when trees are around 8 -10m tall. It is recommended therefore that thinning of the new plantations should begin in the next 3 years. Thinning should remove 10-15% of stock and be aimed at removing less healthy or less desirable trees (such as sycamore and non-native cherry). Consultation with a qualified arboriculturist to determine which trees are the most suitable for removal is recommended.

Lack of thinning, will promote a tall, densely canopied woodland which would reduce the diversity of the understory and ground flora. Thinning therefore will encourage the broadening spread of tree crowns and prevent 'leggy' or spindly growth form.

The thinning operation should be repeated every 3 – 5 years. As the trees become larger and begin to reach maturity this should be reduced to around every 8 years. As the woodlands mature, consideration should also be given to creating 'glades' or 'clearings' within the woodlands, where appropriate. Woodland edges should be allowed to remain intact. Consultation with a qualified arboriculturist to determine which trees are the most suitable for removal is recommended.

It is recommended that habitat piles of logs and/or brash are created through this thinning process. Sometimes in management of woodlands there is the over emphasis to 'tidy' the woodland; however piles of deadwood would create further habitat for invertebrates and refuge for common amphibians and potentially reptile species. These should be located close to the edge of the woodland.

Woodland Ground Flora

Woodland ground flora is an important habitat that can greatly increase the diversity and ecological value of a woodland. As the area was previously in industrial use and has not historically supported woodland, it is unlikely that woodland species will be present. The nearest seedbank may be some distance away. Hence it could take many years for such plants to naturally colonise. To achieve rapid results therefore, planting and sowing of native woodland flora is recommended.

A suitable woodland seed mix is provided below. The list comprises entirely of woodland floral species, as the woodlands already have a relatively well-established grass sward.
Ideally, in order to enable the plants to become established, newly planted/sown areas should be covered by gardener's meshing.

Agrimonia eupatoria	- Common Agrimony 5%
Alliaria petiolata	- Garlic Mustard 8%
Allium ursinum	- Ransoms/ Wild Garlic 3%
Angelica sylvestris	- Wild Angelica 5%
Campanula trachelium	- Nettle Leaved Bellflower 3%
Digitalis purpurea	- Wild Foxglove 5%
Filipendula ulmaria	- Meadowsweet 5%
Galium mollugo	- Hedge Bedstraw 5%
Geranium robertanianum	- Herb Robert 0.5%
Geum urbanum	- Wood Avens 7%
Hyacinthoides non-scripta	- English Bluebell 12%
Hypericum hirsutum	- Hairy St. John's Wort 3%
Primula vulgaris	- Wild Primrose 1%
Prunella vulgaris	- Self Heal 8%
Silene dioica	- Red Campion 7.5%
Stachys officinalis	- Betony 5%
Stachys sylvatica	- Hedge Woundwort 8%
Teucrium scorodonia	- Wood Sage 5%
Torilis japonica	- Upright Hedge Parsley 4%

Seed mix available from Naturescape (www.naturescape.co.uk): N10 Woodland Mixture.

Although seed can be effective in establishing woodland flora, plug plants are particularly useful for species that primarily propagate vegetatively such as those listed overleaf, or where rapid results are required (bluebell can take up to five years to reach the flowering stage from seed).

Recommended species for plug planting include:

Anemone nemorosa	-Wood anemone
Oxalis acetosella	-Wood sorrel
Ajuga reptans	-Bugle
Lamiastrum galeobdolon	-Yellow archangel
Hyacintoides non-scripta	-Bluebell (*can also be planted as bulbs in autumn*).

The planting/sowing of woodland ground flora could be trialed in small plots (i.e. 10% of each woodland area). Wildflower seed/plants will thrive under medium to high shade, where there is sparse or no existing vegetation, hence the introductions should be targeted for the shadier, weed-free areas of the woodland. If the plots establish successfully, they could provide a viable seed source for the remaining woodland.

Little ground preparation is required, other than raking, and seed should be distributed by hand between October and March, ideally in late autumn (October/November) or early spring (February/March). Most species should germinate in the first season. In order to mimic the mosaics of species that occur naturally in woodlands, plug plants should be clustered in groups and not spread through the site as discrete individuals.

If the ground flora seed/plants have been selected carefully to suit site conditions and have been introduced at appropriate planting times and at appropriate densities, then no direct aftercare should be necessary providing the management prescriptions for weeding and, in the future, thinning are followed. Following introductions, it is not uncommon to see a decline in plants in the first season. Subsequently, the number of plants should increase rapidly, particularly when individual species are clustered in high densities (Dixie 1996).

- Volunteers could become involved in ground preparation and application of seed.

<u>Existing Woodland/Tree Cover</u>

Areas of more mature tree cover occurred within the site, although these generally comprised of dense scrub with occasional semi-mature trees, generally dominated by alder and/or hawthorn (W3, W6, W7 and W8 on the Site Plan in Appendix 1).

Although these dense scrubby areas currently support a high diversity of bird life, it is recommended that some management is required in order to maintain the value of the habitat and to provide a variety of age structures within the stands.

The dense scrub would benefit from selective thinning out, although it is recommended that this be achieved through coppicing rather than simple felling. The practice of coppicing is an old tradition and has many benefits for the health of the woodland and for wildlife. Coppicing allows light in to the woodland floor, promoting growth of desirable woodland plant species. It also produces structural diversity within the woodland; many bird species also have an association with coppice of different ages. The process of coppicing benefits a whole host of other species as it provides a range of different conditions within the woodland from open ground to thick coppice growth.
Most broadleaves will coppice to some extent, with hazel, hornbeam, alder, willows, sweet chestnut and English oak being the best known species, but hawthorn, silver birch, holly, rowan, whitebeam and sycamore also readily produce coppice stands.

The coups (coppice stands), as a general rule, should be between 0.25 and 1 hectare and should be rotated. In small stands of woodland/scrub, such as those on site, it is recommended that coups are no more than 0.25ha. Coppice rotation times will vary according the tree species, although in general, the best recommended rotation is between 7 and 10 years. Coppicing should be carried out over the winter months to avoid the bird nesting season, ideally from November to February. Coppicing should not be carried out however at the expense of semi-mature or mature trees, such as the poplar and willow present in W8, although management of standards within coups may be necessary. Some standing dead wood should also be left as valuable habitat for birds and invertebrates.

Semi-natural Broadleaved Woodland

The majority of the semi-natural woodland on the south-west boundary appears to be in good condition, supporting a variety of tree species of different ages.

Little management is currently required in this area although over the next five years the woodland should be monitored. Any necessary management should simply be aimed at maintaining the structure of the woodland using methods such as selective thinning.

Any management which involves tree felling should be carefully considered beforehand. Any sensitive areas should be avoided, such as trees of conservation importance or areas used by scarce breeding birds. If mature trees are to be felled then an ecologist should be contacted to carry out a survey for bat roost potential. Bats can be adversely affected if the conditions surrounding a roost change. If thinning is required, it is recommended that non-native or less desirable species are targeted first, such as sycamore, non-native cherry and horse chestnut.

Additional Habitat for Faunal Species

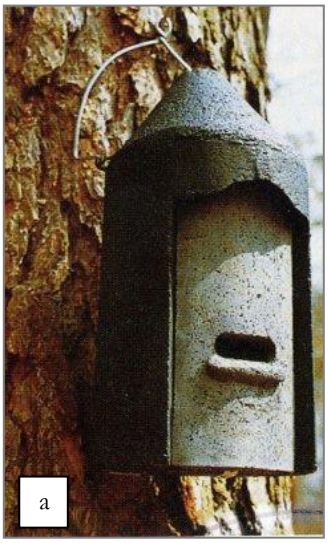
It is recommended that supplementary habitat for faunal species should be offered including bird, bat and insect nest boxes (examples are illustrated overleaf).

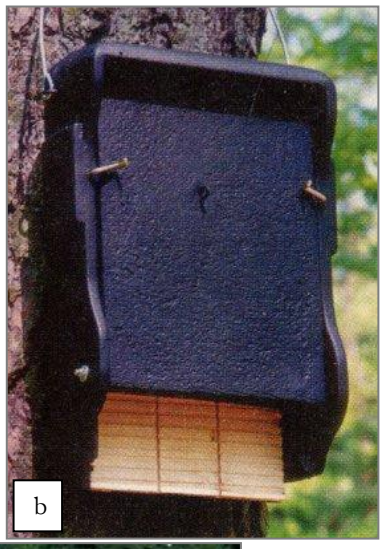
Currently, few mature trees occur within the Park to provide potential bat roosts; however, there are opportunities to install bat boxes in the edge of the mature woodland in the south-west (W15) and on semi-mature trees in W8. Bat boxes should be sited over 3m high, with up to three boxes per tree, in order to ensure that the boxes have different aspects, and with a clear flight path to the box. Bat boxes suitable for a number of species can be bought online or hand-made. In future years, as the plantations mature, additional bat boxes could then be installed.

Bird boxes can be installed on posts in woodland edges rather than on trees, if preferred. This is likely to be a better option until the trees within the woodlands mature.

