



Abbey Park

9th – 10th June 2011



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Acknowledgements

The organisers would like to thank all partners involved in the organisation of the event; and particularly members of the public and the surveyors and volunteers who gave their time to take part in the event, and without whom Leicester Bioblitz 2011 would not have been possible.

Executive Summary

The Second Leicestershire Bioblitz was held at Abbey Park, Leicester on the 9th and 10th June 2011. The aim of the event was to encourage people to observe and record wildlife on the park and make them aware of how important green spaces are for plants and animals living close to the centre of major cities and in this case, Leicester.

The focus for this years' event was to concentrate on education by raising awareness and encouraging active participation. This was done by inviting local schools as well as members of the public to attend the event. Activity sessions were organised for children aged 7 to 11 years old from 4 local primary schools with a total of 161 children attending over the day. The aim was to inspire the children with a range of activities that got them involved in learning and understanding about the different plants and animals that could be found in their local surroundings.

The event was run in partnership between Leicester City Council and Groundwork Leicester and Leicestershire. Organisations and individual specialists assisted with the event by either helping with the organised activities or recording the species over a period to help contribute to a target of 500 species. This target was the same as for the previous Bioblitz held in 2010 within the much larger Watermead Country Park Local Nature Reserve (LNR) on the edge of the City. The expectation of reaching such a high target within a heavily used park close to the city centre was a real challenge with an uncertain outcome.

A "basecamp" was set up at the centrally located Education Centre in the Park where exhibits could be viewed by the public and a tally of species counts kept on display. The target was just reached with a total of 506 species being recorded at the event including 231 different flowering plants, 71 lichens, 45 species of moths and 42 species of birds by approximately 35 specialists who helped record or lead guided walks or activities during the event.

Over 50 people attended the guided walks on the Thursday evening which focussed on amphibians, moths and bats. Organised activities were set up around a section of the Park the following day and groups of children were accompanied around the activities to ensure they had a mix of encounters and got hands-on experience of using equipment or catching wildlife. Each pupil was provided with an Education Park which included I-Spy and sheets to record what had been seen or learnt during their visit.

A surprising number of native plants were recorded in the park with the majority found within the enclosed miniature railway area and the Gas Embankment adjacent to the canal. As expected, the park was also reasonably rich in bird life due to the presence of the lake and a number of smaller ponds providing suitable habitat for waterfowl, and mature trees and shrubs providing shelter and nesting for woodland birds. Lichens were especially abundant along the walls of the Abbey ruins and a particularly locally rare species of lichen was found on the bark of a row of Small-leaved limes near to the café and bridge.

Following evaluation of the results and locations where species were found recommendations have been made and are included in the report to help conserve the species present and enhance biodiversity across the Park.

1 Introduction

1.1 Background to the Bioblitz

Bioblitz events are gaining in popularity in the UK, since first appearing in America in the early 1990s, and have now spread right across the globe with Bioblitz records from the Americas, Australia, New Zealand and Europe.

Following a highly successful award-winning first Leicestershire Bioblitz in 2010 the decision was taken to hold a further such event in 2011. The event would continue to contribute data and inform on appropriate habitat and species conservation identified in the objectives of the Leicester City and Leicestershire and Rutland Biodiversity Action Plans (BAP).

The current financial climate meant that any event could not be on such a grand scale as the 2010 Leicester Bioblitz at Watermead, but partners were still keen to hold an event that would involve the public and fulfil the aims of both the local authority and conservation organisations. A decision was taken therefore to have a “Mini-Bioblitz” event during school time in the week to enable schools to participate and encourage children to engage with the wildlife at the chosen site. The commitment to record species over a full 24 hours (typical of a full Bioblitz event) was reduced to an evening session, followed by the main event during the school hours the following day (Thursday into Friday).

Abbey Park was chosen as the venue for the 2011 Bioblitz Event due to its central location in the city, facilities such as ample parking, toilets and public transport links and the suitability of the Education Centre at the heart of the Park as the Bioblitz Headquarters.

The organisers wanted to challenge the perception of Abbey Park as a formal city park hosting large events frequently throughout the year (e.g. Bonfire Night, Funfair, Special Olympics) with very few places for wildlife to find refuge. A target of 500 different native species of plants or animals recorded over the event was set even though it was felt to be quite ambitious.

1.2 Partners in Bioblitz

The main partners in the 2011 Bioblitz were Leicester City Council and Groundwork Leicester and Leicestershire

1.3 Publicity

Leicester Bioblitz 2011 was promoted on the Leicester City Council and Groundwork Leicester and Leicestershire (GWLL) websites, as well as the national Bioblitz Website

(<http://www.bnhc.org.uk/home/bioblitz/>). The organisers were also involved with interviews on BBC Radio Leicester. Local BBC radio presenter, Rupal Rajanii, provided some good publicity in the run-up to the event by setting being set a challenge to find 50 species of flora or fauna in the park in just one hour. Articles publicising the event appeared in the local press and posters were placed around Abbey Park to notify visitors of the forthcoming event. The County Recorders network also publicised the event at meetings, in newsletters and via local natural history interest groups.

1.4 Funding

Leicester City Council (LCC) funded the running costs of the 2011 Bioblitz event. Generous “in kind” contributions were made by LCC and GWLL for staff time, event organisation, running the day and compilation and analysis of data and report writing after the event.

1.5 Participation

The Education Centre at the heart of Abbey Park was an ideal location for the basecamp of the 2011 Bioblitz. It provided a facility for the school visits as well as a safe site for interactive displays of specimens and identification resources. The centre was open during the evening session on the 9th June and throughout the following day.

BioBlitz Leicester

Abbey Park, Leicester
Mini Bioblitz 9 and 10 June 2011

Help us to record at least 500 species in just one day.

Bat and moth night-time wander
Explore Abbey Park at night and discover bats and moths. Use a bat detector and get close up to moths.
Abbey Park
Thursday 9 June 2011
9.30pm - 12pm
Booking essential
Please call 0116 233 3025/6

Torchlight Amphibian Walk
Come along and spot the frogs and newts that swim around the ponds at Abbey Park.
Abbey Park
Thursday 9 June 2011
9.30 pm - 12 pm
Booking essential
Please call 0116 233 3025/6

Morn Chorus Guided Bird walk
Come along early in the morning and learn how to identify different birds by song. Catch a glimpse as they fly to and from their nests.
Abbey Park
Friday 10 June 2011
7.30am - 9am
Booking essential
Please call 0116 233 3025/6

Bioblitz Activity Day
A day full of activities including bird walks, pond exploration, mini-beast hunts
Abbey Park
Friday 10 June 2011
9am - 4pm

FREE

Bird watching Pond dipping Minibeast hunting Family Fun
Moth trapping Bat Hunting Wildflower walks Fish counts

For more information please go to www.leicester.gov.uk/bioblitz

Fig 1.1: Bioblitz Poster Advertising Event locally within the park

Several schools pre – booked session time for classes to participate in the themed activities, and the centre was also open for members of the public to drop in at any time.



Fig 1.2: Schools taking part in the Bioblitz event

A map (Appendix I), recording sheet (Appendix II) and several identification charts were produced to assist participants to make records of the plants and animals they saw. Professional and volunteer naturalist groups and individuals also supported the 2011 Bioblitz by giving their time to record species during the event, leading guided walks and/or running activities. Approximately 20 such volunteers assisted which included specialists from the City Council (Nature Conservation Officer, Tree Officer, the Riverside Rangers and various Park Officers with specialist knowledge of birds and mammals); botanists from the Botanical Society of the British Isles, including approximately 8 specialists who helped identify plants particularly associated with urban habitats; The Leicestershire Badger Group, Bee-keeping group and British Lichen Society.

1.6 Displays and Information

Displays boards and information in the form of leaflets, posters and booklets were available in both the Education Centre and an out-door marquee located close-by. Static displays and specimens from the museum collection were available for the public and school children to examine.

Guidebooks, key charts and microscopes were also available to aid with identification to species level and a range of sampling resources (nets, traps, collecting pots etc) were provided by Leicestershire and Rutland Environmental Resource Centre (LRERC) for use during the event.



Fig 1.3: Display showing key charts and specimens

An on-going tally of the number of species that were found over the Mini-Bioblitz was also displayed in the Education Centre during the event to keep people informed and show the progress made towards achieving the target of 500 species (native species only recorded).

2 Abbey Park

Abbey Park is Leicester's premier park and lies approximately one mile north of the City centre. The River Soar divides this beautiful park into two distinct areas: to the east of the river lies the highly decorative Victorian part of the park with its evergreen shrubberies, trees, lakes and formally planted flower displays and to the west of the river lies the fascinating Abbey Grounds. Within this area are the remains of the twelfth century Leicester Abbey and the ruins of Cavendish House, a seventeenth century mansion.

