

# **Phase 1 Habitat Survey and Management Plan**

Bartley Park



**Carmen Green**  
July 2020

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## Executive Summary

Arcadian Ecology & Consulting Ltd (Arcadian Ecology) were appointed by Totton Town Council to undertake an extended Phase 1 habitat survey of the site to assess the habitats and species present and the potential for protected species in order to identify opportunities to enhance the site for wildlife.

Bartley Park is located in a residential area on the south-western edge of the town of Totton in Hampshire (SU34775 12519). The site comprises fields of amenity and semi-improved grassland with areas of broad-leaved woodland, dry ditches and scrub. Bartley Water, a tributary of the River Test, flows along the northern edge of the site.

The Phase 1 habitat survey, conducted on the 19<sup>th</sup> May 2020, identified the key habitats on the site as semi-improved grassland, amenity grassland, broad-leaved woodland, running water, dry ditches, hedgerow, scrub and tall ruderal vegetation.

An assessment of the site for protected and notable species concluded that the site has the potential for amphibians, badger, bats, otter, breeding birds, widespread reptile species and invertebrates. The area also offers suitable habitat for common and widespread small mammals.

Bartley Park has the potential to support a range of both common and protected species. With appropriate management and enhancement, the site can be a valuable resource for supporting a range of wildlife, providing shelter, food and movement through the landscape. Recommendations on how habitats on site could be enhanced to benefit wildlife are provided.

The management plan has been developed from the findings of the Phase 1 habitat survey. The vision for the site is to enhance and create a variety of habitats which supports biodiversity enabling it to move and thrive on site, whilst creating a peaceful and aesthetically pleasing environment to visitors. A number of recommendations have been provided which include enhancing existing habitat and features to benefit biodiversity as well as creating new habitats for wildlife.

Key recommendations include enhancing and extending the existing areas of semi-improved grassland to create both species and structural diverse habitats with an abundance of wildflowers to attract pollinating insects, opening up the woodland to increase the amount of ground flora and the installation of bird and bat boxes and insect hotels on site. There is also potential for the planting of fruit trees and the creation of a scrape, if feasible.

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## **1. INTRODUCTION**

### **1.1. Background**

Arcadian Ecology & Consulting Ltd (Arcadian Ecology) were appointed by Totton Town Council to undertake an extended Phase 1 habitat survey of the site to assess the habitats and species present and the potential for protected species in order to identify opportunities to enhance the site and inform a management plan.

### **1.2. Site Description**

Bartley Park is located in a residential area on the south-western edge of the town of Totton in Hampshire (SU34775 12519). The site comprises fields of amenity and semi-improved grassland with areas of broad-leaved woodland, dry ditches and scrub. Bartley Water, a tributary of the River Test, flows along the northern edge of the site.

The immediate surroundings consist of residential housing with associated gardens to the north, east and south and the main A326 road is on the western boundary. In the wider landscape, the town of Totton extends to the north, east and south, the River Test, city of Southampton is to the east and the New Forest National Park is to the west. There are extensive areas of arable fields and grazed pasture to the north, south and west as well as large blocks of woodland, particularly to the south and west.

### **1.3. Remit and Scope of the Report**

This report details the findings of the extended Phase 1 habitat survey of Bartley Park, identifying the key habitats on site and the potential species it could support. It also provides recommendations on how habitats on site could be managed and enhanced to benefit wildlife. The management plan has been developed from the findings of the Phase 1 habitat survey with the vision of creating a variety of habitats which support biodiversity.

## 2. METHODOLOGY

### 2.1. Background data search

A data search using the *Multi-Agency Geographic Information for the Countryside* website ([www.magic.gov.uk](http://www.magic.gov.uk)) was made for statutory (those that are internationally and nationally important sites for ecology) sites designated for nature conservation within 1km of the site boundary. This search included Special Protection Area (SPAs), Special Areas of Conservation (SACs), Ramsars, Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs).

The background data search was carried out using Hampshire Biodiversity Information Centre's protected and notable species layer for records within 2km of Bartley Park.