Insect boxes should ideally be situated within warm, sheltered habitats. Those shown overleaf are suitable for range of invertebrates including butterflies, ladybirds, lacewings and solitary bees.

- There are opportunities for the involvement of volunteers in the construction of handmade habitat boxes. A recommended design for a bat box is the 'Kent bat box'; plans for which are available online.





a. Schwegler 2F and b. 1FF.
c. Hand-made 'Kent' bat box.
d. Insect boxes.
e. Handmade insect habitat.

6.2.2 Objective 2: Grasslands

- Rationale

Maintain and enhance the structural and floristic diversity of grassland areas. Enhance the grasslands for invertebrates.
Create additional meadow areas.

Semi-improved Neutral Grassland

The majority of the grassland areas at Gedling comprise of species-rich neutral grassland. Much of the grassland is derived from a seed mix sown during the landscaping works in 2006. The grassland provides a varied sward which is structurally diverse with wet flushes and areas of bare ground. Management should aim to maintain the structural and floristic diversity of these extensive grassland areas.

It is recommended that the grasslands are cut late in the season, in mid-September, to avoid the abundant ground-nesting birds which utilise this habitat. Skylark will nest into September and hence it is important that the grassland is not disturbed until all of the young have fledged the nest. Cutting should be carried out on rotation, with one third of the area of semi-improved neutral grassland cut each year.

It is vitally important that the cuttings be removed after mowing to prevent nutrient enrichment and the smothering of the underlying vegetation. The clippings should ideally remain in place for a few days however, in order to allow any seeds to drop out.

Currently relatively small amounts of scattered scrub occur throughout the grasslands. This is currently at a manageable level and provides additional structure, particularly important for birds and invertebrates, within the grassland. However, the scrub should be closely monitored and any further saplings removed each year to prevent encroachment in to the valuable open habitat of the species-rich grassland.

The combined regime of rotational mowing (with removal of the cuttings) and scrub control should maintain the grassland and enable the currently abundant floral species to thrive. However, it is also recommended that harrowing or scarifying is carried out in late autumn on the grasslands, in order to create gaps which will remain open to seed germination. This simulates the action of hooves in the absence of grazing.

The grassland should be monitored in order to ensure that the cutting regime is maintaining the floristic and structural diversity of the grasslands.

Locally abundant garden lupin, a non-native but pollen-rich plant, is present within the grassland in places, particularly close to the top of the Pit Top (SNG 1). These stands should be monitored and not permitted to encroach further into the grassland.

There are currently relatively large areas of tall ruderal vegetation within the grasslands, particularly in SNG 1 and SNG 3. Although this vegetation type is important for some faunal groups, such as invertebrates, these areas should be monitored over the next few years to ensure that the cutting regime is maintaining the tall ruderal vegetation at its current level. If it appears to be spreading and encroaching on the grassland species, then specific treatment /control may be necessary.

Poor Semi-improved Grassland

The grasslands at the very northern edge of the Park (SI1 and SI2) are relatively species-rich although are beginning to become encroached by scrub, rank grasses and tall ruderal species.

In order to increase the botanical species richness of the sward it is recommended that these semi-improved grassland areas be mown twice a year; once at the end of June and once in mid-September (these areas are not currently utilised by ground-nesting birds). Cuttings should be left in place for a few days (to allow any seeds to fall out) before being removed from site. The autumn cut will give the meadow plants the best chance to flower and set seed and the spring cut should reduce thistles and vigorous grasses that may have taken hold over the winter.

It is recommended that in order to prevent removing all of the flower heads in one go, (and hence removing resources for invertebrates), 3m margins are left uncut at the edges of these areas. This should be carried out in rotation, leaving a different area or margin uncut each year.

Although further poor semi-improved grassland occurs in the centre of the site, these areas should be treated as semi-improved neutral grassland and mown only once per year in September in order to prevent disturbance to ground-nesting birds. A relatively large amount of tall ruderal vegetation occurs in this central area. Although many of the species present provide a resource for numerous pollinating insects, the tall ruderal vegetation, particularly creeping thistle and common nettle, should be monitored and prevented from encroaching further into the grassland. A spot treatment of herbicide may be necessary in future years.

Enhance the Grasslands for Invertebrates

Scrapes, comprising of areas of bare ground, created within grassland areas, would enhance the site for a variety of invertebrates, including the dingy skipper which is extremely rare in Nottinghamshire, as well as potentially for reptiles. Scrapes should be made on south-facing slopes to provide warm ground for basking. Recommended areas for scrapes are shown on Figure A, overleaf.

The scrapes should measure around 15m x 10m and can be created simply with a tractor bucket to remove the vegetation back to bare earth. The scrapes should then be maintained on a 4-6 year cycle. Not all of the area should be scraped at one time; the aim should be to have a mosaic of bare ground and vegetation present. Information boards should be installed to inform the public of the importance of these scrapes for wildlife.

Figure A: Existing dingy skipper habitat and recommended locations for scrapes

Wildflower Meadow Areas

Volunteers have expressed an interest in creating wildflower meadow areas at the Country Park. In general, the grasslands are already species-rich and support a good diversity of flora and fauna and it is recommended that these species-rich areas are maintained in their current condition. However, there are opportunities for enhancement of the grasslands in the north of the site, adjacent to Spring Lane (SI2 and SI3) and potentially the grassland areas around Ponds 3 and 4.

Prior to any addition of wildflowers, it will be necessary to control vigorous species such as common nettle, thistle and ragwort.

Consideration should then be given to the sowing of yellow rattle prior to the introduction of wildflowers. Yellow rattle reduces the vigor and biomass of vigorous grasses and legumes through parasitization. This should reduce competition and allow wildflower species an opportunity to become established. For further information see *Natural England Technical Information Note TIN060; The use of yellow rattle to facilitate grassland diversification.*

Following this (around 2 – 3 years following application of yellow rattle), it is suggested that the spreading of green hay, using the cuttings from the species-rich grassland areas, is trialed. The application area should have a short sward (free of pernicious weeds, as far as possible) through either cutting or grazing with plenty of areas of bare ground. Alternatively, over-sowing or slot seeding with wildflower seed (sourced ideally from species-rich grassland within the Park) could be carried out.

6.2.3 Objective 3: Hedgerows

- Rationale

Maintain and enhance the hedgerows.

Few hedgerows occur within the site, other than on the north-western boundary.

Laying is a preferred management technique to provide a healthy, thick and bushy hedgerow and this technique is recommended for the hedgerow on the north-western boundary. This involves partially cutting the stems of hedgerow shrubs and bending them over at an angle. Laying a vigorous tree or shrub in such a way will stimulate new vertical growth from beneath the cut, helping to fill in gaps at the base of the hedge.

The hedgerow currently measures around 1.5m high and therefore it should be allowed to develop for another year before laying is carried out (should ideally measure around 2.5m in height prior to laying). It is recommended that the hedgerow is side-trimmed in the coming winter (i.e. February 2015, following the berry crop), allowing the hedgerow to continue to gain height over next summer. Laying can then be carried out in early 2016.

6.2.4 Objective 4: Breeding Birds

- Rationale

Prevent disturbance to nesting birds whilst maintaining the amenity value of the site and providing provision for the public to enjoy the wildlife.

Maintain and enhance the habitat for birds.

Preventing Disturbance

Any works which may involve the removal of, or impact on, trees, scrub or hedgerows, or works which would impact upon the grassland, must be timed to avoid the bird breeding season, which runs from March to September (inclusive). This is to avoid adverse impacts to any nests present. If it is necessary to carry out such works during the breeding season, then a survey must be carried out by a qualified ecologist prior to works going ahead to ensure that no active nests will be affected. If active nests were found then works would have to be delayed until all chicks had fledged.

In order to prevent disturbance to the high numbers of notable bird species which utilise the grassland areas for nesting, four areas of the park, see diagram below have been fenced off to conserve the grassland and to ensure ground nesting birds are not disturbed by dog walkers / dogs during the breeding season.

Figure B: Recommended fencing to protect ground-nesting birds

Maintenance of Grassland Habitat

The grassland currently holds large numbers of nesting skylark therefore it is recommended it is managed to maintain the current sward length which is ideal for skylark. The grassland also contains wet flushes and areas of bare ground which is favored by lapwing and therefore this should also be maintained.

The grassland should be maintained by mowing once annually in autumn (avoiding the bird breeding season) as skylark may continue to nest into September. The cuttings should be raked up and removed after mowing to prevent nutrient enrichment and the smothering of the underlying vegetation. Mowing should avoid areas of reeds and rush as these provide nesting habitat for a variety of other species including reed bunting. For more details of the mowing schedule please refer to grassland management objective in Section 5.2.2 above which describes appropriate management with bird conservation in mind.

Pond Enhancement

The following recommendations with regard to pond enhancement must not be carried out until the New Zealand pigmyweed present within all of the waterbodies has been treated successfully.

The extent of the reedbeds on site should be increased within Ponds 1 and 2, to increase the availability of nesting habitat for wetland birds, warblers and reed bunting. It is recommended the reedbeds are planted with a sinuous edge rather than a block to increase edge habitat for wetland birds. Scrub species, including willow, should also be planted along the banks where scrub is lacking. This habitat will provide shelter and nesting opportunities for a variety of duck species.

