Leicester City Council

GROUNDWORK LEICESTER & LEICESTERSHIRE

BioBlitz Leicester

Evington Park

25th – 26th May 2012

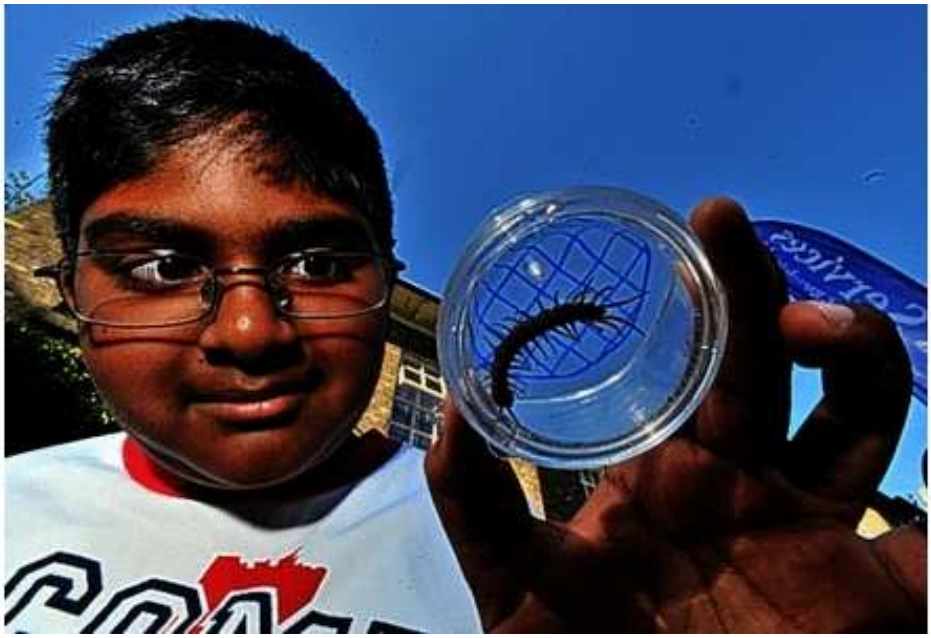


Table of Contents

Figures and Tables

Figures

Tables

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 2012 would not have been possible.

Executive Summary

The Third Leicestershire Bioblitz was held at Evington Park on the 25th and 26th May 2012. The aim of the event was to encourage people to be involved and to record wildlife on the park and to make people aware of how important green spaces are for many species of plants and animals in and near urban areas. Organised activity sessions were also held for school children from 4 local primary schools on the Friday afternoon with the aim of inspiring the children with the variety of life that can be found in their local surroundings.

The event was run in partnership between Leicester City Council and Groundwork Leicester and Leicestershire, with a challenging target of 500 species once again being set as the goal for the event. With fewer distinct habitat types than the previous Bioblitz locations of Watermead and Abbey Park, most notably the lack of river or canal in the park, it was by no means certain that the target number of species would be reached.

A “Bioblitz basecamp” for the experts and public attending the event was located in Evington House in the heart of Evington Park where wildlife exhibits were displayed along with a tally of the number of species found. A total of 467 species were recorded overall which included 204 different flowering plants, 68 lichens, 35 species of birds and 34 species of moths. Thirty specialists helped record or lead guided walks and activities during the event helping to achieve the total and make the event another success.

Over 150 people attended the talks and guided walks on the Friday evening which focussed on wildlife in an urban setting, followed by the late evening sessions on bats, moths and amphibians. Many of the attendees on the Friday evening returned for the talks/guided walks on the Saturday which focussed on urban botany, with a practical demonstration of the differences between the species-rich and species-poor areas of the park.

During the event a “County First” was recorded - the small girdled snail *Hygromia cinctella* which was tentatively identified on the day and later confirmed by a national expert. The identification of 68 species of lichens puts Evington Park among the top sites for lichens in the county – with *Xanthoparmelia mougeotii* found on the slate roof of the workshed behind the House being the only current county record for the species.

Recommendations on the organisation of future Bioblitz events and the management of Evington Park are detailed in the concluding section of the report.

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 the highly successful Leicester Bioblitz events in 2010 and 2011 the decision was taken to hold a further such event in 2012, which would continue to feed data into the Leicester City and Leicestershire and Rutland Biodiversity Action Plans (BAP).

The schools activity sessions were highly successful during the 2011 Bioblitz, so it was decided to hold the 2012 Bioblitz from lunchtime on Friday 25th May through to the afternoon of Saturday 26th May and involve local schools in organised activity sessions. This was in addition to the main Bioblitz event which included talks and guided walks on the Friday evening and Saturday as part of the programme of events. Over 100 children took part in the afternoon activities.

Evington Park was chosen as the venue for the 2012 as a smaller city park, which none-the-less had a range of habitats including ponds, wooded areas, species rich verges, long grass and more formal planting, as well as a range of old buildings that offered potential as a habitat for mosses and lichens. The accessibility and facilities available in Evington House also were ideal for a Bioblitz “basecamp” facility as well as the proximity of local residents and an established community within Evington village which it was hoped would engage with the event.

A target of 500 different species of plants or animals to be recorded during the event was set to enable comparison with previous events held at Watermead and Abbey Park.

1.2 Partners in Bioblitz

The main partners in the 2012 Bioblitz were Leicester City Council and Groundwork Leicester and Leicestershire with support from the local Leicestershire and Rutland Wildlife Trust.

1.3 Publicity

Leicester Bioblitz 2012 was promoted on the websites of both Leicester City Council and Groundwork Leicester and Leicestershire, as well as the national Bioblitz Website (http://www.bnhc.org.uk/home/bioblitz/). The organizers were also involved with interviews on BBC Radio Leicester in the run up to the event. Articles publicising the event appeared in the local press, village newsletter and posters were placed around Evington 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.

Fig 1.1: Poster Advertising the Bioblitz Event at Evington Park

1.4 Funding

Leicester City Council (LCC) funded the running costs of the 2012 Bioblitz event. Generous "in kind" contributions were made by LCC and GWLL for staff time, organization of the event, running the day and compilation and analysis of data and report writing after the event.

1.5 Participation

Evington House at the heart of Evington Park was an ideal location for the basecamp of the 2012 Bioblitz, providing the base for the school visits as well as a safe site for inter-active displays of specimens and identification resources. The centre was open from the arrival of the school groups on Friday lunchtime, through to the end of the event on Saturday afternoon, Schools were booked into session times to enable classes to participate in the themed activities, and the basecamp was also open for members of the public to drop in at any time.

A map (Appendix I), recording sheet and several identification charts (Appendix II) were produced to assist participants of the guided walks and members of the public who dropped in during the day to make records of the plants and animals observed. Professional and volunteer naturalist groups and individuals also supported the 2012 Bioblitz by giving their time to record species during the event and in leading guided walks.

Parks co-ordinated the staff and City wardens staffing and support roles which enabled the event to run very efficiently. The Nature Conservation Officer and Groundwork organised the specialists and promotion of the event. Support with refreshments was provided by the local friends of Evington Park.

Generous prizes were offered to winners of the I-Spy self-guided identification to encourage visitors to identify and record as many species as possible around the Park. Prizes included a book on Wildlife, a years membership for Leicestershire & Rutland Wildlife Trust and a visit and guided tour of Groundwork's Ecohouse with refreshments.

1.6 Displays and Information

During the 2012 Bioblitz event there were displays and information both in Evington House basecamp and outside in a marquee on the lawn and several smaller display areas on the grass parkland in front of the House. Displays included materials from the Leicester New Walk museum, Leicestershire and Rutland Wildlife Trusts, Groundwork Leicester and Leicestershire, The Leicestershire Badger Group, Leicester Tree Wardens, Bee keeping group, Botanical Society of the British Isles, and Riverside Rangers (LCC).

Guidebooks, key charts and microscopes were 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.

2 Evington Park

Fig 2.1: Map of Evington Park

Only two miles away from the City centre, Evington Park has the tranquil atmosphere of the country estate it once was. The 44 acres of parkland include attractive floral displays and a wide variety of trees. The Burnaby Gardens, at the rear of the House, has recently been refurbished. The large areas of ornamental shrubs in the specialist gardens attract many species of insects which contribute to the food chain by attracting other animals such as birds, bats and small animals to feed in these areas.

Trees are the main feature of Evington Park and there are fine examples of English Oak, Chestnut and a new avenue of 22 Elms. There is also the rare Gingko as well as mature

Beech trees, non-native Rhododendron and Azalea beds surrounded by various shrubs which provide a display of colour in spring and are a valuable food source for pollinating insects.

The nature area located close to the House contains wildlife ponds which attract amphibians and invertebrates as well as the areas of longer, rough grass and meadow species that contrast sharply with the public amenity areas used for sport and recreation.