### 2.2. Phase 1 Habitat Survey

An extended Phase 1 habitat survey was conducted on 19<sup>th</sup> May 2020 by Carmen Green (ACIEEM) and Deborah Whitfield of Arcadian Ecology & Consulting Ltd.

The Joint Nature Conservation Committee (JNCC) methodology for Phase 1 habitat survey was followed (Joint Nature Conservation Committee, 2010). A walkover survey of the site was undertaken, with areas classified and mapped using a standard set of colours on a Phase 1 habitat map to indicate the habitat types present. For each different habitat type, a species list was compiled, with particular reference to protected, notable or BAP species. This list will not give every species found on the site, but will give a representation of the diversity, significance, and dominance of plant species found within each habitat type. The location of descriptions relating to specific areas and features of interest or note were annotated on the Phase 1 habitat map using Target Notes.

Plant nomenclature in this report follows Rose (1989; 2006) for native and naturalised species of vascular plant. Plant names in the text are given with the common names first, followed by the scientific name in italics. Where there is a degree of doubt in the identification of a plant, 'cf.' precedes the specific epithet to signify the plant is very probably the species indicated, but it was not possible to distinguish it from similar members of the genus with certainty.

### 2.3. Phase 1 Protected/ Notable Species Assessment

An assessment of the habitats described in Section 3.2 for their potential to support protected and notable species was made for the following species/ groups: amphibians, badger *Meles meles*, bats, otter *Lutra lutra*, water vole *Arvicola amphibius*, breeding and Schedule 1 bird species, dormouse *Muscardinus avellanarius*, widespread reptile species and invertebrates. Details of the species-specific survey methods are given below.

#### 2.3.1. Amphibians

An assessment of the site to support amphibians was based on the presence of ponds, the connectivity of the habitat, and presence of suitable features/ habitats for amphibians during their terrestrial phase, particularly features suitable for hibernation such as log and rubble piles.

#### 2.3.2. Badger

An initial assessment was carried out to identify areas that might be used by badgers for foraging and sett digging. Specifically, areas of potential suitable habitat were investigated for the presence of setts, and attention was paid during the survey for the presence of incidental foraging signs, paths and latrines.

#### 2.3.3. Bat

An assessment was made of the suitability of trees and features within or on the site boundary to support roosting bats. This involved consideration of the age and condition of the tree, and identifying features that roosting bats may favour (e.g. holes, cracks and cavities that might be used as entrance points or roost sites). Features with potential for roosting bats were noted, including woodpecker holes, rot cavities, splits, cracks, flaking bark and thick-stemmed or matted climbing plants.

An assessment was also made of the suitability of the site and the surrounding landscape to support foraging and/ or commuting bat species. All assessments conformed to current Bat Conservation Trust (BCT) guidelines (Collins 2016).

#### **2.3.4. Otter**

An assessment was made of the watercourses located within the site boundary for their potential to support otter, focusing on the bank structure and the bankside/ bank-top vegetation. Otter will excavate permanent shelters or holts in steep banks and beneath partially exposed tree root plates. Otters will also use areas of scrub and/ or tall vegetation as temporary resting sites or feeding areas.

#### **2.3.5. Water vole**

The watercourses located within the site boundary were assessed for their potential to support water vole. Water voles generally require sloping banks in which to burrow and well developed bankside vegetation to provide shelter and food (Ryland & Kemp, 2009).

#### **2.3.6. Birds**

The assessment of the potential of the site for breeding birds was based on the suitability of the habitats present, evidence of nesting such as old or currently active nests, and the presence of bird species that may potentially nest within the available habitat.

The site was also assessed for its potential to support important assemblages of notable wintering birds and/ or birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

#### **2.3.7. Dormouse**

The potential of the site to support dormice was based on an assessment of habitat features that may indicate that dormice are present in the area. This includes the presence of food sources such as hazel *Corylus avellana* and honeysuckle *Lonicera periclymenum*. Additionally, the species requires a continuum of food supply, therefore habitat structure, diversity and connectivity to adjacent areas of woodland/ scrub are important features for determining the potential presence of dormice.

#### **2.3.8. Reptiles**

The site was assessed for reptiles, with particular attention paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub).