It is also recommended that consideration be given to the construction of an artificial sand martin (*Riparia riparia*) nesting bank on the steep bank to the south of Pond 1. Photographs of the proposed location are given below. The creation of this bank will require some scrub removal although this can be compensated for by the planting of willow as described above.

Recommended location for sand martin nesting bank

Once the scrub has been cleared the existing bank should be reinforced with concrete to create a permanent vertical bank at least 3m in height. The nest bank should spread at least half the length of the existing bank, i.e. the nest bank should measure approximately 20-25m in length. Around 100 holes, reinforced using polythene or ceramic pipes, should be created by along the vertical face. The entrance holes should be a variety of diameters between 50mm and 80mm and have a depth of up to 600mm; these measurements have been shown to be conducive to sand martin nesting. The lowest hole should be a minimum of 1.5m above ground level and angled slightly downwards (slope of 1/60) towards the entrance for drainage and spaced at least 0.3m apart. EMEC Ecology would be able to provide further advice or supervision if required.

Artificial sand martin nest using ceramic piping

Woodland Management for Birds

The semi-mature woodland on the north side of the site (W3) currently holds a large number and a high diversity of breeding birds. This is considered to be due to dense scrub made up of alder and hawthorn. This woodland should be managed to maintain the scrubby nature, rather than allowing it to develop into mature woodland and therefore coppicing of this woodland is recommended. Coppicing allows light to enter the woodland floor which promoting growth of ground flora and scrub. In addition, the variety of age structures provides foraging and nesting opportunities for a diversity of species. The woodland should be split into ten/eleven coups approximately 0.25ha in size and cut on a 7 to 10 year rotation. Coppicing should be carried out over the winter months to avoid the bird nesting season, ideally from November to February. Further information and recommendations regarding coppicing is available in Objective 1; Section 5.2.1).

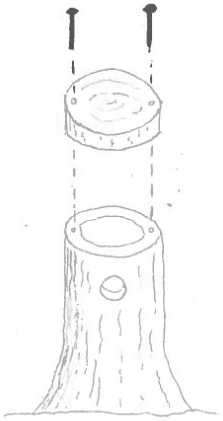
Thinning of the new plantations, as prescribed in Objective 1 (Section 5.2.1) should be carried out in order to enhance the woodlands for birds. It is also recommended that scalloping of the woodland edges should be carried out in future years. This provides a variety of breeding habitats, not only for birds, but also for insects such as butterflies, which can be used at different times of the day or season or under different weather conditions (e.g. slightly shadier vegetation used in drought conditions). Also, in future years, as the plantations develop, consideration should be given to the creation of woodland glades and rides.

In addition it is recommended that a variety of bird nest boxes should be installed on trees or on posts in the woodland edges. This should include a number of traditional nest boxes, open-fronted nest boxes and stump boxes, examples of which are shown below. The traditional and open fronted nest boxes are available on the on the NHBS website (www.nhbs.com) under Wildlife Equipment – Bird Boxes, while the stump boxes can be created by cutting out a cavity within an existing stump, or created from a thick branch cut during management works and staked into the ground in appropriate locations.

Traditional Nest Box

Open-fronted Nest Box

Stump Box



Monitoring

It is recommended a monitoring regime is incorporated into the management plan; ideally this will involve repeating survey work every 2 years to monitor the status of breeding birds on the site. This monitoring will provide a basis for regular reviews of the management plan and inform future management recommendations. Additional recommendations for monitoring are given in Objective 8 (Section 5.2.8).

6.2.5 Objective 5: Ponds and Invasive Species

- Rationale

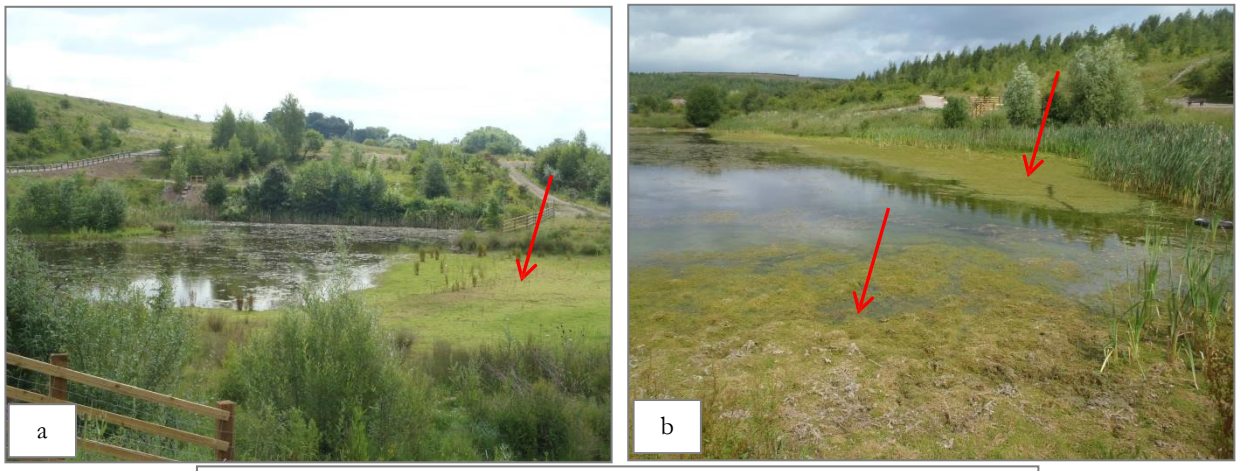
Treat New Zealand pigmyweed.
Maintain and enhance marginal vegetation in the ponds.

Treat New Zealand Pigmyweed

New Zealand pigmyweed, also known as Australian swamp-stonecrop, is a highly invasive species and is listed under Schedule 9 of the Wildlife and Countryside Act 1981. As such, it is an offence to plant or otherwise cause it to grow in the wild.

It was originally introduced to Britain from Tasmania in 1911 and since then has been widely sold as an oxygenating plant. The plant grows around the margins of ponds and slow-flowing waterways as well as in water, up to 3m deep. The plant grows and spreads rapidly to form extremely dense mats which then competitively exclude all other aquatic vegetation, eliminating native flora and lowering oxygen levels, creating a poor environment for invertebrates, amphibians and fish.

The weed around Ponds 1 and 2 is already at a very high level, particularly on the southern and western boundaries of the ponds where it has smothered the low lying banks. New Zealand pigmyweed is also present in all other ponds within the site, but at lower levels. **All ponds should be treated as a matter of urgency.**



Heavy coverage of New Zealand Pigmyweed in (a) Pond 1 and (b) Pond 2

Control is difficult once the plant has become established; mechanical removal is not recommended unless the plant has been treated chemically, as small sections readily break off and cause further infestation. Fragments as small as 5mm will rapidly grow.

Chemical control, using glyphosphate, is recommended for affected areas. It is extremely important that only formulations which are specifically recommended for use in aquatic systems be used. **The Environment Agency should be consulted prior to any herbicide application**. Glyphosate should be applied between April to the end of November. It is recommended that at least 70% of the dense infestation is treated at one time to reduce the chance of recolonization from untreated areas. Treatment of the remaining 30% should be carried out after one week. The dead material should be removed after treatment, ideally to reduce oxygen depletion by decomposing material (CEH2004).

It is also suggested that covering infestations with black polythene for at least three months during the growing season can also be effective, although this will have adverse effects on other species covered up (Plantlife 2010). This method is likely to be problematic at this site due to the extent of the infestation, the size of the area it covers and the possibility of vandalism on a site open to the public.

Maintain and Enhance Marginal Vegetation

No further management or enhancement should be carried out in any of the ponds until the New Zealand pigmyweed has been successfully treated.

- *Ponds 1 & 2*

Management of Ponds 1 and 2, following treatment of New Zealand pigmyweed, should focus on the further development of the aquatic, marginal and bankside vegetation to increase their diversity for existing and potential faunal species, including nesting wetland birds. The abundance of wetland birds, for example, is often correlated with aquatic invertebrate prey availability and therefore the aim of management should be to maximise the potential of the wetland habitats to support invertebrates. This is achieved by creating a lake with some shaded scrub banks and some bare margins, some areas of tall emergent vegetation and some sheltered areas with dense growth of aquatic vegetation.

Generally vegetation succession in the water should be allowed to progress naturally, with management stepping in only to prevent the dominance of one type of vegetation over another.

The only marginal species which is recommended as an addition to Ponds 1 and 2 would be common reed. This species is important for a wide variety of bird species which rely on the habitat for nesting and as a food source. Large numbers of invertebrate species are also associated with reedbeds, some of which are known to be totally dependent. For example there are a number of notable reed-specific moths in the UK, some of which are Red Data Book Species.

The creation of a 20m fringe of common reed should therefore be considered for Ponds 1 and 2. Seedlings should ideally be sourced from a similar local site. The substrate should be well-saturated, with water just above the surface and the area should be free from other vegetation (an area may have to be cleared). Planting should be carried out in June and at a rate of 4 plants per m^2. The area should ideally be fenced during the first year to prevent grazing from waterfowl. Following planting, the reedbed should be monitored annually and excessive spread and litter accumulation prevented. It is recommended the reedbeds are planted with a sinuous edge rather than a block to increase edge habitat for wetland birds.