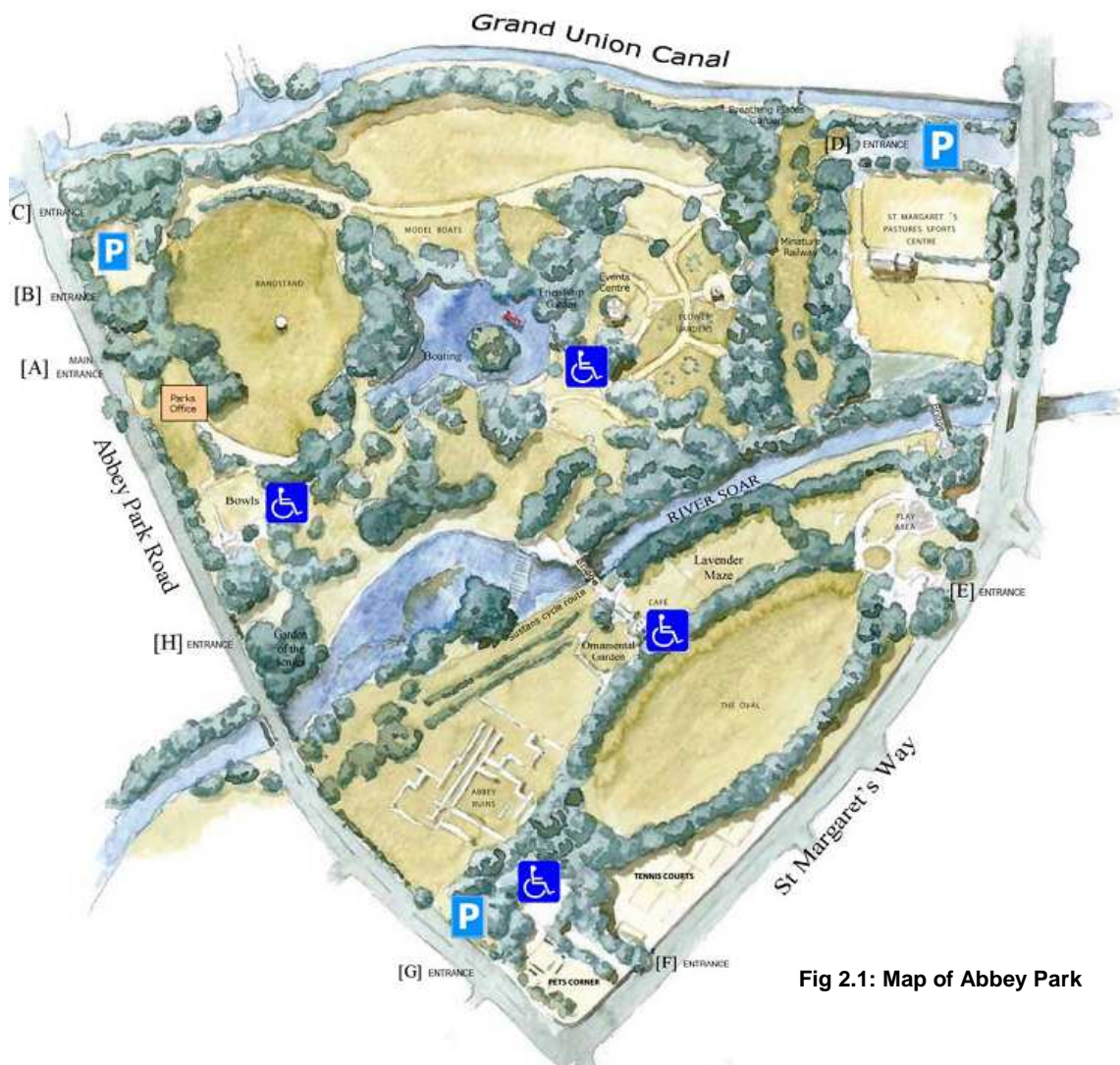


Fig 2.1: Map of Abbey Park

The Leicester Society of Model Engineers was founded in 1909 and in 1949 the Parks Committee gave the Leicester Society of Model Engineers permission to install a miniature railway for model engines on Abbey Park. The railway is open to the public most Sundays

throughout the summer. This area is fenced off from the general public during the week and has developed into a more natural area with a variety of mature and semi-mature trees, shrubs, meadow grasses and wildflowers.

3 Participation

3.1 School involvement and wildlife based activities

Schools from the local area took part in the Bioblitz with a total of 177 pupils and associated teachers taking part from Abbey Primary School and Belgrave St Peters. The children ranged from 7 – 12 years old and they took part in a range of activities from pond dipping by boat, Plant ID, bug hunting, tree trails, bird watching and making bug hotels.



Fig 3.1: Young People at Bee Display



Fig 3.2: Young People visiting the Education Centre

3.2

Guided Walks

On the evening of the 9th June bat, amphibian and moth guided walks were held where members of the public booked on and attended. Over 50 people attended the events during the evening and participants included a wide range of ages of the general public.



A guided “Morn” Chorus was also held at 8.30 a.m. the following day led by two bird watchers who are employed by Leicester City Council having built up knowledge in their own time to become local experts.

Fig 3.3: Morn Chorus guided walk

3.3 Naturalists and Experienced Surveyors

More than 20 experienced professional and amateur naturalists gave their time to take part in recording wildlife for the 2011 Leicester Bioblitz. This included members of the British Lichen Society, Loughborough Naturalists, the Leicester group of the Botanical Society of the British Isles (BSBI), the Universities of Leicester and Nottingham, De Montfort University, The Badger Group and conservation officers and researchers from LCC, GWLL and Leicester and Rutland Wildlife Trust.



Fig 3.4: Bee Expert explaining bee behaviour



Fig 3.5: Getting Close Up to a Badger Skull

3.3.1 Recording Forms and Site Maps

A schematic map of Abbey Park was produced (Appendix I) following a pre-event site visit, which identified areas of particular interest within the park for the experienced surveyors. A simple recording sheet (Appendix II) was supplied with the map and surveyors were encouraged to note the area of the park where species of particular interest were found.

3.3.2 Accuracy of Information and Verification

The specialist surveyors were self-policing in the accuracy of their data with a number of recorders taking specimens away on the day, to confirm identifications at a later stage when they were able to consult with national experts or compare with voucher specimens. These surveyors were made up of County recorders (specialists in groups of species e.g. mammals, higher plants, lichens, lepidoptera) and experienced surveyors/recorders whose records were generally accepted as verified by the Leicestershire and Rutland Environmental Record Centre (LRERC).

Any data found to be inconclusive (for example a non-standard common name used by a recorder noting down a record out of their usual field of expertise) were removed from the lists during sorting and analysis.

3.3.3 Surveying Techniques

The methodologies followed best practice and standard techniques when and where possible. The range of data collected may have been in part due to the professional equipment made available from LRERC. This included newt torches for recording amphibians by torch light; a range of pond-dipping and invertebrate nets, bat detectors, GPS survey equipment, field identification sheets and field guides. Botanists used the standard VC 55 recording sheet.

Bats were recorded using hand-held bat detectors, which recorded the presence of bats using echo-sound and specialists identified the sounds to species level. An anabat recorder was also used to record the echo-sounds and software analysed the sounds to confirm bat species identification.

Small mammal traps (longworth and plastic small mammal traps) were used to trap mammals. These were baited with appropriate food (meal worms, nuts and fruit) and bedding (straw). They were set up at dusk on the Thursday evening and checked again within 7 hours the following morning.

Invertebrates were trapped using sweep nets and jars. Specimens were only taken where analysis after the event was necessary for verification of species.

4 Results and Analysis

4.1 Results

The total number of species recorded at the 2011 Leicester Bioblitz was 506 – just beating the 500 mark. It is really encouraging, and perhaps quite surprising, that a formal urban park could support so much wildlife (none of the records were of specimen trees or the varieties of ornamental planting). The total included 231 flowering plants, 45 species of moths, 64 other invertebrates, 71 lichens and 42 species of birds (Figure 4.1). The full species list is in Appendix III.

Figure 4.1 Species recorded at the 2011 Leicester Bioblitz

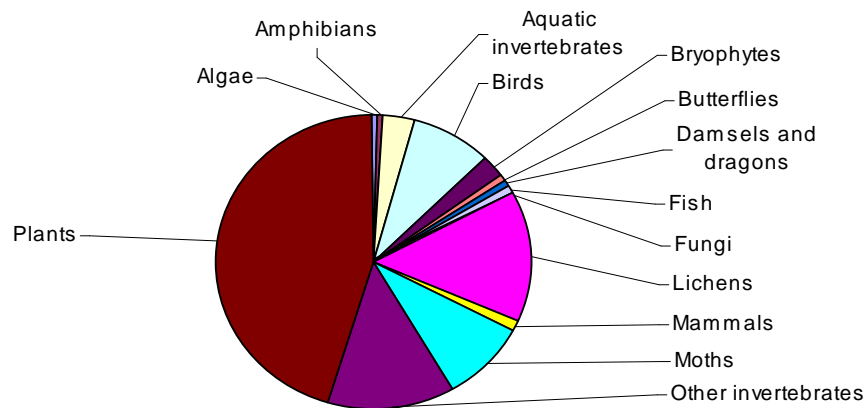
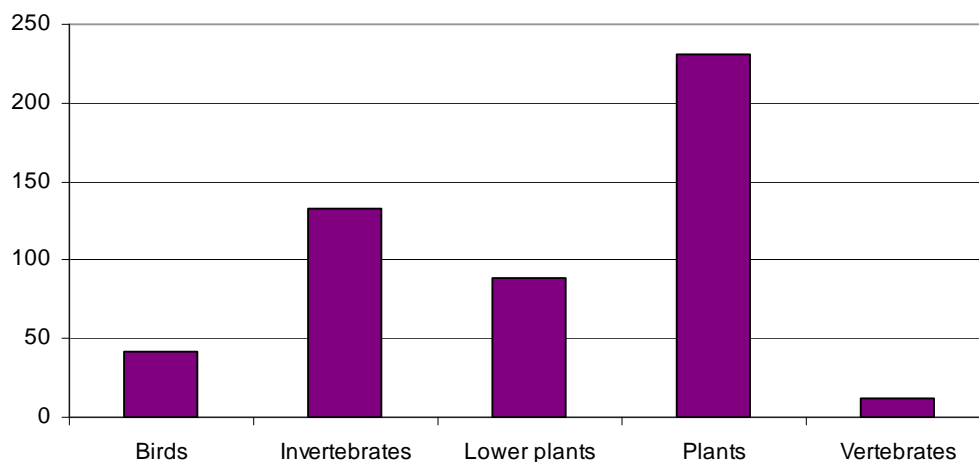


Figure 4.2 shows the number of species found in each of the major groups at Abbey Park. The broad group “lower plants” includes algae, mosses, lichens, ferns and fungi.

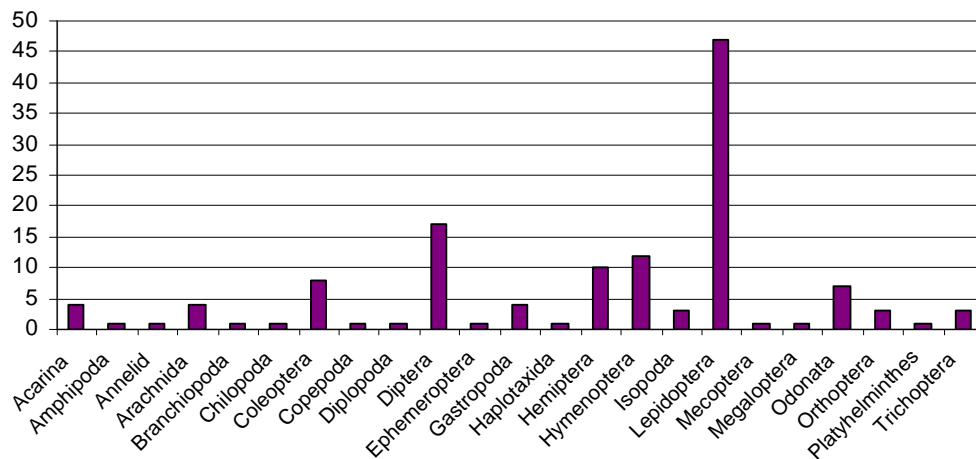
Figure 4.2 Numbers of birds, invertebrates, lower plants, plants and vertebrates found at Abbey Park



A total of 133 invertebrates were recorded at Abbey Park with the largest number of invertebrates being in the order Lepidoptera (butterflies and moths). Overnight moth trapping resulted in 45 species of moth being recorded, and 2 species of butterfly were recorded the following day during the event.