The site was assessed for its suitability for each of the four widespread reptile species. Specific habitat requirements differ between species. Common lizards *Lacerta vivipara* use a variety of habitats from woodland glades to walls and pastures, although one of their favoured habitats is rough grassland. Slow-worms *Anguis fragilis* use similar habitats to common lizards, and are often found in rank grassland, gardens and derelict land. Grass snakes *Natrix helvetica* also have broadly similar requirements, with a greater reliance on ponds and wetlands where they prey on common frogs *Rana temporaria*. Adders *Vipera berus* use a range of fairly open habitats with some cover, but are most often found in dry heath (Beebee & Griffiths, 2000).

#### **2.3.9. Invertebrates**

An assessment was made of the site for its potential value to support diverse communities of terrestrial and/ or aquatic invertebrates, or any protected, notable or BAP species. The assessment was made based on the presence of suitable habitat features such as an abundance of dead wood, the presence of diverse plant communities, the presence of a varied woodland structure and sunny woodland edges with a diverse flora, presence of ponds and water courses and the presence of free draining soil exposures. During the Phase 1 habitat survey, no attempt was made to comprehensively identify the range of species present, though where encountered, *ad hoc* sightings were noted.

### 3. RESULTS

#### 3.1. Background Data Search

##### 3.1.1. Protected and notable species

A background data search was carried out using Hampshire Biodiversity Information Centre's protected and notable species layer for records within 2km of Bartley Park. A summary of the results is provided in Table 1.

**Table 1.** Background data search results

| Group                                         | Number of Species |
|-----------------------------------------------|-------------------|
| Amphibians & reptiles                         | 2                 |
| Birds                                         | 116               |
| Higher plants - Flowering plants              | 50                |
| Lower plants - Liverworts, Hornworts & Mosses | 3                 |
| Invertebrates - Blattaria                     | 1                 |
| Invertebrates - Coleoptera                    | 6                 |
| Invertebrates - Dermaptera                    | 1                 |
| Invertebrates - Hemiptera                     | 2                 |
| Invertebrates - Lepidoptera                   | 106               |
| Invertebrates - Odonata                       | 1                 |
| Invertebrates - Orthoptera                    | 1                 |
| Mammals - Terrestrial (bats)                  | 9                 |
| Mammals - Terrestrial (non bats)              | 4                 |
| Mammals - Marine                              | 2                 |

##### 3.1.2. Statutory and non-statutory designated sites

There is one statutory designated site within 1km of Bartley Park: Fletchwood Meadows SSSI.

In addition, there are five non-statutory designated sites (SINC)s within 1km of Bartley Park as detailed in Table 2. This includes Bartley Park Meadows within the boundary of the site.

**Table 2.** SINC)s within 1km of Bartley Park

| SINC Ref | SINC Name                     | Central Grid Ref. | SINC Criteria | Area (ha) |
|----------|-------------------------------|-------------------|---------------|-----------|
| NF0103   | Bartley Meadows               | SU34801250        | 2A            | 7.58      |
| NF0108   | Bartley Water Meadows (North) | SU36001250        | 4A            | 1.74      |
| NF0104   | Cocklydown Copse              | SU35201190        | 1A            | 4.55      |
| NF0105   | Hounslow Meadows              | SU35401170        | 1Cii/2A/6A    | 3.46      |
| NF0101   | Lower Larches                 | SU32401800        | 1A            | 1.37      |

#### 3.2. Phase 1 Habitat Assessment

##### 3.2.1. General

The site comprises fields of amenity and semi-improved grassland with areas of broad-leaved woodland, dry ditches, hedgerow and scrub. Bartley Water, a tributary of the River Test, flows along the northern edge of the site. The immediate surroundings consist of residential housing with associated gardens to the north, east and south and the main A326 road is on the western boundary. The habitat types classified are mapped on a Phase 1 habitat map (Map 2), with the location of descriptions relating to specific areas and features of interest or note annotated using 'Botanical' Target Notes.

The vegetation on the site is described here in general terms using Phase 1 habitat survey terminology and referring to dominant, characteristic and other noteworthy species in each vegetation type within the survey area. A complete list of the species identified during the Phase 1 habitat survey is provided in Appendix 1.