- Volunteer work parties could become involved with planting of common reed seedlings and subsequent monitoring and control, as described above.

All emergent/marginal vegetation supports invertebrates of some type, including being crucial to the emergence of many dragonfly (and other aerial) species, whose larvae climb up the stalks before emerging as adults clinging to the stem. Control should however be used to prevent dominance of reed or any other species across the lake, this is be used to prevent dominance of reed or any other species across the lake, this is best done by active cutting when necessary.

- *Pond 3*

Pond 3 currently has a high level coverage of common reed and bulrush and consequently levels of open water are limited to around one quarter of the pond area. The reed coverage should be maintained at its currently level, but should not be permitted to completely take over the pond.

- *Pond 4*

The majority of Pond 4 is currently dry throughout the season, other than the small reedbed area at the eastern end. It is therefore recommended that, following treatment of New Zealand pigmyweed, the pond is re-profiled, to increase the depth and to ensure that the majority of the pond holds water throughout the amphibian breeding season.

- *Pond 5*

It is recommended that Pond 5 is maintained as a shallow water habitat. Water levels should be monitored however and if the pond begins to dry out every year, then re-profiling will be necessary.

6.2.6 Objective 6: Site access and interpretation

- Rationale

Ensure the site is accessible, its amenity value is maintained and provision is made for interpretation.

The new tracks and footpaths complete with way markers and 4 colour coded routes provide access to the majority of the site and offer vantage points across the surrounding landscape. Maintenance of the pathways is ongoing.

The public already use the site for informal recreation, such as walking and exercising dogs. In order to make visitors more aware of the importance of the site for nature conservation, thereby enhancing their experience of it, interpretation boards will shortly be installed in order to indicate the value of the site for wildlife and the management being carried out to conserve and enhance it.

They will be installed at key points, to inform the public about the significance of the habitat for wildlife, in particular, nesting birds, the importance of keeping to marked footpaths and keeping dogs on leads. The signs will be of sturdy construction and be of a height visible to children and disabled people. They will also provide contact names and numbers for the public to raise any concerns.

The interpretation boards have been produced and will be installed 2017/18. A notice board has been installed enabling visitors to be kept up to date on developments and wildlife sightings.

There is currently a high level of local interest in Gedling Country Park and a 'friends' group has already been established. Promotion of the value and the management of the park is being increased further in the local community, including Schools and businesses, with the intention of inciting interest in the local wildlife and increasing numbers in volunteer groups. Volunteers are involved in assisting with management tasks where possible, such as scrub removal, making of bird and bat boxes. This should help the local community to feel they contribute to the local area and therefore will hopefully help in the reduction of the misuse of the Country Park.

The Mining history has also been considered for interpretation on site both physically within the park and in the new Visitors Centre. An application for Heritage funding has been submitted to the Heritage Lottery Fund. We hope to develop this area if funding is successful.

6.2.7 Objective 7: Litter and vandalism

- Rationale

Ensure the site is secure from off-road vehicles and free of litter and vandalism

Since the site is situated within a sub-urban area it is prone to some littering, the dumping of waste and also vandalism. These activities reduce the sites intrinsic appeal and amenity value and could also have a negative impact on the sites ecological value, for example, the introduction of non-native plant species from garden waste. These potential problems can be reduced by the regular provision of litter picking on the site and consultation being carried out with local residents about the work being carried out on site. Additional litter bins have been installed particularly around the car park area and areas with heavy footfall.

The site is secure to prevent unauthorised vehicle access at all times. The main entrance gates are locked at night to entirely prevent vehicular access during the evening.

6.2.8 Objective 8: Monitoring

- Rationale

Monitor the effects of management on flora and fauna

Ecological monitoring is essential to assess the effects of management and inform future changes in management.

Ecological Walk-over Surveys
Ideally we recommend that walk-over surveys be undertaken every other year so that the effects of management can be assessed and the management plan can be amended, as appropriate.

Amphibians
To be carried out in 2017.

Breeding Bird Surveys
It is particularly recommended that breeding bird surveys are carried out regularly to ensure that the habitats are being maintained in a favorable condition for birds and are continuing to support a high diversity and number of breeding bird species. Due to the importance of Gedling Country Park for nesting birds, these surveys should be repeated every two years.

Bats
It is recommended that bat boxes to be installed in W8 and W15, are checked once a year by a licensed ecologist or by the local (Nottinghamshire) Bat Group. Bat surveys (i.e. transect surveys) would be beneficial in future years, in order to monitor the effect of management on bat use of the site and to further inform ideal locations of bat boxes.

Invertebrates
Invertebrate surveys can provide a very useful indication of the effectiveness of habitat management strategies. These could be site wide or focused on specific habitats such as woodland, water bodies or grasslands.

Volunteer opportunities
There is a large range of volunteering opportunities for the wider community to get involved with. The friend's group trustee member Brian Osborne (an Ecological professor) works very closely with Nottingham Trent University Conservation students who carry out wildlife surveys, they are currently surveying aquatic macro-invertebrates. Other surveys include weekly butterfly surveys, and bat surveys.
Further surveys are planned each year – see action plan.

Survey Funding
An annual revenue budget is available for professional Ecology surveys.

6.2.9 Objective 9: Legal Obligations

- Rationale

Fulfil all legal obligations.

Gedling Borough Council has a duty of care to abide by any legislation relating to the land they own, in respect to nature conservation, environmental protection or aspects of

public health and safety. Also management or access agreements should be abided by.

6.2.10 Objective10: Community Involvement, Education and Local Community Wildlife Benefits

- Rationale

- to increase the number of people who use the park and promote the Local community wildlife benefits
- Increase number of events as a marketing tool
- Give wider consultation in future development within the park
- Work with businesses and volunteers
- Work with the 'Friends of' group to provide the best possible interpretation for the park's assets, with them taking an active role in the future writing of the Management Plan.
- Continue to work with local schools and community groups to educate, promote and enhance the wildlife benefits
- Work as a partner to the 'Friends of' group and other user groups to assist in fund raising
- Supervised monthly educational visits from community organisations, coordinated via the friends group and GBC

Gedling Borough Council's Parks Department regularly meet with Gedling Country Parks 'Friends of' group to inform and exchange ideas, we continue to identify new user groups, as well as promoting the park and its facilities within the Council and externally via the marketing plan. The new marketing plan should bring results within the next five years. It will be integral in informing current users and encouraging new users about the value of the park as a recreational and educational resource on their doorstep. The Council have set up a dedicated Facebook page for the park enabling the Concil to keep all those interested informed with management and development.

The friends of Gedling Country Park are a huge asset to Gedling Country Park and their support on the park has been consistent since it opened. The friends group arrange volunteer environmental sessions (Including bird and bat box making), educational projects for Schools to inform the students about the parks flora and fauna and bee keeping demonstrations.

Projects planned in 2017 by the friends group are listed below:

Volunteer work:

1. Clearing invasive scrub from the area occupied by the Dingy Skipper alongside the lower lagoons
2. Creating further areas for the Dingy Skipper alongside the Southern pathway, West of the methane plant and also an area alongside the pathway east of the lower lagoons
3. Clearing reeds from the central lagoon to create and open water area.
4. Creating two bird hides from living willow at central and lower lagoons
5. Building 100+ bird boxes to introduce into the park – with schools, and/or groups (Funded by the Magpie Brewery)
6. Planting trees on southern boundary, alongside Bloor Homes site, and into existing woodland (approx. 1,400 trees – to be confirmed)
7. Extending the woodland walk through to the eastern boundary

Surveys – from Spring 2017:

1. Continue the 2016 survey work to enable comparative studies to be made E.g. Butterflies, Dragonflies, Moths, Grassland, Mammals and Birds
2. Increase surveys to include Bats, Fungi, Insects and a second Butterfly transect
3. The first Nottingham Trent University project to study the macro-aquatic Invertebrates within the Parks water bodies. A survey of the vegetation will be included as well as possibly Fish and Amphibians

Other events planned by the Friends of Gedling Country Park:

1. Beekeeping demonstrations throughout the year
2. Willow weaving demonstrations and classes within the woodland glades
3. Volunteer days – alternate Sundays and Wednesdays from February until December 2017
4. Friends group representative to be on duty at the visitors centre at weekends throughout the year to assist visitors to the park and to record sightings and provide talks on wildlife, heritage etc.

Park-Run, a volunteer lead organised running group hold a weekly 5km run on the site with the assistance of the friends of Gedling Country Park. Currently around 200 individuals attend this event including walkers and runners.

6.2.11 Objective 11: Capital and Revenue Costs and Staffing

- Rationale

Outline of capital and Revenue costs and staffing proposals during period of management plan.

£50k revenue funding is available annually from April 2017. An additional £2k is available for wildlife surveys. Two full time rangers and a parks development officer work within the park and other parks within the Borough area. Half of the park ranger full time post is dedicated to Gedling Country Park ensuring a daily presence.