3 Participation

3.1 School involvement and wildlife based activities

Six activity stations were set up based around wildlife activities to encourage students from schools in the local areas to take part in the Bioblitz day. Over 100 pupils and associated teachers took part from 4 local schools (White Hall, Lindon, Mayflower and Oaklands). The children ranged from 7 – 12 years old and they took part in plant ID, bug hunting, and pond dipping.

Fig 3.1: Young People at Badger Display

Fig 3.2: Displays at Evington House

3.2 Guided Walks

On the evening of the 25th May a tree trail walk plus bat, amphibian and moth guided walks were led by specialist naturalists where members of the public booked on and attended. Over 150 people attended the events during the evening and participants included a wide range of ages of the general public.

A guided “Morn” Chorus, Tree Trail and Wildflower walks were also held during the following day. These were well attended and supported by the local community and visitors to the Park.

3.3 Naturalists and Experienced Surveyors

More than 30 experienced professional and amateur naturalists gave their time to take part in recording wildlife for the 2012 Leicester Bioblitz. This included members of the Leicester group of the Botanical Society of the British Isles (BSBI), the University of Leicester, the British Lichen Society, The Badger Group and conservation officers and researchers from LCC, GWLL and Leicester and Rutland Wildlife Trust. Individual specialists were available to support identification of invertebrates, moths and mammals.

Fig 3.3: Bee Expert explaining bee behaviour

Fig 3.4: Wildflower Identification Activity

3.3.1 Recording Forms and Site Maps

A schematic map of Evington 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 or as a non-expert) were removed from the lists during sorting and analysis if they could not be verified.

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 Friday 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 2012 Leicester Bioblitz was 467 – narrowly missing 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 204 flowering plants, 34 species of moths, 59 other invertebrates, 68 lichens and 35 species of birds (Figure 4.1). The full species list is in Appendix III.

Figure 4.1 Species recorded at the 2012 Leicester Bioblitz

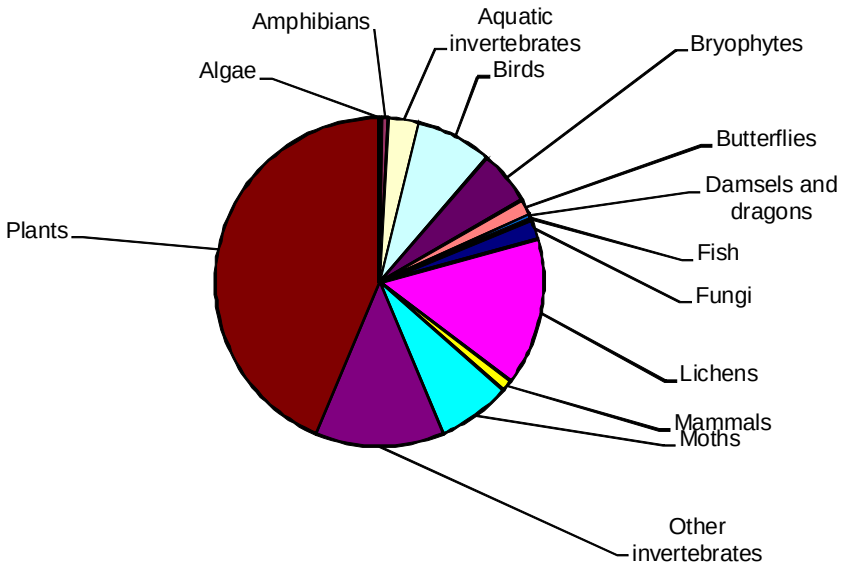
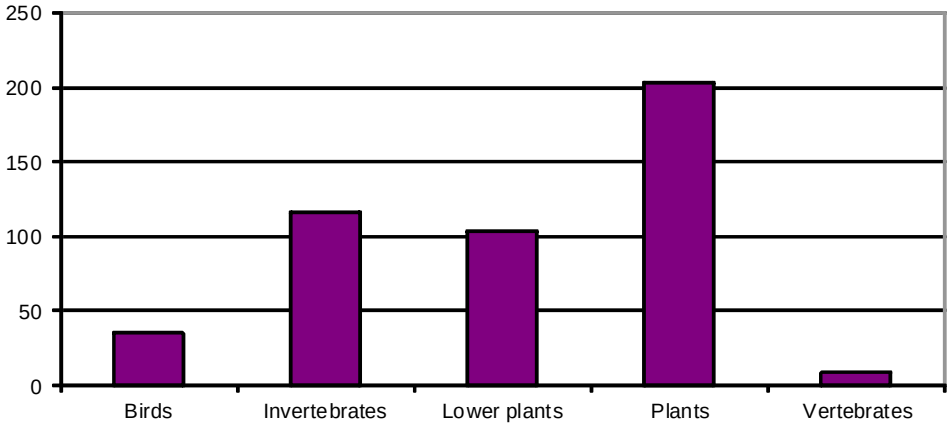


Figure 4.2 shows the number of species found in each of the major groups at Evington Park. The broad group “lower plants” includes algae, mosses, lichens, ferns and fungi.

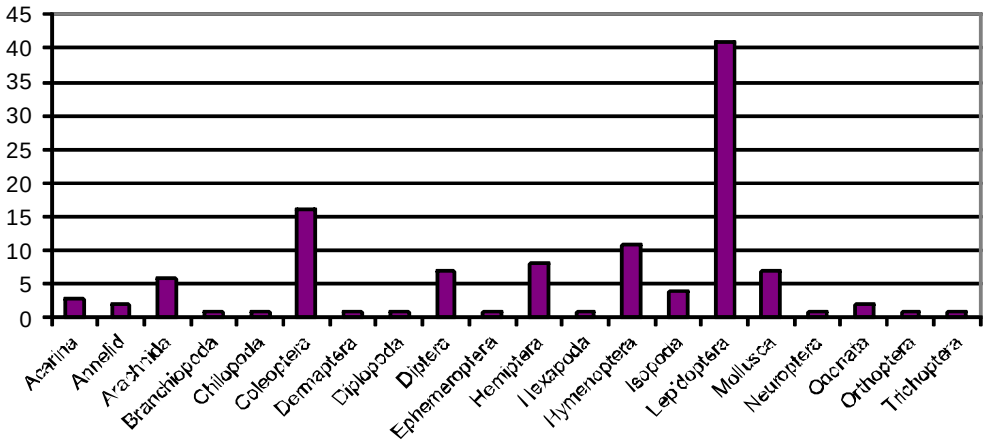
Figure 4.2 Numbers of birds, invertebrates, lower plants, plants and vertebrates found at Evington Park



A total of 116 invertebrates were recorded at Evington Park with the largest number of invertebrates being in the order Lepidoptera (butterflies and moths). Overnight moth trapping resulted in 34 species of moth being recorded, and 7 species of butterfly were recorded the following day during the event.

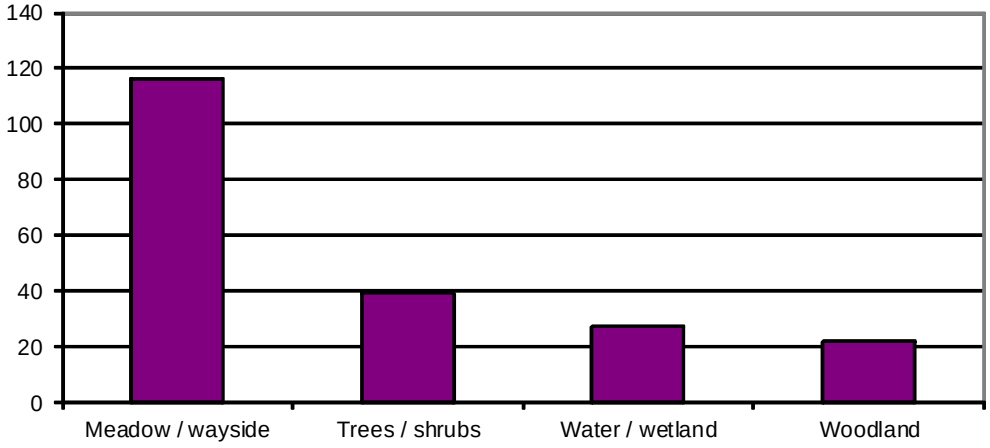
Seven species of Diptera (flies) were recorded and 11 Hymenoptera (bees, wasps, ants and sawflies), however most invertebrate orders were represented by less than 5 species (Figure 4.3)