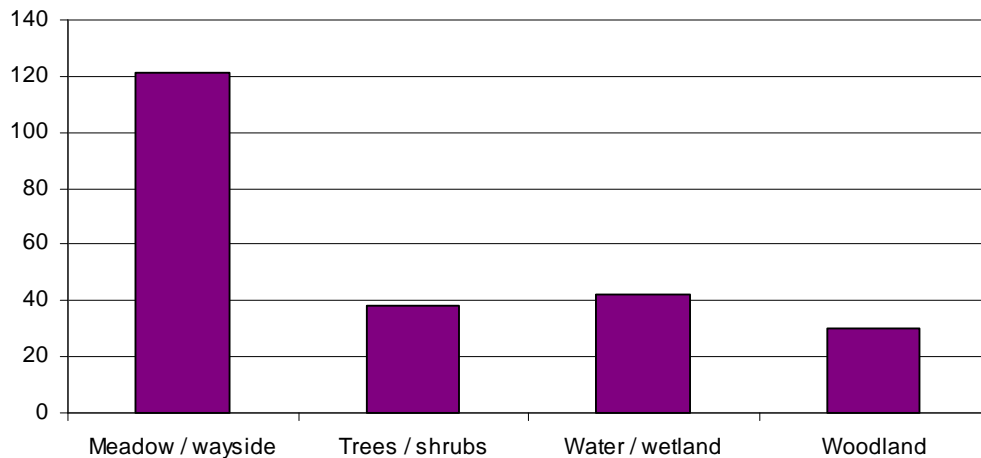
17 species of Diptera (flies) were recorded and 12 Hymenoptera (bees, wasps, ants and sawflies), however most invertebrate orders were represented by less than 5 species (Figure 4.3)

Figure 4.3 Numbers of species of invertebrate orders recorded at Abbey Park



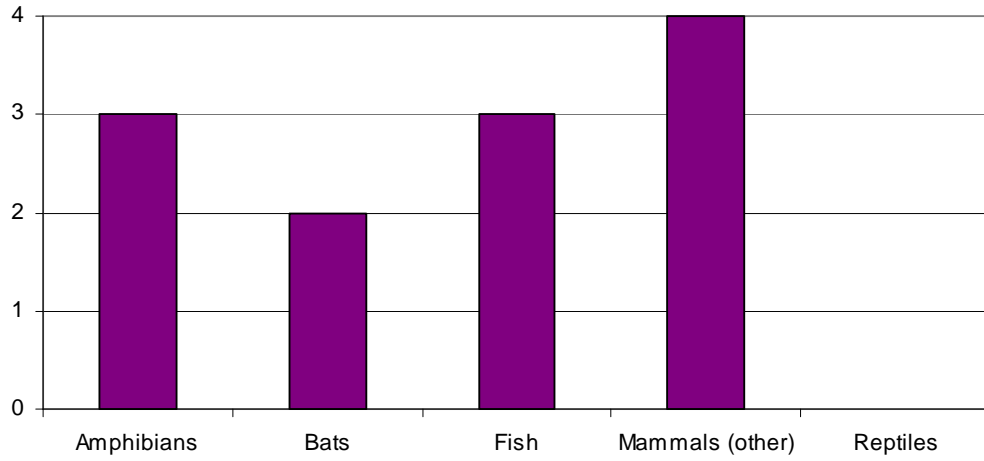
A total of 231 species of flowering plants were recorded, these were subdivided into the informal groups of meadow / wayside, trees, water / wetland and woodland according to the habitat in which they were observed (Figure 4.4)

Figure 4.4 Number of species of flowering plants recorded at Abbey Park grouped by informal habitat type



A total of 12 vertebrates were recorded at Abbey Park during the 2011 Bioblitz although this did not include any reptiles (Figure 4.5)

Figure 4.5 Number of vertebrates (divided into informal groups) recorded at Abbey Park



5 Discussion

5.1 Public Participation

Public participation overall at the event was mixed. The guided walks on the Thursday evening were well attended with over 50 people joining in the event. Attendees had to ring to pre-book onto the chosen event and were provided with instructions on what time to arrive and where to park. On arrival they were directed to the Education Centre where they were provided with free refreshments (teas/coffees etc) before the event started at 9.30 p.m. This enabled visitors to view the displays, pick-up leaflets and generally network with specialists and ask informal questions prior to the walks starting.

The attendees were divided into 2 groups and taken on guided walks for amphibians and bats. The groups swapped over after 45 minutes to allow all visitors to participate in both guided walks. During the walks both groups were given the opportunity to use the bat detectors and identify the bats flying around the woodland and water areas. Individuals were also able to use torches, nets and buckets to observe and capture any amphibians for identification. Species observed and identified during the walks contributed towards the overall tally for the Bioblitz event.

Following the guided walks, visitors returned to the Education Centre where several moth traps had been set up to capture the insects flying in the area. Several specialists were on-hand to provide advice and information on this specialist group which is always popular with visitors and were able to examine the insects quite closely. Specimens were kept overnight and shown to the school groups the following day.

The following day commenced with a “Morn Chorus” walk led by two of specialists who work for the City Council. The walk was attended by members of the public who booked on the event and the Amenities Team from the City council. Schools attended between 10.00 a.m. – midday and 1.00 - 3.00 p.m. The young people were split into small groups prior to arriving at the event, accompanied by teachers and classroom assistants. Park officers led the groups around the range of activities and encouraged children to take part. At each activity station specialists were on hand to help the children and answer any questions. The events proved very popular and particular favourites were the pond dipping from a boat organised by the Riverside Rangers; bug-hunting using a dustpan and brush organised by OPAL; badger display organised by the Badger Group and the Wildflower activity run by

Groundwork. Each group also visited the Education Centre where they could examine the specimens on display and leave a message about what they thought of the day.

The school groups were invited to complete a message and add it to a “Tree of Life” telling us what one thing they had learnt from the day. Visitors who attended the guided walks and the day-time event were also invited to provide feed back. Examples of some of the messages left are given below and show how well the event was enjoyed:

“It’s a lot of fun! I especially liked the life in the pond”

“I’ve never used binoculars so I really enjoyed watching birds close up”

“Looking at the baby chicks was really good had a good morning”

“I really enjoyed it.. I found a lot of information which I didn’t know”.

“It’s a lot of fun! A really good evening and day. Saw lots of stuff I’ve never seen before. Many thanks”.



Fig 5.1: Thoughts of the Day – Lessons Learnt

“Lots of birds I’ve never heard of or seen before, had a really good day”.

“Only downside is it was over to quickly – Thank you for a memorable and educational evening and morning , when can we do it again?”

“BRILLIANT ! As an absolute novice I found it exciting & educational!! “

General members of the public also took part in the event and visited the displays, Education Centre and various activity stalls. The numbers of public taking part was greatly reduced compared to the previous year, but this may have been due to the event being held during a weekday and the amount of publicity the event received.

5.2 Species Groups

5.2.1 Birds

A total of 43 bird species were recorded during the event. Most of the species were fairly common birds that are found in most locations in Leicester where water and shrub-type habitat are present.



Fig 5.2: Bird watching at Abbey Park

Bird species were recorded by specialists who attended the event to run the guided walks (2 x specialists from the City Council) and a representative from the RSPB who provided information and advice whilst manning the activity station. The station was located close to the bridge overlooking the main lake and weir. This provided an ideal spot for visitors and school children to view a large area of the park. Visitors were provided with binoculars and ID sheets to help identify the birds. This was a very popular activity and many different birds were present throughout the day.



Fig 5.3: Typical birds at Abbey Park

The “Morn Chorus” guided walk commenced at 8.30 a.m. Friday 10th June and was attended by members of the public and the City Council apprenticeship scheme. The main areas where bird records were obtained were on the river, canal and open waters of the lake and smaller ponds. A diverse range of water fowl were recorded at these points and further records of woodland species were recorded particularly along the Gas Embankment, ornamental shrubs and woodland.

One particular record was unusual though, that of the Shag (*Phalacrocorax aristotelis*) observed on the weir. The bird is normally associated with coastal waters and rocky outcrops. It is similar in size and features to the cormorant (*Phalacrocorax carbo*) which is associated with inland waters where fish are abundant. Shag has been observed at Rutland Water by the dam and in other areas of Leicestershire and this bird may have “stopped off” whilst on the way to the coast.

5.2.2 Invertebrates

5.2.2.1 Pond dipping



The most popular activity proved again to be the pond-dipping during the event. This was given added attraction by being done from a boat. This activity station was managed by a team of officers from the Riverside Rangers who encouraged school children to net their catch and then identify the invertebrates by putting them in a tray. A total of 17 aquatic invertebrates were identified to family level and included the pond and ramshorn snails, hoglouse and leech associated with poorer water, but also alderfly and caddisfly larvae, water scorpion and may fly nymphs associated with better quality water.

Fig 5.4: Examining Specimens Collected from the River

Officers did comment that the sheer numbers of school children wanting to partake in the activity in relatively quick succession meant that water was regularly disturbed and often turbid making it difficult for the invertebrates to be seen whilst still in the water. However, the results of the surveys of the small ponds and lake were very positive and will contribute towards recommendations for future work at Abbey Park by land managers.

Information on other invertebrates was collated from a number of sources. The specialist team from OPAL provided some species data from the bugs and insects gathered during their sweeping sessions with young people who captured the wildlife with a dustpan and brush. Other local experts went out into the field and gathered data from casual observation or collected specimens for later identification. The largest group of invertebrates recorded were Diptera (flies) followed by Hymenoptera (bees and wasps) and Coleoptera (beetles). A range of bumble bees were recorded particularly around the formal gardens of the Education Centre and a variety of ladybirds were recorded in similar locations, including the now infamous Harlequin ladybird. The location of recordings may reflect the areas of the park visited by the surveyors rather than the absence of invertebrates from some areas of the park and it is expected that the number of invertebrates generally were under-recorded due to limitations in the time to survey and number of experts in that field.

5.2.2.2 Moths

Several Lepidoptera specialists attended on the Thursday evening and set up a series of traps across the pathways close to the Education Centre. The weather was relatively mild and not windy, but there had been some rain earlier in the evening which is not conducive to large numbers of moths being recorded. The traps were set for approximately 3 to 4 hours and during that time a total of 45 species of moths were recorded. The moths were generally associated with shrub and woodland vegetation near to where the traps were set. All species have been recorded previously in Leicester and Leicestershire and no rarities were recorded on the evening. The activity was very popular with those that attended the guided walks in the Thursday evening and having several specialists on hand meant people could examine the species more closely around several of the traps.

5.2.3 Plants

The plants identified included only native species to the UK and the number of plant species (including flowering plants, algae, mosses, lichen, ferns and fungi) was the highest recorded group by far accounting for nearly 50% of the overall species observed on the day. Of these, the flowering plants were the most widely recorded and there are several reasons for this. The survey effort given to the recording of vegetation was higher than amongst other specialist groups. The number of people surveying over the Thursday evening and into the Friday meant that the majority of the park where the event was taking place could be visited and plants recorded. Fortunately, several experts were present and enabled vegetation associated with urban habitats to be identified which might have otherwise been under-recorded.