External funding bids have been identified for capital projects, such as the completed play area with funding assistance from WREN (Waste Recycling and Environmental). Other funding sources are being scrutinized, i.e. Heritage Lottery Fund to interpret the mining history.

6.2.12 Management Operations: Plan of Work

The following (overleaf) is an ideal plan of work. Although every effort should be made to implement the actions listed, this will be governed by certain constraining factors including resource availability.

6.3.1 Objective 1 – Woodlands

Maintain and enhance the woodland areas to encourage the healthy growth of trees and maintain a mosaic of woodland habitats. Increase the diversity within the woodland by improving the ground flora.

Obj.	Action	Area (corresponds to Appendix 1; Fig 2)	2017	2018	2019	2020	2021
1/1	**New Plantations:** Selective thinning should be carried out within the next 3 years. This should be aimed at removing 10-15% of trees (focusing on less healthy or less desirable species such as sycamore and non-native cherry. Woodland edges should be maintained intact.	W1, W4, W5, W9, W10, W11, W12, W13, W14.	Winter	Winter	winter		
1/2	Any trees to be felled either to facilitate the thinning, or trees that are dying or falling, must be carried out under advice trained arboriculturist.	All woodlands	◆ winter				
1/3	All works to the woodland should be carried out outside the breeding bird season.		◆ October to February (inclusive)				
1/4	Deadwood removed during any work operations should be kept in habitat piles to enhance invertebrate interest and provide shelter for other faunal species.		◆				
1/5	Application of woodland ground flora seed mix and plug plants in new plantations; 10% of each woodland area initially.	W1, W4, W5, W9, W10, W11, W12, W13, W14.	Late Autumn	Late Autumn	Late Autumn	Late Autumn	Late Autumn
1/6	Install bat, bird and insect boxes on semi-mature to mature trees in edges of W8 and W15 (2014). Bird boxes can also be installed on posts in the woodland edges, if preferred. Additional habitat boxes can be introduced as the plantations mature.	W8 & W15	Bird	Bat/Insect	Bat/Insect		
1/7	**Existing woodland/tree cover:** Introduce coppicing in W3 and W6.	W3, W6	Nov-Feb	Nov-Feb	Nov-Feb	Nov-Feb	Nov-Feb
1/8	Monitor all woodlands for continued healthy growth of trees and development of woodland ground flora. Species such as nettle and bramble should not be permitted to take over large areas of the woodlands.	All woodlands	◆	◆	◆	◆	◆

6.3.2 Objective 2: Grasslands

Maintain and enhance the structural and floristic diversity in the grassland areas.

Obj.	Action	Area (corresponds to Appendix 1; Fig 2)	2017	2018	2019	2020	2021
2/1	**Semi-improved neutral grasslands:** Cut once per year in late September to avoid ground-nesting birds. One third of the grassland area should be cut each year. Remove arisings.	SNG1, SNG2, SNG3, SNG4 and SI1	◆ Late Sept	◆ Late Sept	◆ Late Sept	◆ Late Sept	◆ Late Sept
2/2	**Poor semi-improved grassland on the northern boundary with Spring Lane:** Cut twice per year; end of June and mid-September. 3m margins to be left uncut (on rotation).	SI2	◆ Mid-Sept	◆ Late June & mid-Sept	◆ Late June & mid-Sept	◆ Late June & mid-Sept	◆ Late June & mid-Sept
2/3	Scrub within the grassland should be maintained at current levels. A variety of ages of scrub species should be maintained. Unwanted saplings should be removed as they arise.	All grassland areas	◆	◆	◆	◆	◆
2/4	Control non-natives such as lupin. Although these provide a rich resource of nectar, they should not be permitted to encroach further into the grassland. Remove as necessary.	Where necessary	◆	◆	◆	◆	◆
2/5	Introduce bare ground scrapes as detailed on Figure A (page 17). The scrapes should measure around 15m x 10m and can be created with a tractor bucket to remove the vegetation back to bare earth. The scrapes should then be maintained on a 4-6 year cycle.	See Figure A; page 33	◆ Late Sept	Late Sept	Late Sept	Late Sept	◆ Late Sept
2/6	Grasslands should be monitored, particularly for large areas of dominant tall ruderal vegetation, such as thistle, nettle or willowherb. Although some level of these species is important for birds and invertebrates, they may require treatment, such as hand pulling or spot herbicide treatment, if becoming a problem and encroaching on other grassland species.	All grassland areas	summer	◆ Summer	◆ Summer	◆ Summer	◆ Summer
2/7	Pesticides should not be used within the grasslands and herbicides should only be used where specified.	All grassland areas	◆	◆	◆	◆	◆
2/8	**Wildflower meadow creation:** Opportunities for creation of wildflower meadows (see text on Page 33.	SI2, SI3, Grasslands adjacent to Ponds 3 and 4	Include symbol	◆	◆	◆	◆

6.3.3 Objective 3: Hedgerows

Maintain and enhance the hedgerows.

Obj.	Action	Area (corresponds to Appendix 1; Fig 2)	2017	2018	2019	2020	2021
3/1	Trim the sides of the hedgerow on northern boundary (allowing it to continue to gain height), using a flail or circular saw.	H1	◆	◆ Feb		◆ Feb	
3/2	Replanting, laying or coppicing to fill gaps in hedgerows, where necessary.		◆	◆	◆	◆	◆

6.3.4 Objective 4: Breeding birds

Prevent disturbance to nesting birds whilst maintaining the amenity value of the site and providing provision for the public to enjoy the wildlife.

Maintain and enhance the habitat for birds.

Obj.	Action	Area	2017	2018	2019	2020	2021
4/1	Consideration should be given to the construction of sand martin nest bank. Further details are given in the main text.	To be identified			◆ Winter		
	Other habitat management recommendations for birds are incorporated into Objectives 1 and 2.						

6.3.5 Objective 5: Ponds and Invasive Species

Treat New Zealand pigmyweed

Maintain and enhance marginal vegetation in the ponds.

Obj.	Action	Area (corresponds to Appendix 1; Fig 2)	2017	2018	2019	2020	2021
5/1	**Ponds 1 and 2:** Extension of reedbeds to provide additional habitat for nesting waterfowl and other birds. A 20m fringe of common reed should be planted along the margins of Ponds 1 and 2. Planting should be carried out in June. The reed should be monitored annually following planting to prevent excessive spread and build-up of dead material.	Ponds 1 & 2					
5/2	**Pond 3:** The common reed and bulrush coverage should be maintained at the current levels. At least one third of the pond should be maintained as open water.	Pond 3					
5/3	**Pond 4:** Consider re-profiling to increase depth and prevent pond from drying out.	Pond 4					
5/4	**Pond 5:** Maintain Pond 5 as shallow water habitat. Water levels should be monitored however, and the pond potentially re-profiled if drying occurs regularly.	Pond 5					

6.3.6 Objective 6: Site Access and Interpretation

Ensure the site is accessible, its amenity value is maintained and provision is made for interpretation

Obj.	Action	2017	2018	2019	2020	2021
6/1	Ensure that all pathways and signage is in good condition and suitable for public access. Monitor and maintain as appropriate.	◆	◆	◆	◆	◆
6/2	Install interpretation boards adjacent to the main areas of nature conservation interest, for example on footpaths bordering SNG 1 and SNG 3 and around the ponds. Boards should be readable by children and disabled people. The interpretation board should include information about the value of the site for wildlife and the management being carried out to conserve and enhance it, as well as the importance of keeping to footpaths. All interpretation boards should be of a sturdy construction that is weather and vandal proof.	◆	◆			
6/3	Promotion of the value and management of the Country Park should be increased in the local community, as well as in schools and businesses, in order to increase numbers in 'Friends' and volunteer groups.	◆	◆	◆	◆	◆

6.3.7 Objective 7: Litter and Vandalism

Ensure the site is secure from off-road vehicles and free of litter and vandalism

Obj.	Action	2017	2018	2019	2020	2021
7/1	Carry out annual litter-picking twice each year during March and September to ensure the site is free of litter. Litter should be removed from the site and disposed of appropriately. Any vandalism / fly tipping should be appropriately dealt with / removed.	◆ September	◆ March & September	◆ March & September	◆ March & September	◆ March & September
7/2	Site to be made secure from off-road vehicles. Gates kept locked at night and retractable bollards installed around car park.	◆	◆	◆	◆	◆

6.3.8 Objective 8: Monitoring

Monitor the effects of management on flora and fauna

Obj.	Action	2017	2018	2019	2020	2021
8/1	**Ecological walk-over surveys** should be carried out every second year to monitor effects of management recommendations.	◆		◆		◆
8/2	**Amphibian surveys:** To be carried out every other year in Spring	◆		◆		◆
8/3	**Breeding bird surveys:** Due to the importance of the Park for breeding birds, it is recommended that surveys are carried out every two years to ensure that the habitats are being maintained in a condition which continues to support high numbers of nesting birds.	◆	◆		◆	
8/4	**Bat surveys:** Bat boxes should be checked once per year by a **licenced** ecologist or the local bat group. Bat transect surveys would be beneficial to monitor the effects of habitat management.	◆ Bat box check and transects	◆ Bat box check	◆ Bat box check and transects	◆ Bat box check	◆ Bat box check and transects
8/5	**Invertebrates:** Invertebrate surveys can provide a very useful indication of the effectiveness of habitat management strategies. These could be site wide or focused on specific habitats such as woodland, water bodies or grasslands. Regularity???	Water bodies	◆	◆	◆	◆
8/6	**Volunteer opportunities:** Annual surveys of flora and fauna by volunteers with good identification skills; and creation and maintenance of database.	◆	◆	◆	◆	◆

6.3.9 Objective 9 - Legal Obligations

Fulfil all legal obligations.