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



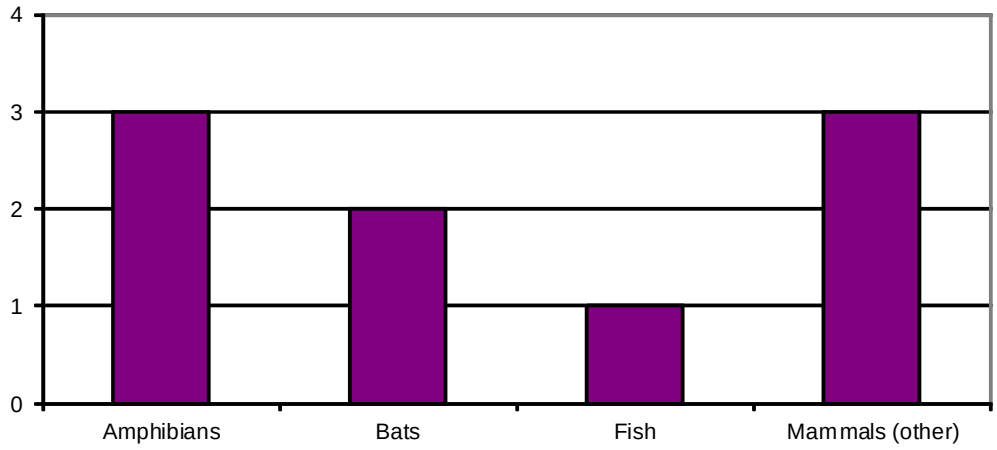
A total of 204 species of flowering plants were recorded, these were subdivided into the informal groups of meadow/wayside, trees, water/wetland and woodland according to the habitat in which they were observed (Figure 4.4)

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



A total of 9 vertebrates were recorded at Evington Park during the 2012 Bioblitz although this unfortunately included no reptiles (Figure 4.5)

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



5 Discussion

5.1 Public Participation

The event was well publicised using a number of different media which included the conventional posters in the Parks and Council buildings, local businesses and schools, local press, newsletters and the Leicester Mercury. The BBC Radio Leicester was very supportive in providing several interviews with the Nature Conservation Officer to promote on the lead-up and during the event. Modern technology was also used to advertise via websites, Twitter and Facebook. A publicity campaign by staff at Evington Park was also completed on 2 weekends prior to the event to hand out leaflets and inform the public of the event and activities taking place.

The local schools supported the event and pupils attended from White Hall, Lindon, Mayflower and Oaklands schools and were accompanied around the Park activity stations by Park staff and teaching staff. The young people were split into small groups and were led 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; bug-hunting using a dustpan and brush organised by rangers; badger display organised by the Badger Group; bee hive and bees, and the Wildflower activity run by Groundwork. Each group also visited the House where they could examine the specimens on display and leave a message about what they thought of the day.

Fig 5.1: Student examining badger hair

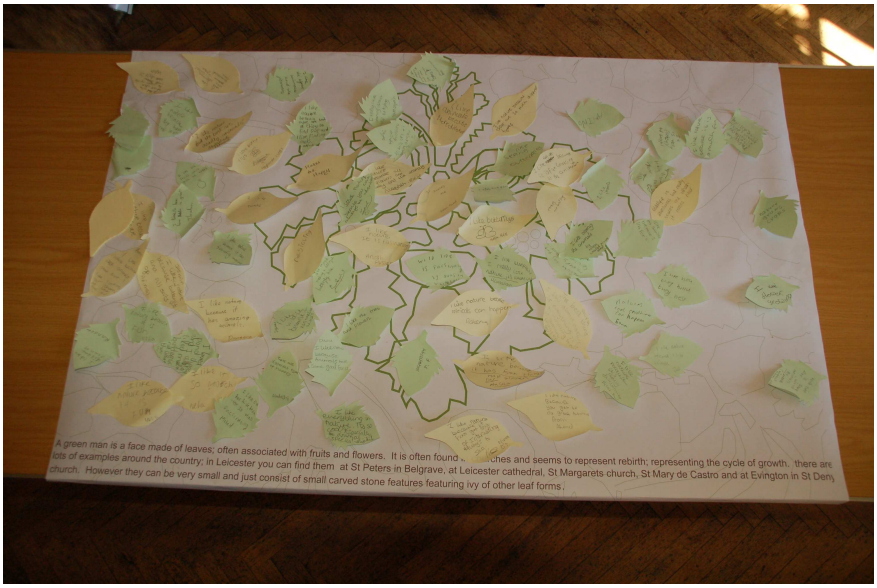


Fig 5.2: Thoughts of the Day – from the School Activity Session

The school groups were invited to complete a message and add it to a "Green Man" telling one thing they had learnt from the day. Examples of some of the messages left are given below and show how well the event was enjoyed:

"I like nature because it has fun things like flowers in May" – Mussa
"I like nature because miracles can happen" – Raheema
"I like the bee hive – nature is great" – Ibrahim
"I really liked learning about the hedgehog" – Hamayah

A combination of guided walks and talks were conducted during the Friday evening and were well attended. All participants were asked to book onto the walks and talks despite there being no charge to attend. This was so the talks/walks could be split evenly and no one talk/walk over-subscribed. The talks were on the "Life of a Tree" by the nature conservation officer and were combined with a "Tree Trail" walk by the Trees & Woodlands team. The combination of the theory explained in the talk and practical experience of the walk was well received. Approximately 50 people attended the evening talks/walks.

As with previous Bioblitz events, a trio of bat, amphibian and moth walks were also led by specialists on the Friday evening with the choice of participants able to book onto one or all of the walks depending on numbers. This combination of guided walks led by specialists has always proved popular and again they were well attended with over 100 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 House 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 House 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 visitors attending the event on the following day.

The following day commenced with a “Morn Chorus” walk led by two specialists who work for the City Council. The walk was attended by members of the public who booked on the event. Over 20 people booked onto the event and the numbers of birds observed were noted and results confirmed to contribute towards the overall species total.

The main public event was open in the Park from 10.00 a.m. to 4.00 p.m. when members of the public and local residents were encouraged to come and visit the Park, take part in the Bioblitz and find out what wildlife lives in the Park. The public were encouraged to participate by completing a self-guided “I-Spy” sheet and enter into a competition for the most species recorded on the day. Additional prizes were provided for returning the forms which included a goodie-bag of Meadow grassland seed, crayons; and sunflower/tomato or courgette saplings to take home.

Talks and walks were also available for booking on the Saturday morning with a wildflower walk and introduction to monitoring; a talk on Urban Ecology; a Woodland Talk and Walk and Pond dipping.

A diverse range of displays were provided on a wildlife and sustainability theme by University of Leicester, Leicester City Council, Parks & Green Spaces, the Wildlife Trust,

Badger Group, Trust for Conservation Volunteers, and Groundwork. Opportunities to participate in making insect homes, willow weaving, bird boxes, wildlife tattoos and wildlife badge-making were also provided and proved popular with visitors.

Several weeks later winners were invited back to Evington Park to collect their prizes and for local residents and partners to be informed of the final outcome and species of particular interest found during the Bioblitz. The prize was presented by Leicester City Council Director of Environmental Services Adrian Russell and provided a further opportunity to publicise and promote the event with partners.

Fig 5.3: 1st prize of Book of Wildlife in Britain presented by Director Adrian Russell

5.2 Species Groups

5.2.1 Birds

A total of 35 bird species were recorded during the event. Most of the species were fairly common birds that are found in most locations in Leicester associated with parkland and shrub.

Bird species were recorded by specialists who attended the event to run the guided walks (2 x specialists from the City Council). Visitors were provided with binoculars and ID sheets to

help identify the birds and many continued to record species after the walk was complete. This was a very popular activity and many different birds were present throughout the day.

Fig 5.4: Kestrel observed flying over rough grassland by pond Saturday 26th May 2012

The "Morn Chorus" guided walk commenced at 8.30 a.m. Saturday 26th May and was attended by over 20 members of the public. As Evington Park is a former parkland area it lacks some of the habitats such as open water, river and canal associated with water fowl and therefore unsurprisingly the total number of bird species identified is comparatively low to that recorded at Watermead and Abbey Park in previous years.

Nevertheless, a number of species were recorded from the Red and Amber endangered list which indicates that the park, albeit in an urban setting, is able to provide a suitable habitat to contribute to the conservation of these species. The following species were noted and are highlighted in Appendix III. (Red list – Starling, Song thrush, House sparrow; Amber list – Swift, Green woodpecker, Swallow, Dunnock, Mistle thrush, Kestrel). Two pairs of great spotted woodpecker were also found to be nesting in mature trees within the park and were watched enthusiastically by several bird watchers as they fed their young.

5.2.2 Invertebrates

5.2.2.1 Aquatic Invertebrates

The most popular activity proved again to be the pond-dipping during the event. This was done as a school activity as well as a guided walk on the Saturday for visitors to the park. Several specialists were also able to contribute to the identification of more obscure species of aquatic invertebrates. A total of 14 aquatic invertebrates were identified to family level

and included the pond and ramshorn snails, waterflea, caddisfly larvae and water associated with a balanced ecosystem and better quality water.