Lichens were particularly well recorded around the walls of the Abbey ruins and a number of rare lichens were recorded on a line of Limes near to the café and ruins, associated with more nitrogen tolerance, but acting as an indicator of improved air quality.



Fig 5.5: Lichen Display at Abbey Park Education Centre

Fungi was under-recorded with only one species noted (King Alfreds cakes *Daldinia concentrica*) on an Ash tree. This is not surprising due to the event being held in early summer when fungi associated with damper and colder conditions are not present.

The main areas of recording of native plants were firstly in the Miniature Railway area which is a much more natural and less formal area of the park with many native species of plants being allowed to grow undisturbed through regular mowing or trampling from visitors to the

park. The second area of high recordings was around the Gas Bank and Springwatch garden area that contains wild flowers from seed and saplings planted during the creation of the garden several years ago.

5.2.4 Mammals

The mammal group has been separated into bats and “other mammals” because of the number of species of bat that could have potentially been recorded at the Park during the evening in association with the different habitats available for foraging and commuting from roosts.

The total number of mammals (excluding bats) across the park was recorded as 4 species. These included mammals that were seen at the park such as fox (*Vulpes vulpes*), brown rat (*Rattus norvegicus*) and grey squirrel (*Sciurus carolinensis*).

However, some of the records of mammals were recorded from the identification of field signs by specialists. These included the presence of badger (*Meles meles*) confirmed from the identification of badger setts, latrines and prints.

A number of species were not recorded although their presence had been recorded within the last few years across the park. These included otter (*Lutra lutra*) whose field signs were searched for along the River Soar and canal.

Disappointingly, no small mammals were recorded even though a number of plastic and metal traps were baited and laid out overnight amongst appropriate habitat of woodland shrub (along the Gas Bank) and rough grassland (within Minature Railway island). There may be a number of reasons for the lack of records which include the staffing resources to place out the traps and check them again. Ideally, the traps would have been set out several days before the event without being set to allow the mammals to get used to their presence and explore them. The traps would then have been set overnight and this could have increased the potential for mammals to enter the trap and be caught overnight.

Other reasons for lack of records could have been due to the high level of disturbance generally along the Gas Embankment which is well used by dogs and other large mammals such as fox and badger making it not conducive to mammals being caught. The area is also

fully accessible to the public and it was difficult to find suitable habitat within the scrubby area where the traps would remain safe and not found by visitors to the park.

The habitat within the Minature Railway island was much more suitable and because it was surrounded by fencing to keep the public out, appeared to have much higher potential for capturing mammals. Unfortunately, no mammals were caught in this area either and this is likely to be because the area was used by foxes, one of which was disturbed on the morning of 10th June when the traps were being checked. Several of the traps were upturned and the doors shut and is likely to have been caused by foxes disturbing them having been attracted by the smell of the bait.

It is likely that both areas would be well used by small mammals such as wood mice, bank vole and common shrew. Several piles of nibbled cherry stones were found which had been eaten by a small mammal but it was not certain whether these had been eaten by a wood mouse or bank vole.

Bat records were noted during the guided walk event, particularly along the water courses of the River Soar, over the large lake and amongst the mature trees. Common Pipistrelle bats were recorded amongst the trees and open areas of grass and Daubenton bats which largely forage for insects over water were recorded over the lake and river area. The range of species was quite low compared to previous records of bats at the park and this may have been due to the prevailing weather conditions (cool temperature and windy conditions) which could have affected the behaviour and flight patterns of foraging bats. Limitations on the time to survey areas from the Education Centre to the river and water courses may have also reduced the number of species recorded.

5.2.5 Amphibians and Reptiles

The amphibians were searched for by torch light in a series of ponds and along the edge of the river. This formed part of a guided walk during which common species such as smooth newt (*Lissotriton vulgaris*), Common frog (*Rana temporaria*) and Common toad (*Bufo bufo*) were found. Aquatic invertebrates to Genera level were also noted and their presence confirmed again during the pond dipping sessions the following day.

The number of amphibians recorded during the guided walk was particularly low and this may have been because of it being late in the breeding season when most adult amphibians will have left the water and rely on terrestrial vegetation to avoid predation and keep cool.

Those amphibians found during the guided walk were adults that were disturbed in the taller aquatic and ruderal vegetation whilst approaching the waters edge. No tadpoles were observed and this may be because of the large numbers of waterfowl which may have predated them, leaving any survivors more likely to hide in the vegetation and under rocks.



A number of large adult toads were found in the grates along the pathways near to the Education Centre, having found the perfect place to keep cool and wet with periodic dousings when flower beds are watered.

No grass snakes were recorded during the event and the low records of reptiles is probably due to the location of the park and its isolation from good habitat, its central location and heavy disturbance, but also the cool weather conditions without sun on the Thursday afternoon and Friday morning which would not encourage basking.

Fig 5.6: Adult Toad in a Grate

6 Conclusion

6.1 How Did It Go?

The feedback received from specialists, members of the public and the schools that participated in the event were that it was another successful event which managed to achieve a combination of being fun, educational and productive.

Feedback about the organisers and guided walk leaders were that they were friendly and enjoyed instructing volunteers and the public in search techniques. The Bioblitz was also successful in collecting new information about biodiversity across the park and from a broad range of species.

Many common flowering plants, trees and vertebrates were confirmed during the event, but perhaps more importantly many new invertebrate species and lichens were added to the list of resident fauna and flora. This success was particularly due to the large number of specialists, both professional and serious amateurs that had the field skills, knowledge of animal behaviour and habitats, and identification skills that ensured a successful outcome.

The 500 species to be identified over 24 hours was an ambitious target to set and this was achieved and following confirmation of specimen samples collected on the day, raised the total to a massive 506 species. Compared to the previous year when 653 species were recorded at Watermead Country Park, this was still a massive achievement for a park that is popular and regularly disturbed when hosting major events. The findings indicate that despite the disturbance there are still refuges where wildlife can survive and thrive in a busy urban setting.

The surveyors and guided walk leaders indicated that their time was well used and that they appreciated the opportunity to put their skills to the test and participate in a public event that would also contribute to how the park could be managed in the future. The event provided an opportunity for specialists to network together and to plan other projects to record wildlife across the City and County.

6.2 Recommendations

The following recommendations are made resulting from the Bioblitz and data collected:

- All data be forwarded to Leicestershire and Rutland Environmental Record Centre (LRERC) and for records to be updated electronically and made publicly available at an agreed resolution so as to protect sensitive records;
- All County recorders to be provided with a final list of species and tetrads where located;
- Copies of the report be circulated electronically to nature conservation groups and organisations; local authorities and individual recorders;
- The report is used to inform on future management at the park.

6.2.1 Future Management of the Park

The following points are recommendations aimed at improving the connectivity and refuges available around the park to encourage and conserve the wildlife whilst providing further opportunities for education and participation:

Trees

- Retain mature native species of trees where ever possible; prolong life of tree through appropriate management when necessary and increase wildlife value of trees through pollarding and tree surgeon specialist techniques that will create fissures and cavities that can be used as roost sites for bats and birds;
- Retain ivy on trees where ever possible as this is an important habitat for invertebrates and nesting/roosting sites for birds and bats. If not possible to retain on all trees, ivy should be cut on rotation around the park and ivy on some trees be retained without regular management and allowed to develop into mature, dense ivy;
- Consider value of lichens on trees and manage epicormic growth to retain an open and light structure for lichens to thrive;

Plants

- Retain some areas of park for native species of plants within context of more formal urban park setting and manage these on rotation by strimming and removing arisings to maintain an open sward and prevent build-up of coarser grasses and ruderals that will outcompete other species and reduce the diversity of plants;

- Continue to manage more formal areas of flower beds and theme-gardens for wildlife, particularly bees, butterflies and other invertebrates that rely on pollen and associated host species for food;
- Seek guidance on appropriate management of Abbey ruins, surrounding walls and adjacent Lime trees for lichens and other lower plants before planning works;

Birds

- Retain ivy on trees as above for nesting habitat;
- Improve the shrub layer of vegetation for nesting birds by allowing some areas to be left undisturbed on a 2-year rotation around the park to enable a denser ground and field layer or vegetation to build up for birds;
- Place boxes of different types on buildings that are appropriately sited;
- Monitor bird populations, particularly the ducks and other larger birds to avoid them outcompeting the smaller bird population

Mammals

- Place bat bricks/tiles on buildings and bat boxes in strategic places around the park. Liaise with Trees & Woodlands and NCO for suitable placement on trees etc;
- Retain or allow areas of rough grassland to establish in appropriate less formal areas around the site e.g. Gas Embankment, surrounding Springwatch garden, Miniature Railway Island and beneath woodland canopies along main driveways;
- Monitor use of site by large mammals such as badger, otter and fox to check their welfare and avoid over-predation of waterfowl;

Insects

- Maintain a mosaic of small gardens, formal and less formal areas to create diverse range of habitats to encourage a greater diversity of invertebrates associated with a range of host plants;
- Create insect houses and place in appropriate areas to encourage migration and hibernation.

Invertebrates

- Monitor water quality, maintain water levels and aeration of lakes to retain oxygen levels and encourage improved water quality of surface water areas;
- Monitor aquatic vegetation, particularly non-native invasive species such as Floating Pennywort. Arrange periodic removal with Riverside Team;
- Monitor build-up of silt and sediment in water courses and small water bodies, manage these areas on rotation through the removal of not more than 30 % at any one time during the autumn/winter. Seek advice from NCO before works planned;

Amphibians

- Create islands of rocks with crevices and holes in the lakes that are not accessible to public to allow amphibians to establish and avoid predation;
- Clear out drainage grates near to Education Centre on rotation to enable toads and frogs access to cool, damp conditions;
- Create hibernacula along Gas Bank and Minature Railway area

6.3 Opportunities for the Future

Following the success of the first Bioblitz in Leicester and Leicestershire at Watermead Country Park, the City Mayor, Sir Peter Soulsby, has both recognised and supported the on-going programme of both Bioblitz and Biodiversity events through his 100-day Action Programme. Support for the event at Abbey Park was well received and arrangements for an annual event to be held in Leicester each year with the assistance of partner organisations have been planned for the foreseeable future.

It is anticipated that the next Bioblitz will take place at Evington Park followed by locations such as Aylestone Meadows. Other organisations such as the University of Leicester have continued to support the main Bioblitz and opportunities for the University to host their own Bioblitz around their campus' involving students and academic specialists alike are planned for the near future.

The information gained from the events and the continuing network and building of specialist knowledge and encouragement is important. Amateur and professional naturalists have

informed on the current status and future of species of flora and fauna and this is vital to mitigate against the direct and indirect impacts on nature faced in an urban environment.

Raising awareness and encouraging participation are key objectives to any Bioblitz that sit alongside in the importance of our ability to safeguard and conserve wildlife in our City for the future.