The main habitat types on site consist of:

- Broad-leaved woodland;
- Semi-improved grassland;
- Amenity grassland;
- Running water;
- Dry ditch;
- Scrub;
- Hedgerow; and
- Tall ruderal vegetation.

More detailed descriptions of the ecological character of these habitat types are provided below.

### **3.2.2. Broad-leaved woodland**

At the edges of Bartley Park, particularly to the north, there are large areas of broad-leaved woodland (Target Note 1). The canopy consists of a mix of woody species but is largely dominated by oak *Quercus robur* and willow *Salix* species with lower levels of ash *Fraxinus excelsior* and white poplar *Populus alba*. The understorey is a mix of blackthorn *Prunus spinosa*, dogwood *Cornus sanguinea*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, hazel, holly *Ilex aquifolium* and rose *Rosa* species with bramble *Rubus fruticosus* agg. throughout. The field-layer is mostly ivy *Hedera helix* which is also growing up the trees and shrubs. Other species present in the field-layer but in lower abundance include bluebell *Hyacinthoides non-scripta*, cleavers *Galium aparine*, corky-fruited water-dropwort *Oenanthe pimpinelloides*, herb-Robert *Geranium robertianum*, lesser stitchwort *Stellaria graminea*, lords and ladies *Arum maculatum*, nettle *Urtica dioica*, wood avens *Geum urbanum* and wood melick *Melica uniflora*.

### **3.2.3. Semi-improved grassland**

The majority of the site is semi-improved grassland (Target Note 2). There is a mix of grasses present but the sward is mostly dominated by meadow foxtail *Alopecurus pratensis* and sweet vernal-grass *Anthoxanthum odoratum* with smaller amounts of annual meadow-grass *Poa annua*, cock's-foot *Dactylis glomerata*, creeping bent *Agrostis stolonifera*, fescue *Festuca* species, rough meadow-grass *Poa trivialis* and Yorkshire-fog *Holcus lanatus*. There is a mix of herbs scattered throughout the sward including common vetch *Vicia sativa*, cow parsley *Anthriscus sylvestris*, creeping buttercup *Ranunculus repens*, cut-leaved crane's-bill *Geranium dissectum*, dandelion *Taraxacum* sp., germander speedwell *Veronica chamaedrys*, meadow buttercup *Ranunculus acris*, oxeye daisy *Leucanthemum vulgare*, red clover *Trifolium pratense*, ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens* and yarrow *Achillea millefolium*. A number of herbs are more localised throughout the sward including common sorrel *Rumex acetosella*, crosswort *Cruciata laevipes*, hedge bedstraw *Galium mollugo* and hemlock water-dropwort *Oenanthe crocata*. Some areas have a greater abundance of ruderal species present including broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, hogweed *Heracleum sphondylium* and nettle.

### **3.2.4. Amenity grassland**

The south-western part of the site is a recreation ground of amenity grassland (Target Note 3). The sward is short and dominated by perennial rye-grass *Lolium perenne* with a lower abundance of creeping bent, fescue and Yorkshire-fog. A number of herbs are present across the fields comprising mostly daisy *Bellis perennis*, dandelion, ribwort plantain, white clover and yarrow with shepherd's-purse *Capsella bursa-pastoris* at the edges where the grassland meets the gravel path.

### **3.2.5. Running water**

Bartley Water, a tributary of the River Test flows along the northern boundary of Bartley Park (Target Note 4). It is a slow-flowing, shallow stream with a gravel substrate and is heavily shaded by

overhanging trees in the broad-leaved woodland. The banks are mostly steep with some shallower areas and there is little vegetation on the banks or in the water.

#### **3.2.6. Dry ditch**

There is a network of dry ditches on the site (Target Note 5). They are mostly bare with leaf litter from the overhanging trees and shrubs and the banks have a similar species composition to the adjacent grassland with a greater abundance of creeping buttercup, hemlock water-dropwort, nettle and wood avens. Where the ditch becomes damper towards the Bartley Water, hemlock water-dropwort becomes dominant (Target Note 6).