Fig 5.5: Pond dipping at Evington Park Wildlife Pond

Only 1 x fish was recorded in the pond – a stickleback which had most probably arrived in the pond as a result of a transfer of eggs on a birds feathers or feet. Although a prolific predator, the stickleback population is likely to be kept in check by the number of amphibians (see Amphibian section for details).

5.2.2.2 Terrestrial Invertebrates (Not including moths)

Information on other invertebrates was collated from a number of sources. Park officers and expert naturalists 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 Hymenoptera (bees and wasps) followed by Diptera (flies) and Coleoptera (beetles). A range of bumble bees were recorded particularly around the formal gardens of the House and flower beds at the front of the Park, together with a variety of ladybirds recorded in similar locations, including the now infamous Harlequin ladybird.

As well as specialists taking their time to identify the invertebrates, amateur photographers were able to expertly capture some wonderful examples on the day. More images are available at http://www.naturespot.org.uk/wild-place/evington-park

Fig 5.6: Lesser Stag beetle © Lostash found in woodland

Fig 5.7: Cranefly (Tipula vernalis), nymph (Graphocraerus ventralis), Phyllobusroboretanus © David Nicholls

Although only 5 species of mollusc were found during the Bioblitz event, one snail, the girdled snail, *Hygromia cinctella* was the first recorded sighting in Leicestershire and found amongst the grasses in the meadow area of the Park.

Fig 5.8: Girdled snail *Hygromia cinctella*
© David Nicholls

5.2.2.3 Moths

Several Lepidoptera specialists attended on the Friday evening and set up a series of traps across the pathways close to the Evington House. The weather was warm and dry, following a hot day with above-average temperatures and was not windy. However, the weather had only changed to warm and stable a few days before having previously been wet and cold for approximately 6 weeks since the start of April 2012. This made it less 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 34 species of moths were recorded. The moths were generally associated with shrub and woodland vegetation near to where the traps were set.

Fig 5.9: The aptly named "Figure of 80" moth
© Dougal Urghart

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 Friday evening and having several specialists on hand meant people could examine the species more closely around several of the traps. Several specimens were retained overnight to enable them to be examined the following day by visitors to the Saturday event.

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 with a total of 204 species of plants identified. The survey effort given to the recording of vegetation was higher than amongst other specialist groups. The number of people surveying over the Friday evening and into the Saturday 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.

The BSBI Group were particularly helpful in identifying and recording species at Evington Park. Members were able to help visitors to the Park with identification and lead Wildflower Walks. Most of the species identified were located within the meadow areas along Ethel Road verge and the rough grassland and meadow in the wildlife area adjacent to the ponds.

Fig 5.10: Members of the BSBI Group verifying plant identification during Bioblitz event

Lichens were particularly well recorded on the roof of Evington House and at the rear within the courtyard and former kitchen garden area. A number of rare lichens were recorded and act as an indicator of improved air quality. The identification of 68 species of lichens by a local specialist puts Evington Park among the top sites for lichens in the county – with *Xanthoparmelia mougeotii* found on the slate roof of the workshed behind the House being the only current county record for the species.

A total of 9 fungi were recorded. Although relatively low due to the time of year, the fungi were identified by a specialist and those associated with tree disease and rot were identified by a member of LCC Trees & Woodlands team. The higher number of fungi recorded could have been caused by the prevailing damp and cold conditions prior to the event and the larger number of mature parkland trees within the Park.

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 3 species. These included mammals that were seen at the park such as grey squirrel (*Sciurus carolinensis)* or caught on the wildlife camera such as fox (*Vulpes vulpes*).

Fig 5.11: Fox caught on wildlife camera during the night within woodland © Barry Ingram

Species normally associated with water courses such as otter and water vole were not recorded due to the type of habitat not being present at the Park. In other instances, no evidence of larger mammals such as badger was found which is to be expected due to the general open character of the park, small woodland areas and level of human activity.

Small mammal traps were set up overnight within the rough grassland and woodland areas of the Park. Several traps were found to contain woodmice (*Apodemus sylvaticus*), but no other species of mammal was found during the survey despite the site likely to be used by common shrew, field vole and possibly harvest mice.

Bat records were noted during the guided walk event, particularly along the meadow area, ponds and mature trees in front of the House. Common Pipistrelle bats were recorded amongst the trees and open areas of grass and another species of insectivorous bat was heard, but could not be identified to species level. 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 which could have affected the behaviour and flight patterns of foraging bats.

5.2.5 Amphibians and Reptiles

The amphibians were searched for by torch light and nets in a series of ponds near to the rough grassland and meadow and to the front of the park. 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 reasonably high. The large pond with the dipping platform was particularly good for viewing adult smooth newts and tadpoles of both common toad and frog. All these species were in abundance throughout the whole of the event and provide an indication of the good water quality and presence of suitable terrestrial habitat for these species to thrive.

No grass snakes or other reptiles were recorded during the event and is probably due to the location of the park and its isolation from good reptile habitat, its central location and heavy disturbance.

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. Some schools have requested that they return to the Park to complete a “Mini Bioblitz” and help record more wildlife on the Park.

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 target of 500 species to be identified over 24 hours was an ambitious target to set within an urban park with a limited range of habitats. A total of 467 species were found during the 2-day event and was still considered to be a huge achievement. Compared to the previous years when 653 species were recorded at Watermead Country Park and 506 at Abbey 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 with some new records for Leicestershire and rare or endangered species recorded in the park.

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.

The main partners completed a “mop-up” session following the event to evaluate the event (see Table 6.1)

Table 6.1: Summary of Bioblitz Event – Mop-Up Session

Evington Bioblitz – What Worked Well	Evington Bioblitz – Review for Improvements in forthcoming events
Schools – good participation and all turned up on the day; Positive feedback from teachers; good feedback from personnel running activity stations	Organisation of evening guided walks – need to separate between bats/amphibian walk and moth walk to follow
Schools – good organisation for staff, teachers etc, re the timing and start/end time of event and activities	Activity stations – some felt a little isolated and some did not get a lot of visitors on the Saturday
Refreshments and water fountain on a hot day and free; tea, coffee and biscuits provided with good Basecamp facilities and toilets – kept clean by volunteers and good feedback	Choice of activities/displays OK, but needed more variety – e.g. Leicester Uni polystrene cups needed more props and encourage people to participate
Evening sessions – Talk & Walk re trees – good feedback from participants; Guided walks – bats, moths and amphibians – people engaged and happy to see and identify things; accompanied by staff and volunteers with torches, high-viz jackets re health & safety etc. People signed in and out on a booking list – worked well	Qualified/experienced staff to give out I-Spy sheets; promote and encourage participation/chat to public – perception of being aware and eager. I–Spy sheet format needs review
Evening guided walks were eventually over-subscribed, although bookings came in late – may be due to the weather – which turned out to be very pleasant and probably encouraged people to attend	Some local groups volunteered to help, but did not turn up or turned up late making it hard to organise and cover areas where planned they could help
Volunteers – Specialists (approx. 20) plus GWLL volunteers – good feedback, enjoyed helping and participating	Need to check events outside of the council e.g. clashed with 2 x national sports events
Park staff & City wardens – had the option to participate and very enthusiastic. Many staff wanted to take part rather than being pushed into it	Slow flow-through of people (approx. 500) and less than expected – need to identify other ways of advertising, marketing and engaging with local community.
Plant walk – Saturday a.m. was well attended and got good feedback with relevant results to influence management	Date of feedback and prize-giving needs planning in advance
Morn Chorus walk – well attended and many stayed to participate in general event	
Packed lunches provided on Friday and Saturday to staff and volunteers – well appreciated	
Partnership working – internal and external (with GWLL etc) worked well – continued support before with organisation of activities and after with data records and report	
Central basecamp works well – particularly in an established building	
Plants, seeds, give-aways worked well and good incentive to encourage partipation	

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

- Manage established areas of meadow along Ethel Road and rough grassland/meadow adjacent to ponds through cut and bale in August-September and remove arisings to reduce nutrient build-up;

- Extend area and encourage species diversity on bund and create longer-grass margin on southern boundary of park adjacent to grass verge (Note: this area found to be species-rich during wildflower survey) – NCO to liaise with park staff.
- 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 e.g. along woodland edges and shady areas;
- 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. Plant vegetation and bulbs specific to assisting bee population;

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 bird boxes of different types on buildings that are appropriately sited;
- Monitor bird populations, and organise further guided bird walks;
- Keep access to barns and other outbuildings open to enable swallow population to continue nesting during summer

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 and at rear of House etc;
- Retain or allow areas of rough grassland to establish in appropriate less formal areas around the site e.g. under-storey of grass/tall ruderal in woodland areas, heavily shaded areas;
- Monitor use of site by small mammals e.g. harvest mice, wood mice, field vole and use as an indicator of good grassland management;
- Do guided walks with local schools and residents

Amphibians

- Create islands of rocks with crevices and holes and/or log piles in terrestrial vegetation that are not accessible to public to allow amphibians to establish and avoid predation;

- Create hibernacula near to all ponds to encourage species to maintain population levels on site.