Appendices

Appendix I Abbey Park Map

Other points of wildlife interest

- A** Butterfly garden
- B** Willow Carr
- C** Wall and ruins
- D** Lavender Garden
- E** Pond and Lake
- F** Sensory Garden
- G** Woodland walk
- H** Gas Bank
- I** Springwatch Garden



Appendix II Recording sheet

Appendix III Lists of Species Recorded during Bioblitz 2011 at Abbey Park

Table 1 – Birds

Scientific name	Common name	Group	Group - detail
<i>Acrocephalus schoenobaenus</i>	Sedge warbler	Birds	Birds
<i>Aegithalos caudatus</i>	Long tailed tit	Birds	Birds
<i>Anas platyrhynchos</i>	Mallard	Birds	Birds
<i>Anas platyrhynchos domestica</i>	Aylesbury duck	Birds	Birds
<i>Anser ferus</i>	Feral goose	Birds	Birds
<i>Apus apus</i>	Swift	Birds	Birds
<i>Ardea cinerea</i>	Grey Heron	Birds	Birds
<i>Branta canadensis</i>	Canada goose	Birds	Birds
<i>Carduelis carduelis</i>	Goldfinch	Birds	Birds
<i>Carduelis chloris</i>	Greenfinch	Birds	Birds
<i>Certhia familiaris</i>	Tree creeper	Birds	Birds
<i>Columba livia (Domestica)</i>	Feral pigeon	Birds	Birds
<i>Columba oenas</i>	Stock dove	Birds	Birds
<i>Columba palumbus</i>	Wood pigeon	Birds	Birds
<i>Corvus corone</i>	Carrion crow	Birds	Birds
<i>Cygnus olor</i>	Mute swan	Birds	Birds
<i>Dendrocopos major</i>	Great spotted woodpecker	Birds	Birds
<i>Erithacus rubecula</i>	Robin	Birds	Birds
<i>Fringilla coelebs</i>	Chaffinch	Birds	Birds
<i>Fulica atra</i>	Coot	Birds	Birds
<i>Gallinula chloropus</i>	Moorhen	Birds	Birds
<i>Larus canus</i>	Common gull	Birds	Birds
<i>Larus fuscus</i>	Lesser black back gull	Birds	Birds
<i>Larus ridibundus</i>	Black headed gull	Birds	Birds
<i>Motacilla cinerea</i>	Grey wagtail	Birds	Birds
<i>Parus caeruleus</i>	Blue tit	Birds	Birds
<i>Parus major</i>	Great tit	Birds	Birds
<i>Periparus ater</i>	Coal tit	Birds	Birds
<i>Phalacrocorax aristotelis</i>	Shag	Birds	Birds
<i>Phylloscopus collybita</i>	Chiff chaff	Birds	Birds
<i>Pica pica</i>	Magpie	Birds	Birds
<i>Prunella modularis</i>	Dunnock	Birds	Birds
<i>Regulus regulus</i>	Goldcrest	Birds	Birds
<i>Sitta europaea</i>	Nuthatch	Birds	Birds
<i>Streptopelia sp</i>	White dove	Birds	Birds

Scientific name	Common name	Group	Group - detail
<i>Strix aluco</i>	Tawny owl	Birds	Birds
<i>Sylvia atricapilla</i>	Blackcap	Birds	Birds
<i>Sylvia borin</i>	Garden Warbler	Birds	Birds
<i>Tachybaptus ruficollis</i>	Little grebe	Birds	Birds
<i>Troglodytes troglodytes</i>	Wren	Birds	Birds
<i>Turdus merula</i>	Blackbird	Birds	Birds
<i>Turdus viscivorus</i>	Mistle thrush	Birds	Birds

Table 2 – Invertebrates

Scientific name	Common name	Group	Group - detail
<i>Acalitus stenaspis</i>		Invertebrates	Acarina
<i>Aceria fagineus</i>		Invertebrates	Acarina
<i>Orbata setosa</i>		Invertebrates	Acarina
<i>Phytopus abnormis</i>		Invertebrates	Acarina
<i>Crangonyx pseudogracilus</i>	Water shrimp	Invertebrates	Amphipoda
<i>Piscicola geometra</i>	Leech	Invertebrates	Annelid
<i>Araneus diadematus</i>	Garden spider	Invertebrates	Arachnida
<i>Enoplognatha orata</i>		Invertebrates	Arachnida
<i>Pardosa amentata</i>	Wolf spider	Invertebrates	Arachnida
<i>Pisaura mirabilis</i>	Nursery web spider	Invertebrates	Arachnida
<i>Daphnia</i>	Water flea	Invertebrates	Branchiopoda
<i>Lithobius forficatus</i>	Centipede	Invertebrates	Chilopoda
<i>Adalia 2-punctata</i>	2 Spot ladybird	Invertebrates	Coleoptera
<i>Apion pomonae</i>	Seed weevil	Invertebrates	Coleoptera
<i>Calvia 14-guttata</i>	Cream-spot Ladybird	Invertebrates	Coleoptera
<i>Coccinella 7-punctata</i>	Seven spot ladybird	Invertebrates	Coleoptera
<i>Harmonia axyridis</i>	Harlequin Ladybird	Invertebrates	Coleoptera
<i>Myrrha 18-guttata</i>	Eighteen spot ladybird	Invertebrates	Coleoptera
<i>Propylea 14-punctata</i>	14-spot ladybird	Invertebrates	Coleoptera
<i>Cyclops</i>	Cyclops	Invertebrates	Copepoda
<i>Cylindroiulus punctatus</i>	Millipede	Invertebrates	Diplopoda
<i>Anopheles sp</i>	Mosquito	Invertebrates	Diptera
<i>Cheilosia illustrata</i>	Hoverfly	Invertebrates	Diptera
<i>Chironomid</i>	Midge larvae	Invertebrates	Diptera
<i>Chloromyia formosa</i>	Soldier fly	Invertebrates	Diptera
<i>Contarinia tiliarum</i>		Invertebrates	Diptera
<i>Dolichopus unguatus</i>		Invertebrates	Diptera
<i>Elgiva sollicita</i>		Invertebrates	Diptera

Scientific name	Common name	Group	Group - detail
<i>Mesembrina meridiana</i>	House fly	Invertebrates	Diptera
<i>Nephrotoma quadrifaria</i>	Crane fly	Invertebrates	Diptera
<i>Pegomya solennis</i>		Invertebrates	Diptera
<i>Pherbina coryleti</i>		Invertebrates	Diptera
<i>Phytomyza ilicis</i>		Invertebrates	Diptera
<i>Pollenia rudis</i>	Cluster fly	Invertebrates	Diptera
<i>Ptychoptera contaminata</i>		Invertebrates	Diptera
<i>Sepedon sphegea</i>		Invertebrates	Diptera
<i>Tetanocera ferruginea</i>		Invertebrates	Diptera
<i>Tipula oleracea</i>		Invertebrates	Diptera
<i>Ephemera sp</i>	Mayfly (nymph)	Invertebrates	Ephemeroptera
<i>Helix aspersa</i>	Garden snail	Invertebrates	Gastropoda
<i>Limax maximus</i>	Leopard slug	Invertebrates	Gastropoda
<i>Lymnaea stagnalis</i>	Pond snail	Invertebrates	Gastropoda
<i>Planorbis sp</i>	Ramshorn snail	Invertebrates	Gastropoda
<i>Lumbricus sp</i>	Earth worm	Invertebrates	Haplotaxida
<i>Aphis sp</i>	Blackfly	Invertebrates	Hemiptera
<i>Aphis sp</i>	Greenfly	Invertebrates	Hemiptera
<i>Corixa punctata</i>	Lesser water boatman	Invertebrates	Hemiptera
<i>Deraeocoris ruber</i>	Red bug	Invertebrates	Hemiptera
<i>Leptoturna sp</i>	Meadow bug	Invertebrates	Hemiptera
<i>Nepa cinerea</i>	Water scorpion	Invertebrates	Hemiptera
<i>Notonecta glauca</i>	Greater water boatman	Invertebrates	Hemiptera
<i>Philaenus spumarius</i>	Common froghopper	Invertebrates	Hemiptera
<i>Psyllopsis fraxini</i>		Invertebrates	Hemiptera
	Scale insect	Invertebrates	Hemiptera
<i>Apis mellifera</i>	Honey bee	Invertebrates	Hymenoptera
<i>Bombus hypnorum</i>	Tree bee	Invertebrates	Hymenoptera
<i>Bombus lapidarius</i>	Red-tailed bumblebee	Invertebrates	Hymenoptera
<i>Bombus lucorum</i>	White tailed bumble bee	Invertebrates	Hymenoptera
<i>Bombus pratorum</i>	Early bumblebee	Invertebrates	Hymenoptera
<i>Bombus terrestris</i>	Buff tailed bumblebee	Invertebrates	Hymenoptera
<i>Diplolepis rosae</i>	Robin's pincushion gall	Invertebrates	Hymenoptera
<i>Lasius flavus</i>	Yellow meadow ant	Invertebrates	Hymenoptera
<i>Myrmica sp</i>	Red ant	Invertebrates	Hymenoptera
<i>Pontania proxima</i>	Willow gall	Invertebrates	Hymenoptera
<i>Vespula germanica</i>	German wasp	Invertebrates	Hymenoptera
<i>Vespula vulgaris</i>	Common wasp	Invertebrates	Hymenoptera