Obj.	Action	2017	2018	2019	2020	2021
9/1	Fulfil all obligations under the Environmental Protection Act (1990), Wildlife and Countryside Act (WCA) 1981 (as amended), CroW Act 2000 and the Conservation of Habitats and Species Regulations 2010 (as amended). Occupiers Liability Act (1957, 1984) and the relevant health and safety legislation including Health and Safety at Work Act (1974).	◆	◆	◆	◆	◆

6.3.10 Objective 10 – Community involvement including educational engagement and wider community wildlife benefits

Obj.	Action	2017	2018	2019	2020	2021
10/1	Continue to promote the important ecological value of the site to Schools as an educational resource and encourage involvement in volunteering with varied activities available throughout the year. A supervised educational session organized by the Friends group and/or GBC are planned every month, which includes, construction of bird nest boxes, tree planting, willow sculpture construction, pond dipping and the school's delivery of their forest schools curriculum. Continue to encourage all community groups to be involved with the ongoing ecology conservation. Regular tours and talks to educational establishments and community groups, several are already established as an annual activity, i.e. Conservation students from Nottingham Trent University explore the conflicts of ecology conservation with a publicly accessed country park. In addition the Council' parks service offer 2 work placements to young people each year. Attendees spend much of their time within the park learning about the development and management. The friends group provide a daily presence on site, carrying out litter picking and general stewarding. They organize weekly maintenance/improvements in the park with a team of regular volunteers, much of the work undertaken is planned within this plan of work section.	*Monthly* ◆	◆	◆	◆	◆

6.3.11 Objective 11 – Capital and Revenue costs and staffing Proposals

Obj.	Action	2017	2018	2019	2020	2021
11/1	From 1st April 2017 Gedling Borough Council revenue funding is £50k per annum. A separate £2k budget is also available for specific species survey work enabling to make sure the biodiversity is increased each year. No capital funding is available, however where capital projects are identified these may be met with external funding success. Staff from the parks dept regularly attend site to provide routine maintenance, i.e. litter picking. Half of a full time ranger post is dedicated to the park.	◆	◆	◆	◆	◆

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APPENDIX 1: FIGURES

Figure 1: Site Location Plan

Figure 2: Survey Area, Survey Features and Target Notes

APPENDIX 2: BOTANICAL SPECIES LIST

English Name	Scientific Name
Alder	*Alnus glutinosa*
Ash	*Fraxinus excelsior*
Aspen	*Populus tremula*
Autumnal hawkbit	*Leontodon autumnalis*
Bee orchid	*Ophrys apifera*
Black medick	*Medicago lupulina*
Blackthorn	*Prunus spinosa*
Bluebell	*Hyacinthoides non-scripta*
Bramble	*Rubus fruticosus* agg.
Bristly oxtongue	*Picris echioides*
Brooklime	*Veronica beccabunga*
Buddleia	*Buddleja davidii*
Bulrush	*Typha latifolia*
Bush vetch	*Vicia sepium*
Cherry species	*Prunus* spp.
Cock's-foot	*Dactylis glomerata*
Colt's foot	*Tussilago farfara*
Common centaury	*Centaurium intermedium*
Common bent	*Agrostis capillaris*
Common bird's-foot-trefoil	*Lotus corniculatus*
Common bistort	*Persicaria bistorta*
Common bulrush	*Typha latifolia*
Common cat's-ear	*Hypochaeris radicata*
Common knapweed	*Centaurea nigra*
Common mouse-ear	*Cerastium fontanum ssp. Vulgare*
Common nettle	*Urtica dioica*
Common ragwort	*Senecio jacobaea*
Common reed	*Phragmites australis*
Common self-heal	*Prunella vulgaris*
Common spike-rush	*Eleocharis palustris*
Common vetch	*Vicia sativa*
Cow parsley	*Anthriscus sylvestris*
Crack willow	*Salix fragilis*
Creeping bent	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Creeping cinquefoil	*Potentilla reptans*
Creeping-Jenny	*Lysimachia nummularia*
Creeping thistle	*Cirsium arvense*
Crested dog's-tail	*Cynosurus cristatus*
Cut-leaved crane's-bill	*Geranium dissectum*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale* agg.
Dog rose	*Rosa canina* agg.
Duckweed spp	*Lemna spp.*
Elder	*Sambucus nigra*
Evening primrose	*Oenothera sp.*
Fairy flax	*Linum catharticum*
False fox-sedge	*Carex otrubae*
False oat-grass	*Arrhenatherum elatius*
Field forget-me-not	*Myosotis arvensis*
Field horsetail	*Equisetum arvense*

Field maple	*Acer campestre*
Garden lupin	*Lupinus polyphyllus*
Glaucous sedge	*Carex flacca*
Goat's-beard	*Tragopgon Pratensis*
Goat willow	*Salix caprea*
Greater plantain	*Plantago major*
Great willowherb	*Epilobium hirsutum*
Ground-ivy	*Glechoma hederacea*
Hairy tare	*Vicia hirsuta*
Hard rush	*Juncus inflexus*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Hedge bindweed	*Calystegia sepium*
Hedge woundwort	*Stachys sylvatica*
Hoary willowherb	*Epilobium parviflorum*
Hogweed	*Heracleum sphondylium*
Hop trefoil	*Trifolium campestre*
Horse chestnut	*Aesculus hippocastanum*
Horestail	*Equisetum sp.*
Jointed rush	*Juncus articulatus*
Lady's bedstraw	*Galium verum*
Lesser stitchwort	*Stellaria graminea*
Male fern	*Dryopteris filix-mas agg.*
Marsh marigold	*Caltha palustris*
Meadow buttercup	*Ranunculus acris*
Meadow crane's-bill	*Geranium pratense*
Meadow vetchling	*Lathyrus pratensis*
New Zealand Pigmyweed	*Crassula helmsii*
Oak	*Quercus sp.*
Oxeye daisy	*Leucanthemum vulgare*
Perforate St John's-wort	*Hypericum perforatum*
Poplar	*Populus nigra*
Prickly sow-thistle	*Sonchus asper*
Quaking-grass	*Briza media*
Red bartsia	*Odontites vernus ssp. litoralis*
Red clover	*Trifolium pratense*
Red fescue	*Festuca rubra*
Red valerian	*Centranthus ruber*
Ribbed melilot	*Melilotus officinalis*
Ribwort plantain	*Plantago lanceolata*
Rosebay willowherb	*Chamerion angustifolium*
Round-fruited rush	*Juncus compressus*
Scarlet pimpernel	*Anagallis arvensis*
Scots pine	*Pinus sylvestris*
Sessile oak	*Quercus petraea*
Silver birch	*Betula pendula*
Soft rush	*Juncus effusus*
Sorbus species	*Sorbus spp.*
Spear thistle	*Cirsium vulgare*
Square-stalked St John's-wort	*Hypericum tetrapterum*
Sycamore	*Acer pseudoplatanus*
Tansy	*Tanacetum vulgare*
Tormentil	*Potentilla erecta*
Tufted hair-grass	*Deschampsia caespitosa*
Tufted vetch	*Vicia cracca*
Water crowfoot spp.	*Ranunculus aquatic sp. Agg.*
Water dock	*Rumex hydrolapathum*

English Name	Scientific Name
White clover	*Trifolium repens*
Wild carrot	*Daucus carota*
Wild pear	*Pyrus pyraster sens str.*
Wild privet	*Ligustrum vulgare*
White poplar	*Populus alba*
Wild strawberry	*Fragaria vesca*
Wild teasel	*Dipsacus fullonum*
Wood avens	*Geum urbanum*
Yellow oat-grass	*Trisetum flavescens*
Yellow-wort	*Blackstonia perfoliata*
Yorkshire-fog	*Holcus lanatus*
Zigzag clover	*Trifolium medium*