Terrestrial Invertebrates

- 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 – get local schools or groups to make insect houses and have on display;
- Retain some areas as less-disturbed habitats where public do not have access e.g. old courtyard of House

Aquatic Invertebrates

- Monitor water quality, maintain water levels of ponds to retain oxygen levels and encourage improved water quality of surface water areas – consider use of Sustainable Urban Drainage (SuDs) by collecting rainfall from roofs to be used to top-up ponds during dry weather;
- Monitor aquatic vegetation, particularly any non-native species. Arrange for periodic removal during autumn – follow advice of NCO/Wildlife Trust re mitigation for protected species that may be present;
- 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;

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 Evington 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 Aylestone Meadows followed by locations such as Western Park or Knighton Park. Other organisations such as the University of Leicester have continued to support the main Bioblitz and the concept of

encouraging people to participate in such events has been taken on board by the University who ran their own Bioblitz event in June 2012 within their central campus in Leicester and at Balckthorn Manor.

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 continue to be 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. We value the support of many and look forward to the next challenging Bioblitz at Aylestone Meadows, working alongside new and old volunteers, members of the public and local schools.

Appendices

Appendix I Evington Park Map

Appendix II Recording sheet

Evington Park Bioblitz 25th – 26th May 2012
Species record sheet

Name.....
Contact number.....
Email.....

*For location please use the letter key on the map

Species - what did you see	**Location*** - where did you see it

Appendix III Lists of Species Recorded during Bioblitz 2012 at Evington Park

Table 1 – Birds

Scientific name	**Common name**	**Group**	**Group detail**
Accipiter nisus	Sparrowhawk	Vertebrates	Birds
Aegithalos caudatus	Long tailed tit	Vertebrates	Birds
Anas platyrhynchos	Mallard	Vertebrates	Birds
Apus apus	Swift	Vertebrates	Birds
Buteo buteo	Buzzard	Vertebrates	Birds
Carduelis carduelis	Goldfinch	Vertebrates	Birds
Carduelis chloris	Greenfinch	Vertebrates	Birds
Columba livia (Domestica)	Feral pigeon	Vertebrates	Birds
Columba palumbus	Wood pigeon	Vertebrates	Birds
Corvus corone	Carrion crow	Vertebrates	Birds
Corvus frugilegus	Rook	Vertebrates	Birds
Corvus monedula	Jackdaw	Vertebrates	Birds
Dendrocopos major	Great spotted woodpecker	Vertebrates	Birds
Erithacus rubecula	Robin	Vertebrates	Birds
Falco tinnunculus	Kestrel	Vertebrates	Birds
Fringilla coelebs	Chaffinch	Vertebrates	Birds
Garrulus glandarius	Jay	Vertebrates	Birds
Hirundo rustica	Swallow	Vertebrates	Birds
Parus caeruleus	Blue tit	Vertebrates	Birds
Parus major	Great tit	Vertebrates	Birds
Passer domesticus	House sparrow	Vertebrates	Birds
Periparus ater	Coal tit	Vertebrates	Birds
Pica pica	Magpie	Vertebrates	Birds
Picus viridis	Green woodpecker	Vertebrates	Birds
Prunella modularis	Dunnock	Vertebrates	Birds
Regulus regulus	Goldcrest	Vertebrates	Birds
Sitta europaea	Nuthatch	Vertebrates	Birds
Strix aluco	Tawny owl	Vertebrates	Birds
Sturnus vulgaris	Starling	Vertebrates	Birds
Sylvia atricapilla	Blackcap	Vertebrates	Birds
Troglodytes troglodytes	Wren	Vertebrates	Birds
Turdus merula	Blackbird	Vertebrates	Birds
Turdus philomelos	Song thrush	Vertebrates	Birds
Turdus viscivorus	Mistle thrush	Vertebrates	Birds
	Gull	Vertebrates	Birds

Table 2 – Invertebrates

Scientific name	**Common name**	**Group**	**Group detail**
Hydracarina sp	Water mites	Invertebrates	Acarina
Aceria macrorhynchus	Sycamore gall	Invertebrates	Acarina
Eriophyes similis	Gall causing mite on Prunus spinosa	Invertebrates	Acarina
Eisenia fetida	Red worm (Brandling worm)	Invertebrates	Annelida
Lumbricus sp	Earthworm	Invertebrates	Annelida
Araneus diadematus	Garden spider	Invertebrates	Arachnida
Tetranychus urticae	Red spider mite	Invertebrates	Arachnida
Xysticus cristatus	Crab spider	Invertebrates	Arachnida
	Black spider	Invertebrates	Arachnida
	Green spider	Invertebrates	Arachnida
	Red spider	Invertebrates	Arachnida
Daphnia	Water flea	Invertebrates	Branchiopoda
Lithobius sp	Centipede	Invertebrates	Chilopoda
Dytiscus marginalis	Great diving beetle	Invertebrates	Coleoptera
Gyrinus substriatus	Whirligig beetle	Invertebrates	Coleoptera
Adalia 10-punctata	10 spot ladybird	Invertebrates	Coleoptera
Altica lythri	Flea beetle	Invertebrates	Coleoptera
Anthrenus verbasci	Varied carpet beetle	Invertebrates	Coleoptera
Athous haemorrhoidalis	Click beetle	Invertebrates	Coleoptera
Calvia 14-guttata	Cream spot ladybird	Invertebrates	Coleoptera
Coccinella septempunctata	7-spot Ladybird	Invertebrates	Coleoptera
Ctenicera cuprea	Click beetle	Invertebrates	Coleoptera
Dorcus parallelipipedus	Lesser stag beetle	Invertebrates	Coleoptera
Exochomus 4-pustulatus	Pine ladybird	Invertebrates	Coleoptera
Harmonia axyridis	Harlequin Ladybird	Invertebrates	Coleoptera
Lilioceris lilii	Lily Beetle	Invertebrates	Coleoptera
Phyllobius pomaceus	Nettle weevil	Invertebrates	Coleoptera
Phyllobius roboretanus	Small green weevil	Invertebrates	Coleoptera
Propylea 14-punctata	14 spot ladybird	Invertebrates	Coleoptera
Forficula auricularia	Earwig	Invertebrates	Dermaptera
Tachypodoiulus niger	Millipede	Invertebrates	Diplopoda
Chironomid sp	Non-biting midge larvae	Invertebrates	Diptera
Culicoides sp	Biting midge larvae	Invertebrates	Diptera
Bombylius sp (prob. major)	Bee fly	Invertebrates	Diptera
Musca domestica	House fly	Invertebrates	Diptera
Phytomyza ilicis	Holly Leaf Miner	Invertebrates	Diptera
Syrphidae family	Hoverfly	Invertebrates	Diptera
Dolycoris baccarum	Sloe Bug	Invertebrates	Hemiptera
Pulvinaria regalis	Horse Chestnut Scale	Invertebrates	Hemiptera
Collembola sp	Springtail	Invertebrates	Hexapoda
Andrena chrysosceles	Mining bee	Invertebrates	Hymenoptera
Andrena haemorrhoa	Early mining bee	Invertebrates	Hymenoptera
Anthophora plumipes	Hairy footed flower bee	Invertebrates	Hymenoptera
Apis mellifera	Honey Bee	Invertebrates	Hymenoptera
Biorhiza pallida	Oak gall	Invertebrates	Hymenoptera
Bombus pascuorum	Common Carder Bumblebee	Invertebrates	Hymenoptera
Bombus pratorum	Early-nesting Bumblebee	Invertebrates	Hymenoptera