Scientific name	Common name	Group	Group - detail
<i>Asellus aquaticus</i>	Hog louse	Invertebrates	Isopoda
<i>Oniscus asellus</i>	Woodlouse	Invertebrates	Isopoda
<i>Porcellio scaber</i>	Woodlouse	Invertebrates	Isopoda
<i>Acronicta megacephala</i>	Poplar Grey	Invertebrates	Lepidoptera
<i>Aglais urticae</i>	Small tortoiseshell	Invertebrates	Lepidoptera
<i>Agrotis exclamationis</i>	Heart & Dart	Invertebrates	Lepidoptera
<i>Agrotis segetum</i>	Turnip Moth	Invertebrates	Lepidoptera
<i>Apamea lithoxylaea</i>	Light Arches	Invertebrates	Lepidoptera
<i>Apamea monoglypha</i>	Dark Arches	Invertebrates	Lepidoptera
<i>Apamea sordens</i>	Rustic Shoulder-knot	Invertebrates	Lepidoptera
<i>Aphelia paleana</i>	Timothy Tortrix	Invertebrates	Lepidoptera
<i>Axylia putris</i>	The Flame	Invertebrates	Lepidoptera
<i>Biston betularia</i>	Peppered Moth	Invertebrates	Lepidoptera
<i>Blastodacna hellerella</i>		Invertebrates	Lepidoptera
<i>Cameraria ochridella</i>	Horse chestnut leaf miner	Invertebrates	Lepidoptera
<i>Campaea margaritata</i>	Light Emerald	Invertebrates	Lepidoptera
<i>Chloroclysta truncata</i>	Common Marbled Carpet	Invertebrates	Lepidoptera
<i>Chrysoteuchia culmella</i>		Invertebrates	Lepidoptera
<i>Cidaria fulvata</i>	Barred Yellow	Invertebrates	Lepidoptera
<i>Coleophora mayrella</i>		Invertebrates	Lepidoptera
<i>Crambus lathoniellus</i>		Invertebrates	Lepidoptera
<i>Denisia albimaculella</i>		Invertebrates	Lepidoptera
<i>Dipleaurina lacustrata</i>		Invertebrates	Lepidoptera
<i>Eupithecia vulgata vulgata</i>	Common Pug	Invertebrates	Lepidoptera
<i>Eurrhyncha hortulata</i>	Small Magpie	Invertebrates	Lepidoptera
<i>Habrosyne pyritoides</i>	Buff Arches	Invertebrates	Lepidoptera
<i>Hofmannophila pseudospretella</i>	Brown House-moth	Invertebrates	Lepidoptera
<i>Hoplodrina alsines/blanda</i>	Uncertain/Rustic agg.	Invertebrates	Lepidoptera
<i>Hoplodrina ambigua</i>	Vine's Rustic	Invertebrates	Lepidoptera
<i>Idaea aversata</i>	Riband Wave	Invertebrates	Lepidoptera
<i>Lacanobia oleracea</i>	Bright-line Brown-eye	Invertebrates	Lepidoptera
<i>Lomographa temerata</i>	Clouded silver	Invertebrates	Lepidoptera
<i>Mimas tiliae</i>	Lime Hawk-moth	Invertebrates	Lepidoptera
<i>Mythimna pallens</i>	Common Wainscot	Invertebrates	Lepidoptera
<i>Noctua pronuba</i>	Large Yellow Underwing	Invertebrates	Lepidoptera
<i>Ochropleura plecta</i>	Flame Shoulder	Invertebrates	Lepidoptera
<i>Oligia fasciuncula</i>	Middle-barred Minor	Invertebrates	Lepidoptera
<i>Oligia strigilis</i>	Marbled Minor	Invertebrates	Lepidoptera

Scientific name	Common name	Group	Group - detail
<i>Opisthograptis luteolata</i>	Brimstone Moth	Invertebrates	Lepidoptera
<i>Pandemis cerasana</i>	Barred Fruit-tree Tortrix	Invertebrates	Lepidoptera
<i>Pararge aegeria</i>	Speckled wood	Invertebrates	Lepidoptera
<i>Pasiphila rectangulata</i>	Green Pug	Invertebrates	Lepidoptera
<i>Peribatodes rhomboidaria</i>	Willow Beauty	Invertebrates	Lepidoptera
<i>Pterostoma palpina</i>	Pale Prominent	Invertebrates	Lepidoptera
<i>Scopula imitaria</i>	Small Blood-vein	Invertebrates	Lepidoptera
<i>Tethea ocularis octogesimea</i>	Figure of Eighty	Invertebrates	Lepidoptera
<i>Thera britannica</i>	Spruce Carpet	Invertebrates	Lepidoptera
<i>Xanthorhoe fluctuata</i>	Garden carpet	Invertebrates	Lepidoptera
	Setaceous Hebrew		
<i>Xestia c-nigrum</i>	Character	Invertebrates	Lepidoptera
<i>Zygaena filipendulae</i>	Burnet moth	Invertebrates	Lepidoptera
<i>Panorpa communis</i>	Scorpion fly	Invertebrates	Mecoptera
<i>Sialis sp</i>	Alderfly	Invertebrates	Megaloptera
<i>Aeshna sp</i>	Dragonfly (nymph)	Invertebrates	Odonata
<i>Calopteryx splendens</i>	Banded demoiselle	Invertebrates	Odonata
<i>Coenagrion puella</i>	Blue tailed damselfly	Invertebrates	Odonata
<i>Coenagrionidae sp</i>	Damselfly (nymph)	Invertebrates	Odonata
<i>Enallagma cyathigerum</i>	Common blue damselfly	Invertebrates	Odonata
<i>Ischnura elegans</i>	Blue tailed damselfly	Invertebrates	Odonata
<i>Platycnemis pennipes</i>	White legged damselfly	Invertebrates	Odonata
<i>Chorthippus sp</i>	Grasshopper	Invertebrates	Orthoptera
<i>Leptophyes punctatissima</i>	Bush cricket	Invertebrates	Orthoptera
<i>Meconema thalassinum</i>	Oak Bush Cricket	Invertebrates	Orthoptera
<i>Platyhelminthes</i>	Flatworm	Invertebrates	Platyhelminthes
<i>Mystacides longicornis</i>	Long horned caddis fly	Invertebrates	Trichoptera
<i>Phryganea bipunctata</i>	Caddisfly	Invertebrates	Trichoptera
<i>Trichoptera sp</i>	Caddisfly (nymph)	Invertebrates	Trichoptera

Table 3 – Lower plants

Scientific name	Common name	Group	Group - detail
<i>Cladophora sp</i>	Pond algae	Lower plants	Algae
<i>Klebsormidium crenulatum</i>		Lower plants	Algae
<i>Trentapolia sp.</i>		Lower plants	Algae
<i>Barbula unguiculata</i>		Lower plants	Bryophytes
<i>Bryum argenteum</i>		Lower plants	Bryophytes
<i>Bryum capillare</i>	Capillary Thread Moss	Lower plants	Bryophytes
<i>Ceratodon purpureus</i>		Lower plants	Bryophytes
<i>Grimmia pulvinata</i>	Grey Cushioned Grimma	Lower plants	Bryophytes
<i>Homalothecium sericeum</i>	Silky Wall Feathered Moss	Lower plants	Bryophytes
<i>Hypnum cupressiforme</i>		Lower plants	Bryophytes
<i>Kindbergia praelonga</i>		Lower plants	Bryophytes
<i>Orthotrichum affine</i>		Lower plants	Bryophytes
<i>Orthotrichum anomalum</i>		Lower plants	Bryophytes
<i>Rhytidiadelphus squarrosus</i>		Lower plants	Bryophytes
<i>Syntrichia ruralis subsp. ruralis</i>		Lower plants	Bryophytes
<i>Tortula muralis</i>		Lower plants	Bryophytes
<i>Daldinia concentrica</i>	King Alfred's cake	Lower plants	Fungi
<i>Agonimia tristicula</i>		Lower plants	Lichens
<i>Amandinea punctata</i>		Lower plants	Lichens
<i>Aspicilia calcarea</i>		Lower plants	Lichens
<i>Aspicilia contorta subsp. contorta</i>		Lower plants	Lichens
<i>Aspicilia contorta subsp. hoffmanniana</i>		Lower plants	Lichens
<i>Athelia arachnoidea #</i>		Lower plants	Lichens
<i>Bacidia delicata</i>		Lower plants	Lichens
<i>Bilimbia sabuletorum</i>		Lower plants	Lichens
<i>Buellia aethalea</i>		Lower plants	Lichens
<i>Caloplaca arcis</i>		Lower plants	Lichens
<i>Caloplaca citrina s.str.</i>		Lower plants	Lichens
<i>Caloplaca crenulatella</i>		Lower plants	Lichens
<i>Caloplaca flavocitrina</i>		Lower plants	Lichens
<i>Caloplaca holocarpa s.str.</i>		Lower plants	Lichens
<i>Caloplaca oasis</i>		Lower plants	Lichens
<i>Caloplaca saxicola</i>		Lower plants	Lichens
<i>Caloplaca teicholyta</i>		Lower plants	Lichens
<i>Candelariella aurella f. aurella</i>		Lower plants	Lichens

Scientific name	Common name	Group	Group - detail
<i>Candelariella reflexa</i>		Lower plants	Lichens
<i>Candelariella vitellina f. vitellina</i>		Lower plants	Lichens
<i>Catillaria chalybeia var. chalybeia</i>		Lower plants	Lichens
<i>Catillaria lenticularis</i>		Lower plants	Lichens
<i>Collema tenax var. ceranoides</i>		Lower plants	Lichens
<i>Evernia prunastri</i>		Lower plants	Lichens
<i>Flavoparmelia caperata</i>		Lower plants	Lichens
<i>Flavoparmelia soledians</i>		Lower plants	Lichens
<i>Hypogymnia tubulosa</i>		Lower plants	Lichens
<i>Lecania cyrtella</i>		Lower plants	Lichens
<i>Lecania rabenhorstii</i>		Lower plants	Lichens
<i>Lecanora albescens</i>		Lower plants	Lichens
<i>Lecanora campestris subsp. campestris</i>		Lower plants	Lichens
<i>Lecanora chlarotera</i>		Lower plants	Lichens
<i>Lecanora conferta</i>		Lower plants	Lichens
<i>Lecanora dispersa</i>		Lower plants	Lichens
<i>Lecanora expallens</i>		Lower plants	Lichens
<i>Lecanora muralis</i>		Lower plants	Lichens
<i>Lecanora persimilis</i>		Lower plants	Lichens
<i>Lecanora polytropha</i>		Lower plants	Lichens
<i>Lecanora semi-pallida</i>		Lower plants	Lichens
<i>Lecidella elaeochroma f. elaeochroma</i>		Lower plants	Lichens
<i>Lecidella scabra</i>		Lower plants	Lichens
<i>Lecidella stigmatea</i>		Lower plants	Lichens
<i>Lepraria incana s.str.</i>		Lower plants	Lichens
<i>Leptogium gelatinosum</i>		Lower plants	Lichens
<i>Melanelixia subaurifera</i>		Lower plants	Lichens
<i>Parmelia sulcata</i>		Lower plants	Lichens
<i>Phaeophyscia orbicularis</i>		Lower plants	Lichens
<i>Physcia adscendens</i>		Lower plants	Lichens
<i>Physcia caesia</i>		Lower plants	Lichens
<i>Physcia tenella subsp. tenella</i>		Lower plants	Lichens
<i>Placopyrenium fuscillum</i>		Lower plants	Lichens
<i>Porpidia crustulata</i>		Lower plants	Lichens
<i>Porpidia sp</i>		Lower plants	Lichens

Scientific name	Common name	Group	Group - detail
<i>Porpidia tuberculosa</i>		Lower plants	Lichens
<i>Protoblastenia rupestris</i>		Lower plants	Lichens
<i>Psilolechia lucida</i>		Lower plants	Lichens
<i>Ramalina lacera</i>		Lower plants	Lichens
<i>Rhizocarpon reductum</i>		Lower plants	Lichens
<i>Rinodina oleae</i>		Lower plants	Lichens
<i>Sarcogyne regularis</i>		Lower plants	Lichens
<i>Trapelia coarctata</i>		Lower plants	Lichens
<i>Verrucaria hochstetteri</i>		Lower plants	Lichens
<i>Verrucaria macrostoma f. furfuracea</i>		Lower plants	Lichens
<i>Verrucaria muralis</i>		Lower plants	Lichens
<i>Verrucaria nigrescens f. nigrescens</i>		Lower plants	Lichens
<i>Verrucaria nigrescens f. tectorum</i>		Lower plants	Lichens
<i>Verrucaria viridula</i>		Lower plants	Lichens
<i>Xanthoria candelaria s.str.</i>		Lower plants	Lichens
<i>Xanthoria parietina</i>		Lower plants	Lichens
<i>Xanthoria polycarpa</i>		Lower plants	Lichens
<i>Xanthoria ucrainica</i>		Lower plants	Lichens