#### **3.2.7. Hedgerow**

There is a short section of hedgerow either side of the gravel track towards the centre of the site (Target Note 7). This is dominated by hawthorn with lower levels of ash, blackthorn, elder, field maple *Acer campestre* and hazel. The field-layer consists of ivy and nettle with smaller amounts of cleavers, cow parsley, creeping buttercup, hogweed and white dead-nettle *Lamium album*.

#### **3.2.8. Scrub**

There are several areas of scrub on site, particularly at the edges and in the understorey of the woodland and there is a patch of dense bramble and willow scrub near the main path (Target Note 8). In addition, there is scattered scrub in the southern meadow where some tree planting has been carried out including a mix of native species such as dogwood, hazel and oak (Target Note 9).

#### **3.2.9. Tall ruderal**

There are several small areas of tall ruderal vegetation on site, particularly around the base of the pylon at the centre (Target Note 10). This is mostly dominated by bracken *Pteridium aquilinum* with some nettle.

### **3.3. Phase 1 Protected/ Notable Species Assessment**

#### **3.3.1. General**

Based on the Phase 1 habitat survey, the site is considered to contain habitat potentially suitable for the following species:

- Amphibians;
- Badger;
- Bats;
- Otter;
- Water vole;
- Breeding birds;
- Dormouse;
- Reptiles (widespread species);
- Invertebrates; and
- Other mammals.

#### **3.3.2. Amphibians**

Bartley Water is along the northern boundary of the site and offers suitable breeding locations for common amphibians. The deadwood and leaf litter within the woodland would offer suitable habitat for amphibians for shelter and movement around the landscape. There are records of great crested newts within 2km of the site. However, since there are no ponds within or adjacent to Bartley Park, it is unlikely that this species is present.

#### **3.3.3. Badger**

No evidence of badger, setts, runs or latrines, was found within the survey area. However, the woodland and areas of semi-improved grassland provides suitable habitat for badger. In addition, there are records of badger within 2km of the site.

#### 3.3.4. Bat

No evidence of the presence of bats was recorded during the Phase 1 habitat survey. A detailed assessment of the trees on site was not carried out, however, several trees within the woodland do possess features with potential to support roosting bats. This includes ivy growth on the tree trunks and dead trees with splits, knot holes and woodpecker holes (Photograph 8).

The woodland, hedgerow and shrubs all provide good commuting and foraging habitat for bats on site. These also connect to other areas of suitable foraging habitat in the wider landscape.

#### 3.3.5. Otter

No evidence of the presence of otter was recorded during the Phase 1 habitat survey.

The Bartley Water on the north boundary of the site provides some suitable habitat for otter. Although the habitats present provide little or no potential permanent shelter opportunities for otter holts, the areas of woodland, tall ruderal vegetation and scrub on site may provide suitable temporary resting sites for otter. It is also possible that the watercourse provides some foraging opportunities for otters. This watercourse extends beyond the site boundary and offers opportunities for otters to move around the site and into the wider landscape to other suitable areas for feeding and sheltering. In addition, there are records of otter within 2km of the site boundary.

#### 3.3.6. Water vole

No evidence of the presence of water vole was recorded during the Phase 1 habitat survey.

The Bartley Water on the north boundary of the site provides some suitable habitat for water vole. Although there are some opportunities for water vole burrowing in the banks of the channel, there is little aquatic vegetation in the channel that would provide foraging opportunities for water vole. In addition, there are records of otter within 2km of the site boundary.

#### 3.3.7. Birds

Although no bird nests were observed during the Phase 1 habitat survey, the woodland and scrub provides suitable nesting opportunities and foraging habitat for a number of common species of bird.

A number of birds were observed on the site during the Phase 1 habitat survey and are shown in Table 1. Of these, two are listed on the red list of Birds of Conservation Concern (house sparrow and starling) and one species is on the amber list (dunnock).