Scientific name	**Common name**	**Group**	**Group detail**
Bombus terrestris	Buff tailed bumblebee	Invertebrates	Hymenoptera
Lasius niger	Black ant	Invertebrates	Hymenoptera
Osmia rufa	Red mason bee	Invertebrates	Hymenoptera
Vespula vulgaris	Wasp (common)	Invertebrates	Hymenoptera
Asellus aquaticus	Freshwater hoglouse	Invertebrates	Isopoda
Armadillidium vulgare	Common Pill Woodlouse	Invertebrates	Isopoda
Oniscus asellus	Common shiny woodlouse	Invertebrates	Isopoda
Porcellio scaber	Common rough woodlouse	Invertebrates	Isopoda
Acronicta psi	Grey dagger	Invertebrates	Lepidoptera
Acronicta rumicis	Knot grass moth	Invertebrates	Lepidoptera
Agrotis exclamationis	Heart and dart	Invertebrates	Lepidoptera
Agrotis puta puta	Shuttle shaped dart	Invertebrates	Lepidoptera
Apamea sordens	Rustic shoulder-knot	Invertebrates	Lepidoptera
Aphomia sociella	Bee moth	Invertebrates	Lepidoptera
Autographa jota	Plain golden Y moth caterpillar	Invertebrates	Lepidoptera
Biston betularia	Peppered moth	Invertebrates	Lepidoptera
Chloroclysta truncata	Common Marbled Carpet	Invertebrates	Lepidoptera
Coleophora laricella	Larch case bearer	Invertebrates	Lepidoptera
Colostygia pectinataria	Green carpet	Invertebrates	Lepidoptera
Discestra trifolii	Nutmeg	Invertebrates	Lepidoptera
Emmelina monodactyla	Morning glory plume moth	Invertebrates	Lepidoptera
Endrosis sarcitrella	White shouldered House moth	Invertebrates	Lepidoptera
Epiphyas postvittana	Light brown apple moth	Invertebrates	Lepidoptera
Grapholita jungiella		Invertebrates	Lepidoptera
Hepialus lupulinus	Common Swift	Invertebrates	Lepidoptera
Lomaspilis marginata	Clouded border	Invertebrates	Lepidoptera
Mimas tiliae	Lime hawkmoth	Invertebrates	Lepidoptera
Mompha nodicolella	Gall with rosebay willow herb	Invertebrates	Lepidoptera
Nemapogon cloacella	Cork moth	Invertebrates	Lepidoptera
Nola confusalis	Least black arches	Invertebrates	Lepidoptera
Notodonta ziczac	Pebble prominent	Invertebrates	Lepidoptera
Ochropleura plecta	Flame shoulder	Invertebrates	Lepidoptera
Odontoptera bidentata	Scalloped hazel	Invertebrates	Lepidoptera
Opisthograptis luteolata	Brimstone moth	Invertebrates	Lepidoptera
Phlogophora meticulosa	Angle shades	Invertebrates	Lepidoptera
Pyrausta purpuralis	Common purple and gold	Invertebrates	Lepidoptera
Scoparia ambigualis	Common grey	Invertebrates	Lepidoptera
Syndemis musculana	Dark barred tortrix	Invertebrates	Lepidoptera
Tethea ocularis	Figure of 80	Invertebrates	Lepidoptera
Thera britannica	Spruce carpet	Invertebrates	Lepidoptera
Thera obeliscata	Grey Pine carpet	Invertebrates	Lepidoptera
Tinea trinotella	Birds nest moth	Invertebrates	Lepidoptera
Anthocharis cardamines	Orange tip butterfly	Invertebrates	Lepidoptera
Celastrina argiolus	Holly blue	Invertebrates	Lepidoptera
Gonepteryx rhamni	Brimstone butterfly	Invertebrates	Lepidoptera
Pararge aegeria	Speckled Wood	Invertebrates	Lepidoptera

Scientific name	**Common name**	**Group**	**Group detail**
Pieris brassicae	Large white	Invertebrates	Lepidoptera
Pieris napi	Green veined white	Invertebrates	Lepidoptera
Polyommatus icarus	Common blue butterfly	Invertebrates	Lepidoptera
Lymnaea stagnalis	Great pond snail	Invertebrates	Mollusca
Planorbarius corneus	Great ramshorn snail	Invertebrates	Mollusca
Arion distinctus	Common garden slug	Invertebrates	Mollusca
Arion subfuscus	Dusky slug	Invertebrates	Mollusca
Cepaea nemoralis	Banded snail	Invertebrates	Mollusca
Helix aspersa	Garden snail	Invertebrates	Mollusca
Hygromia cinctella	Girdled snail	Invertebrates	Mollusca
Crysopa sp	Green lace wing	Invertebrates	Neuroptera
Enallagma cyathigerum	Common blue damselfly	Invertebrates	Odonata
Pyrrhosoma nymphula	Large Red Damselfly	Invertebrates	Odonata
	Cricket	Invertebrates	Orthoptera
Trichoptera sp	Caddisfly larvae	Invertebrates	Trichoptera

Table 3 – Lower plants

Scientific name	**Common name**	**Group**	**Group detail**
Algae sp	Algae	Lower plants	Algae
Agaricus arvensis	Horse Mushroom	Lower plants	Fungi
Agaricus silvaticus	Blushing Wood Mushroom	Lower plants	Fungi
Bjerkandera adusta	Smoky Bracket	Lower plants	Fungi
Calocybe gambosa	St George's mushroom	Lower plants	Fungi
Clitocybe nebularis	Clouded Funnel	Lower plants	Fungi
Ganoderma applanatum	Artist's Bracket	Lower plants	Fungi
Leptosphaeria acuta	Nettle Rash	Lower plants	Fungi
Polyporus squamosus	Dryad's Saddle	Lower plants	Fungi
Puccinia malvacearum	Rust fungus on Malva moschata	Lower plants	Fungi
Amandinea punctata		Lower plants	Lichens
Arthonia radiata		Lower plants	Lichens
Aspicilia calcarea		Lower plants	Lichens
Aspicilia contorta subsp. hoffmanniana		Lower plants	Lichens
Athelia arachnoidea #		Lower plants	Lichens
Buellia aethalea		Lower plants	Lichens
Buellia ocellata		Lower plants	Lichens
Caloplaca arcis		Lower plants	Lichens
Caloplaca citrina s.str.		Lower plants	Lichens
Caloplaca crenulatella		Lower plants	Lichens
Caloplaca flavescens		Lower plants	Lichens
Caloplaca flavocitrina		Lower plants	Lichens
Caloplaca holocarpa s.str.		Lower plants	Lichens
Caloplaca oasis		Lower plants	Lichens
Candelariella aurella f. aurella		Lower plants	Lichens
Candelariella reflexa		Lower plants	Lichens
Candelariella vitellina f. vitellina		Lower plants	Lichens
Catillaria atomarioides		Lower plants	Lichens
Catillaria chalybeia var. chalybeia		Lower plants	Lichens
Catillaria lenticularis		Lower plants	Lichens
Evernia prunastri		Lower plants	Lichens
Flavoparmelia caperata		Lower plants	Lichens
Fuscidea lightfootii		Lower plants	Lichens
Hypogymnia physodes		Lower plants	Lichens
Hypogymnia tubulosa		Lower plants	Lichens
Hypotrachyna revoluta		Lower plants	Lichens
Lecania cyrtella		Lower plants	Lichens
Lecania erysibe		Lower plants	Lichens
Lecanora albescens		Lower plants	Lichens
Lecanora campestris subsp. campestris		Lower plants	Lichens
Lecanora carpinea		Lower plants	Lichens
Lecanora chlarotera		Lower plants	Lichens

Scientific name	**Common name**	**Group**	**Group detail**
Lecanora conizaeoides f. conizaeoides		Lower plants	Lichens
Lecanora crenulata		Lower plants	Lichens
Lecanora dispersa		Lower plants	Lichens
Lecanora expallens		Lower plants	Lichens
Lecanora muralis		Lower plants	Lichens
Lecanora persimilis		Lower plants	Lichens
Lecanora polytropa		Lower plants	Lichens
Lecanora semipallida		Lower plants	Lichens
Lecanora symmicta		Lower plants	Lichens
Lecanora umbrina		Lower plants	Lichens
Lecidella elaeochroma f. elaeochroma		Lower plants	Lichens
Lecidella stigmatea		Lower plants	Lichens
Lepraria incana s.str.		Lower plants	Lichens
Melanelixia subaurifera		Lower plants	Lichens
Parmelia sulcata		Lower plants	Lichens
Parmotrema perlatum		Lower plants	Lichens
Phaeophyscia orbicularis		Lower plants	Lichens
Physcia adscendens		Lower plants	Lichens
Physcia tenella subsp. tenella		Lower plants	Lichens
Porpidia tuberculosa		Lower plants	Lichens
Protoblastenia rupestris		Lower plants	Lichens
Psilolechia lucida		Lower plants	Lichens
Punctelia subrudecta s. str.		Lower plants	Lichens
Ramalina farinacea		Lower plants	Lichens
Rhizocarpon reductum		Lower plants	Lichens
Trapeliopsis granulosa		Lower plants	Lichens
Verrucaria hochstetteri		Lower plants	Lichens
Verrucaria macrostoma f. macrostoma		Lower plants	Lichens
Verrucaria muralis		Lower plants	Lichens
Verrucaria nigrescens f. nigrescens		Lower plants	Lichens
Verrucaria nigrescens f. tectorum		Lower plants	Lichens
Verrucaria viridula		Lower plants	Lichens
Xanthoparmelia mougeotii		Lower plants	Lichens
Xanthoria parietina		Lower plants	Lichens
Xanthoria polycarpa		Lower plants	Lichens
Xanthoria ucrainica		Lower plants	Lichens
Marchantia polymorpha ssp ruderalis	Common liverwort	Lower plants	Liverwort
Brachythecium rutabulum	Rough stalked feather moss	Lower plants	Mosses
Amblystegium serpens		Lower plants	Mosses
Barbula convoluta		Lower plants	Mosses
Barbula unguiculata		Lower plants	Mosses
Bryum argenteum		Lower plants	Mosses
Bryum capillare		Lower plants	Mosses