Table 4a – Flowering plants – Meadow / Wayside

Scientific name	Common name	Group	Group - detail
<i>Achillea millefolium</i>	Yarrow	Plants	Meadow/wayside
<i>Aegopodium podagraria</i>	Ground elder	Plants	Meadow/wayside
<i>Aethusa cynapium</i>	Fools parsley	Plants	Meadow/wayside
<i>Agrostis capillaris</i>	Common bent	Plants	Meadow/wayside
<i>Agrostis stolonifera</i>	Creeping bent	Plants	Meadow/wayside
<i>Alopecurus pratensis</i>	Meadow foxtail	Plants	Meadow/wayside
<i>Anagallis arvensis</i>	Scarlet pimpernel	Plants	Meadow/wayside
<i>Anisantha sterilis</i>	Barren brome	Plants	Meadow/wayside
<i>Arabidopsis thaliana</i>	Thale cress	Plants	Meadow/wayside
<i>Arctium minus</i>	Lesser burdock	Plants	Meadow/wayside
<i>Arenaria serpyllifolia</i>	Thyme leaved sandwort	Plants	Meadow/wayside
<i>Arrhenatherum elatius</i>	False oat grass	Plants	Meadow/wayside
<i>Artemisia absinthium</i>	Wormwood	Plants	Meadow/wayside
<i>Artemisia vulgaris</i>	Mugwort	Plants	Meadow/wayside
<i>Atriplex prostrata</i>	Spear leaved orache	Plants	Meadow/wayside
<i>Bellis perennis</i>	Daisy	Plants	Meadow/wayside
<i>Bryonia dioica</i>	White bryony	Plants	Meadow/wayside
<i>Calystegia silvatica</i>	Large bindweed	Plants	Meadow/wayside
<i>Capsella bursa-pastoris</i>	Shepherds purse	Plants	Meadow/wayside
<i>Cardamine hirsuta</i>	Hairy bittercress	Plants	Meadow/wayside
<i>Centaurea nigra</i>	Common knapweed	Plants	Meadow/wayside
<i>Cerastium fontanum</i>	Common mouse ear	Plants	Meadow/wayside
<i>Cerastium glomeratum</i>	Sticky mouse ear	Plants	Meadow/wayside
<i>Chamerion angustifolium</i>	Rosebay willow herb	Plants	Meadow/wayside
<i>Chenopodium album</i>	Fat hen	Plants	Meadow/wayside
<i>Cirsium arvense</i>	Creeping thistle	Plants	Meadow/wayside
<i>Cirsium vulgare</i>	Spear thistle	Plants	Meadow/wayside
<i>Clematis vitalba</i>	Travellers joy	Plants	Meadow/wayside
<i>Convolvulus arvensis</i>	Field bindweed	Plants	Meadow/wayside
<i>Conyza canadensis</i>	Canadian fleabane	Plants	Meadow/wayside
<i>Crepis capillaris</i>	Smooth hawk's beard	Plants	Meadow/wayside
<i>Crepis vesicaria</i>	Beaked hawk's beard	Plants	Meadow/wayside
<i>Dactylis glomerata</i>	Cock's foot	Plants	Meadow/wayside
<i>Deschampsia cespitosa</i>	Tufted hair grass	Plants	Meadow/wayside
<i>Dipsacus fullonum</i>	Teasel	Plants	Meadow/wayside
<i>Epilobium ciliatum</i>	American willowherb	Plants	Meadow/wayside
<i>Euphorbia helioscopia</i>	Sun spurge	Plants	Meadow/wayside

Scientific name	Common name	Group	Group - detail
<i>Euphorbia lathyris</i>	Caper spurge	Plants	Meadow/wayside
<i>Euphorbia peplus</i>	Petty spurge	Plants	Meadow/wayside
<i>Festuca rubra</i>	Red fescue	Plants	Meadow/wayside
<i>Fumaria officinalis</i>	Common fumitory	Plants	Meadow/wayside
<i>Galega officinalis</i>	Goat's rue	Plants	Meadow/wayside
<i>Galium aparine</i>	Cleavers	Plants	Meadow/wayside
<i>Galium mollugo</i>	Hedge bedstraw	Plants	Meadow/wayside
<i>Geranium molle</i>	Doves foot cranesbill	Plants	Meadow/wayside
<i>Geranium pyrenaicum</i>	Hedgerow cranesbill	Plants	Meadow/wayside
<i>Geranium robertianum</i>	Herb Robert	Plants	Meadow/wayside
<i>Geum urbanum</i>	Herb Bennet / wood avens	Plants	Meadow/wayside
<i>Helianthus annua</i>	Sunflower	Plants	Meadow/wayside
<i>Heracleum sphondylium</i> ssp <i>sphondylium</i>	Hogweed	Plants	Meadow/wayside
<i>Holcus lanatus</i>	Yorkshire fog	Plants	Meadow/wayside
<i>Hordeum murale</i>	Wall barley	Plants	Meadow/wayside
<i>Hordeum secalinum</i>	Meadow barley	Plants	Meadow/wayside
<i>Hypericum perforatum</i>	Perforate St John's wort	Plants	Meadow/wayside
<i>Hypochaeris radicata</i>	Cat's ear	Plants	Meadow/wayside
<i>Lactuca serriola</i>	Prickly lettuce	Plants	Meadow/wayside
<i>Lamium album</i>	White deadnettle	Plants	Meadow/wayside
<i>Lamium amplexicaule</i>	Henbit deadnettle	Plants	Meadow/wayside
<i>Lamium purpureum</i>	Red deadnettle	Plants	Meadow/wayside
<i>Lapsana communis</i>	Nipplewort	Plants	Meadow/wayside
<i>Leontodon hispidus</i>	Rough hawkbit	Plants	Meadow/wayside
<i>Lepidium didymum</i>	Lesser swine cress	Plants	Meadow/wayside
<i>Lepidium draba</i>	Hoary cress	Plants	Meadow/wayside
<i>Leucanthemum vulgare</i>	Ox eye daisy	Plants	Meadow/wayside
<i>Lolium multiflorum</i>	Italian ryegrass	Plants	Meadow/wayside
<i>Lolium perenne</i>	Perennial ryegrass	Plants	Meadow/wayside
<i>Malva sylvestris</i>	Common mallow	Plants	Meadow/wayside
<i>Matricaria discoidea</i>	Pineappleweed	Plants	Meadow/wayside
<i>Matricaria recutita</i>	Scented mayweed	Plants	Meadow/wayside
<i>Meconopsis cambrica</i>	Welsh poppy	Plants	Meadow/wayside
<i>Medicago lupulina</i>	Black medick	Plants	Meadow/wayside
<i>Melissa officinalis</i>	Lemon balm	Plants	Meadow/wayside
<i>Papaver dubium</i>	Long headed poppy	Plants	Meadow/wayside

Scientific name	Common name	Group	Group - detail
<i>Papaver dubium ssp lecoqii</i>	Poppy	Plants	Meadow/wayside
<i>Papaver somniferum</i>	Opium poppy	Plants	Meadow/wayside
<i>Parietaria judaica</i>	Pellitory of the wall	Plants	Meadow/wayside
<i>Picris echioides</i>	Bristly ox-tongue	Plants	Meadow/wayside
<i>Plantago lanceolata</i>	Ribwort plantain	Plants	Meadow/wayside
<i>Plantago major</i>	Greater plantain	Plants	Meadow/wayside
<i>Poa annua</i>	Annual meadow grass	Plants	Meadow/wayside
<i>Poa trivialis</i>	Rough meadow grass	Plants	Meadow/wayside
<i>Polygonum aviculare</i>	Knotgrass	Plants	Meadow/wayside
<i>Potentilla anserina</i>	Silverweed	Plants	Meadow/wayside
<i>Potentilla indica</i>	Yellow flowered strawberry	Plants	Meadow/wayside
<i>Potentilla reptans</i>	Creeping cinquefoil	Plants	Meadow/wayside
<i>Prunella vulgaris</i>	Selfheal	Plants	Meadow/wayside
<i>Ranunculus repens</i>	Creeping buttercup	Plants	Meadow/wayside
<i>Rumex acetosa</i>	Sorrel	Plants	Meadow/wayside
<i>Rumex conglomeratus</i>	Clustered dock	Plants	Meadow/wayside
<i>Rumex crispus</i>	Curled dock	Plants	Meadow/wayside
<i>Rumex obtusifolius</i>	Broad leaved dock	Plants	Meadow/wayside
<i>Sagina procumbens</i>	Procumbent pearlwort	Plants	Meadow/wayside
<i>Sanguisorba officinalis</i>	Great burnet	Plants	Meadow/wayside
<i>Sedum acre</i>	Biting stonecrop	Plants	Meadow/wayside
<i>Senecio jacobaea</i>	Ragwort	Plants	Meadow/wayside
<i>Senecio squalidus</i>	Oxford ragwort	Plants	Meadow/wayside
<i>Senecio vulgaris</i>	Groundsel	Plants	Meadow/wayside
<i>Silene dioica</i>	Red campion	Plants	Meadow/wayside
<i>Sinapsis arvensis</i>	Charlock	Plants	Meadow/wayside
<i>Solidago canadensis</i>	Canadian goldenrod	Plants	Meadow/wayside
<i>Sonchus arvensis</i>	Perennial sowthistle	Plants	Meadow/wayside
<i>Sonchus asper</i>	Prickly sowthistle	Plants	Meadow/wayside
<i>Sonchus oleraceus</i>	Smooth sowthistle	Plants	Meadow/wayside
<i>Stellaria media</i>	Common chickweed	Plants	Meadow/wayside
<i>Tanacetum vulgare</i>	Tansy	Plants	Meadow/wayside
<i>Taraxacum vulgare agg</i>	Dandelion	Plants	Meadow/wayside
<i>Trifolium dubium</i>	Lesser trefoil	Plants	Meadow/wayside
<i>Trifolium pratense</i>	Red clover	Plants	Meadow/wayside
<i>Trifolium repens</i>	White clover	Plants	Meadow/wayside
<i>Tripleurospermum inodorum</i>	Scentless mayweed	Plants	Meadow/wayside
<i>Triticum aestivum</i>	Wheat	Plants	Meadow/wayside