**Table 1.** List of birds observed on and flying over the site including their conservation status

| Common Name              | Scientific Name                | Conservation status |
|--------------------------|--------------------------------|---------------------|
| Blackbird                | <i>Turdus merula</i>           | Green list          |
| Blackcap                 | <i>Sylvia atricapilla</i>      | Green list          |
| Blue tit                 | <i>Cyanistes caeruleus</i>     | Green list          |
| Chiffchaff               | <i>Phylloscopus collybita</i>  | Green list          |
| Carrion crow             | <i>Corvus corone</i>           | Green list          |
| Dunnock                  | <i>Prunella modularis</i>      | Amber list          |
| Goldcrest                | <i>Regulus regulus</i>         | Green list          |
| Great spotted woodpecker | <i>Dendrocopos major</i>       | Green list          |
| Great tit                | <i>Parus major</i>             | Green list          |
| House sparrow            | <i>Passer domesticus</i>       | Red list            |
| Jay                      | <i>Garrulus glandarius</i>     | Green list          |
| Magpie                   | <i>Pica pica</i>               | Green list          |
| Starling                 | <i>Sturnus vulgaris</i>        | Red list            |
| Robin                    | <i>Erithacus rubecula</i>      | Green list          |
| Woodpigeon               | <i>Columba palumbus</i>        | Green list          |
| Wren                     | <i>Troglodytes troglodytes</i> | Green list          |

#### **3.3.8. Dormouse**

No evidence of the presence of dormice was recorded during the Phase 1 habitat survey.

The woodland at Bartley Park does have a good understorey with a range of woody species that dormice could feed upon. However, the site is located in a residential area and isolated from other blocks of woodland and hedgerow by roads and housing, with few connections into the wider landscape. In addition, there are no records of dormice within 2km of the site. Therefore, it is unlikely to support populations of dormice.

#### **3.3.9. Reptiles**

No evidence of the presence of reptiles was recorded during the Phase 1 habitat survey.

Although areas of the site consist of amenity grassland that has a short sward and therefore unsuitable for reptiles, there are multiple areas in Bartley Park that offer good foraging and sheltering opportunities. For example, the areas of semi-improved grassland, woodland edges and patches of tall ruderal vegetation have the potential to support common reptile species such as slow-worm. These also connect to other areas of suitable habitat such as adjacent gardens. In addition, the woodland offers suitable hibernation habitat. There are records of slow-worm within 2km of the site.

#### **3.3.10. Invertebrates**

No protected/ notable invertebrates were observed during the Phase 1 habitat survey. However, it is likely that Bartley Park supports a number of common and widespread invertebrate species. The woodland and areas of semi-improved grassland offer good suitable foraging habitat and shelter for common and widespread invertebrate species and assemblages such as butterflies, bumblebees, grasshoppers, bush crickets and moths.

#### **3.3.11. Other Mammals**

The woodland, hedge, scrub and semi-improved grassland offer suitable foraging and sheltering opportunities for small mammals.

## 5. RECOMMENDATIONS

Based on the results of the extended Phase 1 survey, the site is considered to be of low to moderate ecological value in its current state but has the potential to be of significantly greater value through habitat enhancement and management measures. Suitable objectives and actions have been developed that will enhance the biodiversity interest of Bartley Park. The management recommendations are aimed at maintaining the biodiversity of the site in the future.

It should be noted that if any tree works or clearance of vegetation is required, this should be undertaken outside of the bird nesting season (February to August inclusive) to avoid causing death or injury to nesting birds, their eggs and young, and the damage or disturbance of nests and nesting sites. If this is not feasible, a suitably experienced ecologist should be employed immediately preceding the works to carefully check for the presence of breeding birds and/ or their nests at the proposed site, and works may commence if none are found.

In addition, if any works are to be carried out on any trees with bat roost features in the woodland then further surveys including a detailed inspection for roosting bats may need to be carried out.

A management plan outlining the biodiversity actions for Bartley Park is detailed in Table 2. The table is divided into 5 main columns; Objective, Action, Outcome, Targets and Monitoring Action. Objectives are the overall aim of undertaking the action, actions are the key activities that need to be undertaken, outcomes are the benefits to biodiversity that will be achieved, the targets are the steps that need to be fulfilled by the end of the stated years, and the monitoring action identifies how progress towards the final objective is going to be assessed. Some targets also include management suggestions on how best to achieve the target, these should be incorporated into the management plan for the site.