APPENDIX 3: DESK STUDY DATA

No.	Name	Area	District	Grid Ref.	Description	Interest
2/372	Lambley Dumble Pasture	3.496 ha	Gedling District	SK 620451	A semi-improved neutral grassland with a relatively species-rich sward	Botanical
2/373	Lambley Dumble Grassland	7.8 ha	Gedling District	SK 624449	Grassland with a notable community and pronounced ridge and furrow	Botanical
2/374	Lambley Dumble	2.992 ha	Gedling District	SK 623451	A good example of a dumble, with many characteristic species	Botanical
2/370	Harveys Plantation Meadow	1.1 ha	Gedling District	SK 619432	A steeply-sloping meadow	Botanical
2/371	Mapperley Plains Paddocks	1.453 ha	Gedling District	SK 604451	Grassland with a noteworthy and characteristic community	Botanical
2/380	Crock Dumble	5.175 ha	Gedling District	SK 631440	A notable dumble	Botanical
2/381	Barrons Plantation with Gedling District Wood	6.18 ha	Gedling District	SK 626437	A valuable woodland habitat with a noteworthy species content	Botanical
2/382	Stockhill Grasslands, Lambley	6.689 ha	Gedling District	SK 633449	Herb-rich grasslands	Botanical
2/962	Marshy Grasslands, Lambley	2.728 ha	Gedling District	SK 613450	Two grasslands with a central species-rich marsh	Botanical
5/211	Gedling Colliery Site and Dismantled Railway	35.069 ha	Gedling District	SK 612437	A former colliery site with notable plant assemblage	Botanical
5/337	Grassland / Hedge, Lambley	1.267 ha	Gedling District	SK 605450	An unimproved neutral grassland	Botanical
5/2311	Gedling Cemetery	0.732 ha	Gedling District	SK 613429	A notable neutral grassland in a cemetery	Botanical

Badger:

(Grid refs and locations confidential)

Square	Grid Ref.	Date	Location	No.	Notes
SK6042		26/02/1995	Carlton		
SK6042		01/03/1998	Carlton		
SK6045		25/03/1991	Lambley		
SK6143		15/02/1997	Gedling		
SK6143		13/06/1991	Gedling		
SK6144		25/02/2011	(461522/344517)		
SK6142		17/05/2012	near Gedling Church	1	
SK6242		10/09/2009	Gedling		
SK6242		29/10/2012	Burton Joyce	1	
SK6245		none given	Lambley		

Bat:

(Grid refs and private addresses confidential)

Species	Square	Date	Location	No.	Notes	Type
Pipistrelle	SK5943	26/06/2000	Mapperley Golf Course, Plains Road, Mapperley, Nottingham	10	Feeding around trees during survey of two Ash as possible bat roosts .	Roost
Pipistrelle	SK5944	28/03/2007		1	Grounded. Died overnight	Casual
Pipistrelle	SK5944	17/06/2007	Mapperley	3 to 4	Emerged from western Shaft (known as Pepper Pots)	Casual
Pipistrelle	SK5944	21/07/2007	Mapperley	6	Foraging over Oak trees	Casual
Brown Long-eared	SK6044	15/09/2004	Mapperley	unknown	Foraging along Oak trees	Casual
Brown Long-eared	SK6044	17/06/2007	Mapperley	8	Emerged from eastern Shaft (Known as Pepper Pots)	Casual
Pipistrelle	SK6044	17/06/2007	Mapperley	1	Emerged from eastern Shaft (Known as Pepper Pots)	Casual
Pipistrelle	SK6044	24/08/2004	Mapperley	2	Foraging over grassland	Casual
Pipistrelle	SK6044	24/08/2004	Mapperley	3	Foraging Around Ventilation Shaft	Casual
Pipistrelle	SK6044	15/09/2004	Mapperley	5	Foraging Around Ventilation Shaft	Casual
Brown Long-eared	SK6044	03/08/2007	Mapperley		Foraging near a mature Ash (SW of Chase Farm)	Casual
Noctule	SK6044	03/08/2007	Mapperley	1	Foraging near a mature Ash (SW of Chase Farm)	Casual
Pipistrelle	SK6044	03/08/2007	Mapperley		Foraging near a mature Ash (SW of Chase Farm)	Casual
Pipistrelle	SK6044	17/07/2006	Mapperley Plains, Mapperley	2	Emergence survey. Urine staining under barge board and droppings under southern gable end	Roost
Pipistrelle	SK6044	01/08/2006	Mapperley Plains, Mapperley	4	Common Pipistrelle foraging around gardens	Casual
Pipistrelle	SK6044	17/07/2006	Mapperley Plains, Mapperley		Urine staining under barge board and droppings under Southern gable end	Roost
unidentified bat species	SK6044	21/05/2005	Mapperley Plains, Mapperley		*Myotis* sp. foraging around gardens	Casual
Natterer's Bat	SK6044	14/02/2004	Disused railway tunnel under Mapperley Plains Rd.	1		Roost
Brown Long-eared	SK6044	14/02/2004	Disused railway tunnel under Mapperley Plains Rd.	1		Roost
unidentified bat species	SK6044	14/02/2004	Disused railway tunnel under Mapperley Plains Rd.	1	Probable Brown Long-eared bat.	Roost
Natterer's Bat	SK6044	25/02/2004	Disused railway tunnel under Mapperley Plains Rd.	1	Behind loose brickwork on walls of tunnel.	Roost
Brown Long-eared	SK6044	25/02/2004	Disused railway tunnel under Mapperley Plains Rd.	1	Behind loose brickwork on walls of tunnel.	Roost
unidentified bat species	SK6044	Sep-03	Pepperpots Shaft' , Disused rail tunnel under Mapperley Plains Rd.	dozen's and dozen's' seen by scouts.	Hibernation roost.	Roost
Pipistrelle	SK6043	13/07/1991	County Road, Gedling	1	Roost in top of cavity wall. Rescued juvenile returned to roost	Roost
Brown Long-eared	SK6044	11/06/2007	Mapperley	up to 8	Emerged from Tunnel	Casual
Pipistrelle	SK6044	24/08/2004	Mapperley	3	Roost in Mapperley Tunnel entrance	Casual
Pipistrelle	SK6044	19/07/1996	Oakhampton Crescent, Mapperley Plains	1	Injured bat. Later died	Casual
Pipistrelle	SK6043	09/09/2004	Gedling - Mapperley	2	Foraging along woodland	Casual
Pipistrelle	SK6042	10/08/2000	Cookson Avenue, Carlton			Roost

Pipistrelle	SK6044	09/09/2004	Gedling	1	Foraging around a dead Ash tree (poss roost)	Casual
Pipistrelle	SK6044	03/06/2007	Gedling	1	Foraging around a dead Ash tree (poss roost)	Casual
Pipistrelle	SK6044	01/08/2007	Gedling	1	Foraging over a mature crack willow	Casual
Pipistrelle	SK6143	19/08/2004	Shelford Road, Gedling		Roost in void. Owner has counted 30 + emerging in July. Roost type and droppings suggest Pipistrelle	Roost
Daubenton's	SK6143	06/08/2004	Gedling Colliery site	2	Foraging over ponds	Casual
Pipistrelle	SK6143	06/08/2004	Gedling Colliery site	3	Foraging over ponds	Casual
Daubenton's	SK6143	24/05/2007	Gedling Colliery site	10 to 12	Foraging over lagoons	Casual
unidentified bat species	SK6143	24/05/2007	Gedling Colliery site	2	Potential roost in a drainage Culvert	Casual
unidentified bat species	SK6142	08/09/1993	Hardy's Drive, Gedling		In cavity walls and main roof space. Droppings in loft.	Roost
Brown Long-eared	SK6142	18/02/1999	Gedling Parish Church, Arnold Lane, Gedling		Few droppings in boiler room under church. Old Pipistrelle dropping in church 03/01/2003	Roost
unidentified bat species	SK6142	03/02/2003	Gedling Parish Church, Arnold Lane, Gedling		Dropping found in organ room, suspected as being Pipistrelle.	Roost
Pipistrelle	SK6143	26/08/2004	Glebe Farm, Gedling	6	Emerged from window at Glebe Farm	Casual
Pipistrelle	SK6143	29/05/2007	Glebe Farm, Gedling	3 or 4	Foraging around Farm Buildings	Casual
unidentified bat species	SK6145	02/07/1994	Catfoot Lane, Lambley		Roost possibly in gaps in wall. 2 bats found in living room	Roost
Pipistrelle	SK6142	10/08/2004	Field Close, Gedling		Roost behind barge board at gable apex. 40+ counted in late June. Dead baby found	Roost
Brown Long-eared	SK6145	15/07/2009	Catfoot Lane Lambley Nottinghamshire NG4 4QG	3	Found roosting in the loft of the house. Also 300 to 400 droppings found below the ridge tiles in the loft. Presence of a maternity roost likely	Roost
Pipistrelle	SK6145	15/07/2009	Catfoot Lane Lambley Nottinghamshire NG4 4QG	5	Common Pipistrelle seen emerging from the house. Soprano Pipistrelle seen entering the house	Roost
Whiskered	SK6145	15/07/2009	Catfoot Lane Lambley Nottinghamshire NG4 4QG	3	Found roosting in the loft of the house	Roost
Pipistrelle	SK6245	09/06/1999	Lambley		Roost possibly behind cladding Soffit is used. Probable Pipistrelle	Roost
Pipistrelle	SK6242	25/07/1987	Greenacres, Tamarix Close, Gedling	20	Roost in cavity wall. Droppings widely scattered	Roost
Pipistrelle	SK6243	2007	Homefield Farm, Tollerton	1	Roost between larch lap boarding	Roost
Pipistrelle	SK6242	17/07/2004	Gedling	1	Foraging along N edge of Gedling House Woods	Casual
Common Pipistrelle	SK6146	16/05/2012	Orchard Farm, Catfoot Lane, Lambley		Foraging around shelter belt trees	Casual

Butterfly:

We have no butterfly records from your search area.