Scientific name	**Common name**	**Group**	**Group detail**
Bryum dichotomum		Lower plants	Mosses
Calliergonella cuspidata		Lower plants	Mosses
Ceratodon purpureus		Lower plants	Mosses
Didymodon insulanus		Lower plants	Mosses
Didymodon sinuosus		Lower plants	Mosses
Didymodon vinealis		Lower plants	Mosses
Grimmia pulvinata		Lower plants	Mosses
Homalothecium sericeum		Lower plants	Mosses
Hypnum cupressiforme var. cupressiforme		Lower plants	Mosses
Kindbergia praelonga		Lower plants	Mosses
Orthotrichum affine		Lower plants	Mosses
Orthotrichum anomalum		Lower plants	Mosses
Orthotrichum diaphanum		Lower plants	Mosses
Rhynchostegium confertum		Lower plants	Mosses
Rhytidiadelphus squarrosus		Lower plants	Mosses
Schistidium crassipilum		Lower plants	Mosses
Syntrichia montana		Lower plants	Mosses
Tortula muralis		Lower plants	Mosses

Table 4a – Flowering plants – Meadow / Wayside

Scientific name	**Common name**	**Group**	**Group detail**
Achillea millefolium	Yarrow	Plants	Meadow/wayside
Aegopodium podagraria	Ground elder	Plants	Meadow/wayside
Alchemilla mollis	Lady's mantle	Plants	Meadow/wayside
Alopecurus pratensis	Meadow foxtail	Plants	Meadow/wayside
Anacamptis pyramidalis	Pyramid orchid	Plants	Meadow/wayside
Anisantha sterilis	Barren brome	Plants	Meadow/wayside
Anthoxanthum odoratum	Sweet vernal grass	Plants	Meadow/wayside
Aquilegia vulgaris	Columbine	Plants	Meadow/wayside
Arabidopsis thaliana	Thale cress	Plants	Meadow/wayside
Arctium minus	Lesser burdock	Plants	Meadow/wayside
Arrhenatherum elatius	False oat grass	Plants	Meadow/wayside
Artimisia vulgaris	Mugwort	Plants	Meadow/wayside
Bellis perennis	Daisy	Plants	Meadow/wayside
Brassica napus	Rape	Plants	Meadow/wayside
Bryonia dioica	White bryony	Plants	Meadow/wayside
Buddleja davidii	Butterfly bush	Plants	Meadow/wayside
Calystegia silvatica	Large bindweed	Plants	Meadow/wayside
Capsella bursa-pastoris	Shepherds purse	Plants	Meadow/wayside
Cardamine hirsuta	Hairy bittercress	Plants	Meadow/wayside
Carex flacca	Glaucous sedge	Plants	Meadow/wayside
Centaurea nigra	Common knapweed	Plants	Meadow/wayside
Cerastium fontanum ssp. vulgare	Common Mouse-ear	Plants	Meadow/wayside
Cerastium fontanum ssp. vulgare	Mouse ear	Plants	Meadow/wayside
Chamerion angustifolium	Rosebay willow herb	Plants	Meadow/wayside
Chenopodium album	Fat hen	Plants	Meadow/wayside
Cirsium arvense	Creeping thistle	Plants	Meadow/wayside
Cirsium vulgare	Spear thistle	Plants	Meadow/wayside
Conyza canadensis	Canadian fleabane	Plants	Meadow/wayside
Coronopus squamatus	Swine cress	Plants	Meadow/wayside
Crepis vesicaria	Beaked hawk's beard	Plants	Meadow/wayside
Cymbalaria muralis	Ivy leaved toadflax	Plants	Meadow/wayside
Dactylis glomerata	Cock's foot	Plants	Meadow/wayside
Dipsacus fullonum	Teasel	Plants	Meadow/wayside
Epilobium lanceolatum	Spear leaved willowherb	Plants	Meadow/wayside
Euphorbia peplus	Petty spurge	Plants	Meadow/wayside
Festuca arundinacea	Tall fescue	Plants	Meadow/wayside
Festuca gigantea	Giant fescue	Plants	Meadow/wayside
Festuca rubra	Red fescue	Plants	Meadow/wayside
Galium aparine	Cleavers	Plants	Meadow/wayside
Galium verum	Lady's bedstraw	Plants	Meadow/wayside
Geranium dissectum	Cut leaved cranesbill	Plants	Meadow/wayside
Geranium pratense	Meadow cranesbill	Plants	Meadow/wayside
Geranium pyrenaicum	Hedgerow cranesbill	Plants	Meadow/wayside
Geranium robertianum	Herb Robert	Plants	Meadow/wayside
Geum urbanum	Herb Bennet / wood avens	Plants	Meadow/wayside
Heracleum sphondylium ssp sphondylium	Hogweed	Plants	Meadow/wayside
Hordeum murinum	Wall barley	Plants	Meadow/wayside
Hypericum perforatum	Perforate St John's wort	Plants	Meadow/wayside
Hypochaeris radicata	Cat's ear	Plants	Meadow/wayside

Scientific name	**Common name**	**Group**	**Group detail**
Lamium album	White deadnettle	Plants	Meadow/wayside
Lamium amplexicaule	Henbit deadnettle	Plants	Meadow/wayside
Lamium hybridum	Cut leaved deadnettle	plants	Meadow/wayside
Lamium purpureum	Red deadnettle	Plants	Meadow/wayside
Lapsana communis	Nipplewort	Plants	Meadow/wayside
Lathyrus pratensis	Meadow vetchling	Plants	Meadow/wayside
Lavendula angustifolia	Lavender	Plants	Meadow/wayside
Leucanthemum vulgare	Ox eye daisy	Plants	Meadow/wayside
Linum catharticum	Fairy flax	Plants	Meadow/wayside
Lolium perenne	Perennial ryegrass	Plants	Meadow/wayside
Lotus corniculatus	Birds foot trefoil	Plants	Meadow/wayside
Luzula campestris	Field wood-rush	Plants	Meadow/wayside
Malva moschata	Musk mallow	Plants	Meadow/wayside
Malva sylvestris	Common mallow	Plants	Meadow/wayside
Matricaria discoidea	Pineappleweed	Plants	Meadow/wayside
Medicago lupulina	Black medick	Plants	Meadow/wayside
Myosotis arvensis	Field forget me not	Plants	Meadow/wayside
Oenothera biennis	Common evening primrose	Plants	Meadow/wayside
Oenothera glazioviana	Large flowered evening primrose	Plants	Meadow/wayside
Papaver dubium	Long headed poppy	Plants	Meadow/wayside
Papaver rhoeas	Common poppy	Plants	Meadow/wayside
Papaver somniferum	Opium poppy	Plants	Meadow/wayside
Plantago lanceolata	Ribwort plantain	Plants	Meadow/wayside
Plantago major	Greater plantain	Plants	Meadow/wayside
Plantago media	Hoary plantain	Plants	Meadow/wayside
Poa annua	Annual meadow grass	Plants	Meadow/wayside
Poa trivialis	Rough meadow grass	Plants	Meadow/wayside
Polygonum aviculare	Knotgrass	Plants	Meadow/wayside
Potentilla anserina	**Silverweed**	**Plants**	**Meadow/wayside**
Potentilla reptans	Creeping cinquefoil	Plants	Meadow/wayside
Primula veris	Cowslip	Plants	Meadow/wayside
Prunella vulgaris	Selfheal	Plants	Meadow/wayside
Ranunculus acris	Meadow buttercup	Plants	Meadow/wayside
Ranunculus bulbosus	bulbous buttercup	Plants	Meadow/wayside
Ranunculus repens	Creeping buttercup	Plants	Meadow/wayside
Rumex acetosa	Sorrel	Plants	Meadow/wayside
Rumex crispus	Curled dock	Plants	Meadow/wayside
Rumex obtusifolius	Broad leaved dock	Plants	Meadow/wayside
Sagina procumbens	Procumbent pearlwort	Plants	Meadow/wayside
Sanguisorba officinalis	Great burnet	Plants	Meadow/wayside
Schedonorus pratensis	Meadow Fescue	Plants	Meadow/wayside
Sedum alba	White stonecrop	Plants	Meadow/wayside
Senecio erucifolius	Hoary ragwort	Plants	Meadow/wayside
Senecio jacobaea	Ragwort	Plants	Meadow/wayside
Senecio vulgaris	Groundsel	Plants	Meadow/wayside
Silene dioica	Red campion	Plants	Meadow/wayside
Solanum nigra	Black nightshade	Plants	Meadow/wayside
Sonchus arvensis	Perennial sowthistle	Plants	Meadow/wayside
Sonchus asper	Prickly sowthistle	Plants	Meadow/wayside
Sonchus oleraceus	Smooth sowthistle	Plants	Meadow/wayside