**Table 2.** Biodiversity actions for Bartley Park

| OBJECTIVE                                           | ACTION                                                                                                                                                                                                           | OUTCOME                                                                                                                                                                                                                                            | TARGET (YEARS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                             | MONITORING ACTION                                                                                                | PRIORITY |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------|
|                                                     |                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                    | 1- 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3 – 5                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6 – 10                                                                                                                                                                                                                                                      |                                                                                                                  |          |
| Maintain and enhance existing habitats for wildlife | Enhance areas of semi-improved grassland                                                                                                                                                                         | Habitat for invertebrates, such as bees and butterflies as well as reptiles and small mammals<br><br>Area for visitors to enjoy nature                                                                                                             | Areas of long grass and wildflowers with no large ruderal species such as nettle, docks and thistles<br><br><b>Management:</b><br>Year 1: Cut grass in March then leave to grow over the summer. In autumn remove any weeds & cut. If not very species diverse, seed with a wildflower mix. Do not leave cut grass in-situ<br><br>Year 2: Cut when height between 10 - 15cm, then every 6 to 8 weeks, always removing the grass. Do not cut below 5cm. Avoid cutting during main flowering period (mid-May to July) | Grassland with a mixture of grass and native wildflowers with no dominant species<br><br><b>Management:</b><br>Year 3: Cut twice – once in late March/ early April, & once in late August/ early September. From Year 4: Adopt an annual mowing regime – cutting once in late August/ early September. Vary the time of the cut each year to allow late-flowering plants to set seeds in some years. Remove any large weeds. Remove grass cuttings from area | Grassland with a mixture of grass and native wildflowers with no dominant species<br><br><b>Management:</b><br>Continue annual mowing regime, mowing alternate strips on a rotational basis, removing the cut grass from the area and not cutting below 5cm | Carry out annual vegetation survey<br><br>Carry out surveys for invertebrates such as butterflies and bumblebees | High     |
|                                                     | Open up woodland through thinning and light pruning<br><br>Regular coppicing on a rotational basis<br><br>The trees planted in the southern meadow could be relocated to the woodland to supplement this habitat | Allow more sunlight to reach the woodland floor, increasing the biodiversity of ground flora (including bluebells) to attract insects such as butterflies and bumblebees<br><br>Create a varied structure suitable for a range of woodland species | Improved structural and floral diversity<br><br><b>Management:</b><br>The woodland could be thinned to allow more light onto the woodland floor. Some bramble, holly and willow could be thinned in places where they have become dominant.<br><br>Thinning should be carried out little and often, ensuring that not too much of the tree canopy is removed at a time                                                                                                                                              | Rotational coppice                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                             | Regular check of ash trees for signs of ash dieback                                                              | High     |

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|                             |                                                                                         |                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                      |                                                                                                                           |      |
|-----------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------|
|                             | Regular check for ash dieback, and remove as appropriate where a health and safety risk | Maintain safety of visitors                                                                    | <p>to reduce the risk of windthrow. It is suggested that no more than 5% of the trees are removed at any one time.</p> <p>Coppicing of old hazel stools could be reinstated to increase fruiting and provide additional food resource. The brash could be piled on top to deter deer browsing.</p>                                                                                                                                                                                           |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                      |                                                                                                                           |      |
|                             | Maintain and enhance Bartley Water stream                                               | Improved water quality and floral diversity                                                    | <p>Light pruning of overhanging vegetation to allow more sunlight to reach the stream and its banks, increasing the biodiversity of aquatic vegetation and ground flora</p> <p><b>Management:</b><br/>Any areas of dense bramble and pendulous sedge on the banks should be cut back to allow more light to reach the watercourse. Some bramble, holly and willow could also be thinned. While it is beneficial to native wildlife, it can grow rapidly contributing to low light levels</p> | As previous                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                      |                                                                                                                           | High |
| Creating space for wildlife | Creation of wildflower areas                                                            | To enhance floristic diversity of site and provide pollen and nectar sources for invertebrates | <p>Sow wildflower meadow and maintain with appropriate cutting regime to create areas of long grass and wildflowers with no large ruderal species such as nettle, docks and thistles</p> <p>Plant native wildflower species such as common knapweed, oxeye daisy, red campion and selfheal. This</p>                                                                                                                                                                                         | <p>Grassland with a mixture of grass and native wildflowers with no dominant species</p> <p><b>Management:</b><br/>Year 3: Cut twice – once in late March/ early April, &amp; once in late August/ early September.<br/>From Year 4: Adopt</p> | <p>Grassland with a mixture of grass and native wildflowers with no dominant species</p> <p><b>Management:</b><br/>Continue annual mowing regime, mowing alternate strips on a rotational basis, removing the cut grass from the</p> | <p>Carry out baseline survey to check establishment of meadow plant species</p> <p>Carry out bee and butterfly survey</p> | Low  |