Crayfish:

We have no crayfish records from your search area.

Fish:

We have no fish records from your search area.

Herpetofauna:

Species	Square	Grid Ref.	Date	Location	No.	Notes
Common Frog	SK5944	SK59354408	Spring 2008	Woodthorpe		Die-off of over twenty adult frogs following spawning, Walsingham Road
Common Frog	SK5943	SK594435	03/1995	Carlton	100+	Adults, Pond since 1983, 12 Steadman Avenue, Mapperley
Common Frog	SK5943	SK595437	1982	Carlton	~20	15 Hillside Avenue, Mapperley
Common Frog	SK5943	SK595437	1998	Carlton	~20	16th February 1998 first few frogs, 21st February first spawn, 2nd March - two dozen arrived in the rain. 15 Hillside Avenue, Mapperley
Common Frog	SK5944	SK596444	1994	Arnold	50	387 Gedling Road
Common Frog	SK5943	SK598433	1994	Carlton	80+	19 Digby Avenue, Mapperley
Common Frog	SK5944	SK599447	1988-1989	Arnold		Adults, 89 Ramsey Drive
Common Frog	SK5944	SK599447	1991	Arnold		Adults, 89 Ramsey Drive
Smooth Newt	SK5944	SK599447	1991	Arnold		89 Ramsey Drive
Common Frog	SK6045	SK604456	1989	Arnold		Adults, Several ponds, Brookfields Garden Centre
Smooth Newt	SK6045	SK604456	1994	Arnold		Brookfields Garden Centre, Plains Road, Mapperley
Common Frog	SK6045	SK6045	03/1996	Arnold	28	Adults, 28 dead frogs found when clearing pond, 3 in amplexus, 36, Mapperley Orchard
Common Frog	SK6045	SK6045	1989	Arnold		Adults, 36, Mapperley Orchard
Common Frog	SK6042	SK608428	1990	Carlton		Adults, 20, Welbeck Avenue.
Common Frog	SK6042	SK608428	1992	Carlton		Adults, 20, Welbeck Avenue.
Common Frog	SK6042	SK608429	1995	Gedling	100	28, Chesterfield Avenue
Common Frog	SK6042	SK608429	1995	Gedling		30, Chesterfield Avenue
Common Toad	SK6044	SK608445	28/05/2009	Mapperley		Dead in grass
Common Frog	SK6143	SK611431	1996	Gedling		Rousettus', The Fairway
Common Frog	SK6144	SK6144	1995	Lambley	8	Adults, 174/6, Spring Lane
Smooth Newt	SK6144	SK6144	1995	Lambley		Adult, 174/6, Spring Lane
Common Toad	SK6143	SK614435	23/03/2010	Gedling Colliery (south lagoon)		130 toads
Common Frog	SK6143	SK614435	23/03/2010	Gedling Colliery (south lagoon)		100+ clumps of frogspawn
Common Toad	SK6143	SK614436	23/03/2010	Gedling Colliery (north lagoon)		105 toads
Common Frog	SK6143	SK614436	23/03/2010	Gedling Colliery (north lagoon)		8 clumps of frogspawn
Smooth Newt	SK6143	SK614436	23/03/2010	Gedling Colliery (north lagoon)		1 smooth newt
Common Frog	SK6142	SK616427	1995	Gedling	36	25, Saltford Close
Common Frog	SK6145	SK619450	1994	Lambley	1	Lambley Dumbles
Smooth Newt	SK6242	SK620427	1989	Burton Joyce		Whitworth Drive
Common Toad	SK6244	SK629449	25/07/2005	Cromwell Crescent, Lambley	2	Singles in garden pond. Annual visits from 1991
Smooth Newt	SK6244	SK629449	25/07/2005	Cromwell Crescent, Lambley	10	Garden pond. Recorded annually from 1986 to 2008 Breeding

Common Frog	SK6244	SK629449	04/04/2008	Cromwell Crescent, Lambley	12	Garden pond. Recorded annually from 1986 to 2008 Breeding
Common Frog	SK6345	SK6345	1995	Lambley		Adults, 52, Main Street
Smooth Newt	SK6345	SK6345	1995	Lambley		Adult, 52, Main Street
Common Toad	SK6143	SK6143	26/09/2013	Gedling Colliery Yards		

Invasive Plant Species:

Species	Square	Grid Ref.	Dates	Location	Habitat
Fallopia japonica	SK6044	SK600443	02/01/2010	Arnold	to the south of an old farmtrack off Mapperley Plains Road running down to Chase farm
Fallopia japonica	SK6042	SK607428	01/11/2009	Carlton	Wall of Workshop and tarmac
Fallopia japonica	SK6043	SK609438	25/04/1995	Gedling	dism. railway/aband. colliery site
Fallopia japonica	SK6143	SK610438	29/05/2002	Gedling	dism. railway/aband. colliery site
Fallopia japonica	SK6143	SK614433	18/10/2005	Gedling	dism. railway/aband. colliery site
Fallopia japonica	SK6143	SK614435	22/08/1995	Gedling	dism. railway/aband. colliery site
Fallopia japonica	SK6144	SK616445	29/08/2004	Gedling	dism. railway/aband. colliery site
Fallopia japonica	SK6242	SK622426	01/11/2009	Gedling	Waterhouse Lane, Gedling,, bank above wall

Fallopia japonica is Japanese Knotweed.

Mammal:

Species	Square	Grid Ref.	Dates	Location	Habitat	No.	Notes
Brown Hare	SK6045	SK605459	02/09/2005	Mapperley	Fields	1	Adult seen at 7.45. in field for 45mins
Brown hare	SK6145	SK611453	08/06/2011	Lambley		1	sighting
Brown Hare	SK6243	SK6243	10/07/2004	Lambley Lane, Carlton	Pasture	3	Adults
Brown Hare	SK6244	SK625445	10/07/2004	Wicketwood Hill, Lambley	Bridlepath	1	Adult
Brown Hare	SK6344	SK6344	01/01/2004	Burton Coppice	Coppice	4	Adults being chased by foxes. Individuals also seen in summer in CSS pasture/newly planted woodland
Brown Hare	SK6345	SK6345	10/07/2004	Green Lane, Lambley	Fields	3	Adults
Harvest Mouse	SK6245	SK627450	08/09/2009	Spring Lane, Lambley		1	brought in by cat

Moth:

There are no Local Wildlife Sites for moth interest in your search area. One site supports a notable species.

Species	Square	Grid Ref.	Dates	Location	Grade
Scarce Footman	SK6145	SK619450	1980-2008	2/374 Lambley Dumble	Grade 3. Site not yet qualifying as a SINC for it's macro moth importance but which may well qualify when more is known about it

Odonata:

There is one Local Wildlife Site for odonata interest in your search area.

Otter:

We have no otter records from your search area.

Water Beetle:

There are no Local Wildlife Sites for water beetle interest in your search area.

Water Bug:

There are no Local Wildlife Sites for water bug interest in your search area.

Water Vole:

Square	Grid Ref.	Dates	Location	Habitat	No.	Notes
SK6244	SK629449	10/08/1996	Cromwell Crescent, Lambley		1	Seen swimming in dyke along Back Lane feeder to Cocker Beck. Regular sightings

Appendix 4 . Survey Data collected 2017

Species of Conservation Concern for Notts. present on GCP.

5 species of mammals -
- Badger - Meles meles (3 active sets)
- Brown hare - Lepus europaeus
- Fallow deer - Dama dama
- Stoat - Mustela erminea
- Hedgehog - Erinaceus europaeus

1 species of reptile -
- Grass snake - Natrix natrix

3 species of amphibians -
- Common frog - Rana temporaria
- Common toad - Bufo bufo
- Smooth newt - Triturus vulgaris

10 species of moths -
- Angle-striped sallow - Enargia paleacea
- Brown-veined wainscot - Archanara dissoluta
- Burnet Companion - Euclidea glyphica
- Dark brocade - Mniotype adusta
- Dark umber - Philereme transversata
- Fen wainscot - Arenostola phragmitidis
- Oak egger - Lasiocampa quercus quercus
- Small elephant hawk-moth - Deilphila porcellus
- Striped wainscot - Mythimna pudorina
- White satin - Leucoma salicis

2 species of butterfly -
- Dingy Skipper - Erynnis tages,
- Green Hairstreak - Callophrys rubi

3 species of dragonfly -
- Hairy Dragonfly - Brachytron pratense,
- Black-tailed skimmer - Orthetrum cancellatum,
- Common Hawker - Aeshna juncea

1 species of cricket -
- Speckled Bush Cricket - Leptophyes punctatissima

6 species of vascular plants -
- Bluebell - Hyacinthoides non-scripta,
- Cowslip - Primula veris,
- Pyramid Orchid - Anacampsis pyramidalis,
- Early Marsh Orchid - Dactylorhiza incarnata,
- Weld - Reseda luteol,
- Common Cottongrass - Eriophorum augustifolium,