Scientific name	Common name	Group	Group detail
Stellaria media	Common chickweed	Plants	Meadow/wayside
Tanacetum vulgare	Tansy	Plants	Meadow/wayside
Taraxacum vulgare agg	Dandelion	Plants	Meadow/wayside
Tragopogon pratensis	Goat's beard	Plants	Meadow/wayside
Trifolium dubium	Lesser trefoil	Plants	Meadow/wayside
Trifolium medium	Zig zag clover	Plants	Meadow/wayside
Trifolium pratense	Red clover	Plants	Meadow/wayside
Trifolium repens	White clover	Plants	Meadow/wayside
Urtica dioica	Stinging nettle	Plants	Meadow/wayside
Verbascum thapsus	Great mullein	Plants	Meadow/wayside
Veronica agrestis	Green field speedwell	Plants	Meadow/wayside
Veronica arvensis	Wall speedwell	Plants	Meadow/wayside
Veronica hederifolia	Ivy leaved speedwell	Plants	Meadow/wayside
Veronica serpyllifolia	Thyme leaved speedwell	Plants	Meadow/wayside
Vicia hirsuta	Hairy tare	Plants	Meadow/wayside
Vicia sativa ssp segetalis	Common vetch	Plants	Meadow/wayside
Vicia sepium	Bush vetch	Plants	Meadow/wayside

Table 4b – Flowering plants – Trees

Scientific name	Common name	Group	Group - detail
Acer campestre	Field maple	Plants	Tree / shrub
Acer platanoides	Norway maple	Plants	Tree / shrub
Acer pseudoplatanus	Sycamore	Plants	Tree / shrub
Aesculus hippocastanum	Horse chestnut	Plants	Tree / shrub
Alnus glutinosa	Alder	Plants	Tree / shrub
Aucuba japonica	Spotted laurel	Plants	Tree / shrub
Betula pendula	Silver birch	Plants	Tree / shrub
Betula pubescens	Downy birch	Plants	Tree / shrub
Buxus sepervirens	Box	Plants	Tree / shrub
Carpinus betulus	Hornbeam	Plants	Tree / shrub
Corylus avellana	Hazel	Plants	Tree / shrub
Crataegus laevigata	Midland Hawthorn	Plants	Tree / shrub
Crataegus monogyna	Hawthorn	Plants	Tree / shrub
Fagus sylvatica	Beech	Plants	Tree / shrub
Fraxinus excelsior	Ash	Plants	Tree / shrub
Ilex aquifolium	Holly	Plants	Tree / shrub
Malus domestica	Apple	Plants	Tree / shrub
Morus nigra	Mulberry Tree	Plants	Tree / shrub
Pinus nigra	Pine	Plants	Tree / shrub
Pinus sylvestris	Scot's pine	Plants	Tree / shrub
Populus alba	White poplar	Plants	Tree / shrub
Populus nigra '	Black poplar	Plants	Tree / shrub
Populus tremula	Aspen	Plants	Tree / shrub
Prunus avium	Wild cherry	Plants	Tree / shrub
Prunus padus	Bird Cherry	Plants	Tree / shrub
Prunus spinosa	Blackthorn	Plants	Tree / shrub
Quercus robur	Pedunculate oak	Plants	Tree / shrub
Robinia pseudoacacia	False acacia	Plants	Tree / shrub
Salix caprea	Goat willow	Plants	Tree / shrub
Salix cinerea ssp oleifolia	Grey willow	Plants	Tree / shrub
Salix fragilis	Crack willow	Plants	Tree / shrub

Scientific name	Common name	Group	Group - detail
Sambucus nigra	Elder	Plants	Tree / shrub
Sorbus aucuparia	Rowan	Plants	Tree / shrub
Sorbus torminalis	Wild service tree	Plants	Tree / shrub
Taxus baccata	Yew	Plants	Tree / shrub
Tilia cordata	Small leaved lime	Plants	Tree / shrub
Tilia x europaea	Lime	Plants	Tree / shrub
Ulmus glabra	Wych elm	Plants	Tree / shrub
Ulmus procera	English elm	Plants	Tree / shrub

Table 4c – Flowering plants – Water / wetland

Scientific name	Common name	Group	Group - detail
Alisma plantago-aquatica	Water plantain	Plants	Water/wetland
Alopecurus geniculatus	Marsh foxtail	Plants	Water/wetland
Callitriche stagnalis	Common water starwort	Plants	Water/wetland
Caltha palustris	Marsh marigold	Plants	Water/wetland
Cardamine flexuosa	Wavy bittercress	Plants	Water/wetland
Cardamine pratensis	Cuckoo flower	Plants	Water/wetland
Carex acutiformis	Lesser pond sedge	Plants	Water/wetland
Carex riparia	Greater pond sedge	Plants	Water/wetland
Elodea canadensis	Canadian waterweed	Plants	Water/wetland
Epilobium hirsutum	Great willowherb	Plants	Water/wetland
Equisetum arvense	Field horsetail	Plants	Water/wetland
Glyceria maxima	Reed sweet grass	Plants	Water/wetland
Hydrocharis morus-ranae	Frogbit	Plants	Water/wetland
Hypericum tetrapterum	Square stalked St John's wort	Plants	Water/wetland
Iris pseudoacorus	Yellow iris	Plants	Water/wetland
Juncus inflexus	Hard rush	Plants	Water/wetland
Lemna minor	Common duckweed	Plants	Water/wetland
Lysimachia nummularia	Creeping Jenny	Plants	Water/wetland
Myosotis laxa ssp cespitosa	Tufted forget me not	Plants	Water/wetland
Nuphar lutea	Yellow water lily	Plants	Water/wetland
Potamogeton crispus	Curled pondweed	Plants	Water/wetland
Ranunculus batrachium group	Water crowfoot	Plants	Water/wetland
Rorippa nasturtium-aquaticum	Watercress	Plants	Water/wetland
Sagittaria sagittifolia	Arrowhead	Plants	Water/wetland
Scrophularia auriculata	Water figwort	Plants	Water/wetland
Typha latifolia	Reedmace	Plants	Water/wetland
Veronica beccabunga	Brooklime	Plants	Water/wetland

Table 4d – Flowering plants - Woodland

Scientific name	Common name	Group	Group - detail
Alliaria petiolata	Garlic mustard	Plants	Woodland
Allium triquetrum	Three cornered garlic	Plants	Woodland
Anthriscus sylvestris	Cow parsley	Plants	Woodland
Arum maculatum	Lords and ladies	Plants	Woodland
Atropa belladonna	Deadly nightshade	Plants	Woodland
Carex pendula	Pendulous sedge	Plants	Woodland
Digitalis purpurea	Foxglove	Plants	Woodland
Dryopteris filix-mas	Male fern	Plants	Woodland

Scientific name	Common name	Group	Group - detail
Epilobium montanum	Broad leaved willowherb	Plants	Woodland
Ficaria verna	Lesser Celandine	Plants	Woodland
Hedera helix	Ivy	Plants	Woodland
Hyacinthoides non-scripta	Bluebell	Plants	Woodland
Hyacinthoides x massartiana	Hybrid bluebell	Plants	Woodland
Lonicera periclymenum	Honeysuckle	Plants	Woodland
Myosotis sylvatica	Wood forget me not	Plants	Woodland
Rosa canina	Dog rose	Plants	Woodland
Rubus fruticosus	Bramble	Plants	Woodland
Rumex sanguineus	Wood dock	Plants	Woodland
Sisymbrium officinale	Hedge mustard	Plants	Woodland
Solanum dulcamara	Bittersweet	Plants	Woodland
Stachys sylvatica	Hedge woundwort	Plants	Woodland
Veronica chamaedrys	Germander speedwell	Plants	Woodland

Table 5 – Vertebrates

Scientific name	**Common name**	**Group**	**Group detail**
Bufo bufo	Common toad	Vertebrates	Amphibians
Lissotriton vulgaris	Smooth newt	Vertebrates	Amphibians
Rana temporaria	Common frog	Vertebrates	Amphibians
Gasterosteus aculeatus	Stickleback	Vertebrates	Fish
Apodemus sylvaticus	Wood Mouse	Vertebrates	Mammals
Myotis sp	Bat	Vertebrates	Mammals
Pipistrellus pipistrellus	Common pipistrelle	Vertebrates	Mammals
Sciurus carolinensis	Grey Squirrel	Vertebrates	Mammals
Vulpes vulpes	Fox	Vertebrates	Mammals