Scientific name	Common name	Group	Group - detail
<i>Urtica dioica</i>	Stinging nettle	Plants	Meadow/wayside
<i>Urtica urens</i>	Small nettle	Plants	Meadow/wayside
<i>Verbascum thapsus</i>	Great mullein	Plants	Meadow/wayside
<i>Veronica arvensis</i>	Wall speedwell	Plants	Meadow/wayside
<i>Veronica filiformis</i>	Slender speedwell	Plants	Meadow/wayside
<i>Veronica hederifolia</i>	Ivy leaved speedwell	Plants	Meadow/wayside
<i>Veronica persica</i>	Common field speedwell	Plants	Meadow/wayside
<i>Veronica serpyllifolia</i>	Thyme leaved speedwell	Plants	Meadow/wayside
<i>Vicia sativa</i>	Common vetch	Plants	Meadow/wayside
<i>Vulpia myuros</i>	Rats tail fescue	Plants	Meadow/wayside

Table 4b – Flowering plants – Trees

Scientific name	Common name	Group	Group - detail
<i>Acer campestre</i>	Field maple	Plants	Tree
<i>Acer pseudoplatanus</i>	Sycamore	Plants	Tree
<i>Aesculus hippocastanum</i>	Horse chestnut	Plants	Tree
<i>Alnus glutinosa</i>	Alder	Plants	Tree
<i>Alnus incana</i>	Grey alder	Plants	Tree
<i>Amelanchier cf canadensis</i>	Juneberry	Plants	Tree
<i>Aucuba japonica</i>	Spotted laurel	Plants	Tree
<i>Betula pendula</i>	Silver birch	Plants	Tree
<i>Carpinus betulus</i>	Hornbeam	Plants	Tree
<i>Corylus avellana</i>	Hazel	Plants	Tree
<i>Crataegus monogyna</i>	Hawthorn	Plants	Tree
<i>Fagus sylvatica</i>	Beech	Plants	Tree
<i>Fraxinus excelsior</i>	Ash	Plants	Tree
<i>Ilex aquifolium</i>	Holly	Plants	Tree
<i>Juglans regia</i>	Walnut	Plants	Tree
<i>Ligustrum ovalifolium</i>	Garden privet	Plants	Tree
<i>Picea abies</i>	Norway spruce	Plants	Tree
<i>Platanus x hispanica</i>	London plane	Plants	Tree
<i>Populus nigra 'Italica'</i>	Lombardy poplar	Plants	Tree
<i>Populus tremula</i>	Aspen	Plants	Tree
<i>Populus x canadensis</i>	Hybrid black poplar	Plants	Tree
<i>Prunus domestica</i>	Wild plum / bullace	Plants	Tree
<i>Prunus spinosa</i>	Blackthorn	Plants	Tree
<i>Quercus ilex</i>	Holm oak	Plants	Tree
<i>Quercus robur</i>	Pedunculate oak	Plants	Tree

Scientific name	Common name	Group	Group - detail
<i>Quercus rubra</i>	Red oak	Plants	Tree
<i>Salix alba</i>	White willow	Plants	Tree
<i>Salix fragilis</i>	Crack willow	Plants	Tree
<i>Salix triandra</i>	Almond willow	Plants	Tree
<i>Sambucus nigra</i>	Elder	Plants	Tree
<i>Sequoiadendron giganteum</i>	Wellingtonia	Plants	Tree
<i>Sorbus aria</i> agg	Common whitebeam	Plants	Tree
<i>Sorbus aucuparia</i>	Rowan	Plants	Tree
<i>Syringa vulgaris</i>	Lilac	Plants	Tree
<i>Taxus baccata</i>	Yew	Plants	Tree
<i>Tilia x europaea</i>	Lime	Plants	Tree
<i>Ulmus glabra</i>	Wych elm	Plants	Tree
<i>Acer platanoides</i>	Norway maple	Plants	Tree

Table 4c – Flowering plants – Water / wetland

Scientific name	Common name	Group	Group - detail
<i>Acorus calamus</i>	Sweet flag	Plants	Water/wetland
<i>Apium nodiflorum</i>	Fools water cress	Plants	Water/wetland
<i>Barbarea vulgaris</i>	Winter cress	Plants	Water/wetland
<i>Callitriche stagnalis</i>	Common water starwort	Plants	Water/wetland
<i>Carex hirta</i>	Hairy sedge	Plants	Water/wetland
<i>Carex otrubae</i>	False fox sedge	Plants	Water/wetland
<i>Carex riparia</i>	Greater pond sedge	Plants	Water/wetland
<i>Elodea nuttallii</i>	Nuttall's waterweed	Plants	Water/wetland
<i>Epilobium hirsutum</i>	Great willowherb	Plants	Water/wetland
<i>Epilobium parviflorum</i>	Hoary willowherb	Plants	Water/wetland
<i>Filipendula ulmaria</i>	Meadowsweet	Plants	Water/wetland
<i>Glyceria maxima</i>	Reed sweet grass	Plants	Water/wetland
<i>Hydrocotyle ranunculoides</i>	Floating pennywort	Plants	Water/wetland
<i>Impatiens capensis</i>	Orange balsam	Plants	Water/wetland
<i>Impatiens glandulifera</i>	Indian balsam	Plants	Water/wetland
<i>Juncus conglomeratus</i>	Compact rush	Plants	Water/wetland
<i>Juncus inflexus</i>	Hard rush	Plants	Water/wetland
<i>Lemna minor</i>	Common duckweed	Plants	Water/wetland
<i>Lycopus europaeus</i>	Gypsywort	Plants	Water/wetland
<i>Lythrum salicaria</i>	Purple loosestrife	Plants	Water/wetland
<i>Mentha aquatica</i>	Water mint	Plants	Water/wetland
<i>Myosotis laxa</i> ssp <i>cespitosa</i>	Tufted forget me not	Plants	Water/wetland

<i>Myosotis scorpioides</i>	Water forget me not	Plants	Water/wetland
<i>Myriophyllum spicatum</i>	Spiked water milfoil	Plants	Water/wetland
<i>Nasturtium officinale</i>	Watercress	Plants	Water/wetland
<i>Nuphar lutea</i>	Yellow water lily	Plants	Water/wetland
<i>Persicaria amphibia</i>	Amphibious bistort	Plants	Water/wetland
<i>Petasites hybridus</i>	Butterbur	Plants	Water/wetland
<i>Phalaris arundinacea</i>	Reed canary grass	Plants	Water/wetland
<i>Phragmites australis</i>	Common reed	Plants	Water/wetland
<i>Potamogeton pectinatus</i>	Fennel pondweed	Plants	Water/wetland
<i>Ranunculus sceleratus</i>	Celery leaved buttercup	Plants	Water/wetland
<i>Rorippa sylvestris</i>	Creeping yellow cress	Plants	Water/wetland
<i>Rumex hydrolapathum</i>	Water dock	Plants	Water/wetland
<i>Sagittaria sagittifolia</i>	Arrowhead	Plants	Water/wetland
<i>Scrophularia auriculata</i>	Water figwort	Plants	Water/wetland
<i>Scutellaria galericulata</i>	Skullcap	Plants	Water/wetland
<i>Sparganium emersum</i>	Unbranched bur-reed	Plants	Water/wetland
<i>Sparganium erectum</i>	Branched bur-reed	Plants	Water/wetland
<i>Stachys palustris</i>	Marsh woundwort	Plants	Water/wetland
<i>Typha latifolia</i>	Reedmace	Plants	Water/wetland
<i>Veronica beccabunga</i>	Brooklime	Plants	Water/wetland

Table 4d – Flowering plants - Woodland

Scientific name	Common name	Group	Group - detail
<i>Alliaria petiolata</i>	Garlic mustard	Plants	Woodland
<i>Allium ursinum</i>	Ramsons	Plants	Woodland
<i>Angelica sylvestris</i>	Wild angelica	Plants	Woodland
<i>Anthriscus sylvestris</i>	Cow parsley	Plants	Woodland
<i>Arum maculatum</i>	Lords and ladies	Plants	Woodland
<i>Atropa belladonna</i>	Deadly nightshade	Plants	Woodland
<i>Carex pendula</i>	Pendulous sedge	Plants	Woodland
<i>Circaea lutetiana</i>	Enchanters nightshade	Plants	Woodland
<i>Digitalis purpurea</i>	Foxglove	Plants	Woodland
<i>Epilobium montanum</i>	Beroad leaved willowherb	Plants	Woodland
<i>Hedera helix</i>	Ivy	Plants	Woodland
<i>Helleborus foetidus</i>	Stinking hellebore	Plants	Woodland
<i>Hyacinthoides x massartiana</i>	Hybrid bluebell	Plants	Woodland
<i>Iris foetidissima</i>	Stinking iris	Plants	Woodland
<i>Lamiastrum galeobdolon ssp argentatum</i>	Cultivated yellow archangel	Plants	Woodland

Scientific name	Common name	Group	Group - detail
<i>Lonicera periclymenum</i>	Honeysuckle	Plants	Woodland
<i>Mycelis muralis</i>	Wall lettuce	Plants	Woodland
<i>Myosotis sylvatica</i>	Wood forget me not	Plants	Woodland
<i>Pentaglottis sempervirens</i>	Green alkanet	Plants	Woodland
<i>Rosa canina</i>	Dog rose	Plants	Woodland
<i>Rubus fruticosus</i>	Bramble	Plants	Woodland
<i>Rumex sanguineus</i>	Wood dock	Plants	Woodland
<i>Sisymbrium officinale</i>	Hedge mustard	Plants	Woodland
<i>Solanum dulcamara</i>	Bittersweet	Plants	Woodland
<i>Stachys sylvatica</i>	Hedge woundwort	Plants	Woodland
<i>Symphoricarpos albus</i>	Snowberry	Plants	Woodland
<i>Ulex europaeus</i>	Gorse	Plants	Woodland
<i>Veronica chamaedrys</i>	Germander speedwell	Plants	Woodland
<i>Vinca major</i>	Greater periwinkle	Plants	Woodland
<i>Viola sp</i>	Violet	Plants	Woodland

Table 5 – Vertebrates

Scientific name	Common name	Group	Group - detail
<i>Bufo bufo</i>	Toad	Vertebrates	Amphibian
<i>Lissotriton vulgaris</i>	Smooth newt	Vertebrates	Amphibian
<i>Rana temporaria</i>	Frog	Vertebrates	Amphibian
<i>Myotis daubentonii</i>	Daubentons bat	Vertebrates	Bat
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	Vertebrates	Bat
<i>Gasterosteus aculeatus</i>	Three spined stickleback	Vertebrates	Fish
<i>Phoxinus phoxinus</i>	Minnows	Vertebrates	Fish
<i>Pungitius pungitius</i>	Nine-spined stickleback	Vertebrates	Fish
<i>Meles meles</i>	Badgers	Vertebrates	Mammal
<i>Rattus norvegicus</i>	Rat	Vertebrates	Mammal
<i>Sciurus carolinensis</i>	Grey squirrel	Vertebrates	Mammal
<i>Vulpes vulpes</i>	Fox	Vertebrates	Mammal