|  |                                    |                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |  |  |
|--|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--|--|
|  |                                    |                                                                                                                                                                                                                                                                 | <p>could be created using a seed mixture such those by Emorsgate (<a href="https://wildseed.co.uk/home">https://wildseed.co.uk/home</a>), bee bombs or by using plug plants.</p> <p><b>Management:</b><br/> Year 1: Late summer cut to no less than 5cm, then removal of cut material to keep nutrient levels low and encourage wildflower growth and seed germination. In autumn remove any weeds &amp; cut.<br/> Year 2: Cut when height between 10 - 15cm, then every 6 to 8 weeks, always removing the grass.</p> <p>Repeated cutting of nettlebed and ruderal vegetation to prevent these from dominating and out-competing the grasses and wildflowers</p> | <p>an annual mowing regime – cutting once in late August/ early September. Vary the time of the cut each year to allow late-flowering plants to set seeds in some years. Repeated cutting of nettlebed and ruderal vegetation</p> <p>Remove grass cuttings from area.</p> <p>Mow alternate strips on a rotational basis with some areas left uncut so that any animals that are disturbed during the mowing have a safe refuge to retreat to</p> | area and not cutting below 5cm |  |  |
|  | Additional tree and shrub planting | <p>Create a varied structure suitable for a range of woodland species and enhance floristic diversity of site, providing a variety of food sources (pollen, fruits and nuts) for invertebrates, birds and small mammals.</p> <p>Improving connectivity with</p> | <p>Additional planting could be carried out to supplement the woodland or create additional wooded habitats, such as at the edges of the meadows.</p> <p>Trees and shrubs planted should include a mix of native broad-leaved species similar to those found on site such as blackthorn, elder, field maple, hawthorn, hazel and oak.</p> <p>Placing tree guards around these new trees will protect them from grazing animals</p>                                                                                                                                                                                                                               | Rotational coppice                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |  |  |

|  |                                             |                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                          |                                                                                                                                                  |                                                                          |     |
|--|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----|
|  |                                             | other tree lines, hedges and woodland in the wider landscape.                                                                             | <p>while they are establishing.</p> <p><b>Management:</b><br/>Pruning and coppicing can be carried out in future years to control and promote growth.</p> <p>Coppicing of hazel should be carried out to increase fruiting and provide additional food resource. The brash could be piled on top to deter deer browsing.</p>                                                                                                                                                                                                              |                                                                                                                                                                          |                                                                                                                                                  |                                                                          |     |
|  | Creation of an orchard/ fruit tree planting | Provisioning of additional habitat and a food resource for a range of invertebrate and bird species                                       | <p>A selection of fruit trees could be planted on the eastern edge of the fields of amenity grassland. This should comprise a mix of native fruit tree species of local provenance, where possible such as apple, cherry, pear and plum.</p> <p><b>Management:</b><br/>Annual pruning of fruit trees. Regular pruning will help keep the trees healthy and producing fruit and will maintain the trees at a manageable size</p> <p>Regular cutting of grass and weeds around base of newly planted trees until they have established.</p> | As previous                                                                                                                                                              |                                                                                                                                                  |                                                                          | Low |
|  | Wildflower planting below fruit trees       | To enhance floristic diversity of site and provide pollen and nectar sources for invertebrates as well as sheltering habitat for reptiles | <p>Create a mosaic of habitats beneath fruit trees by having areas of long and short grass with a staggered mowing regime accommodating for different flower seed set times.</p>                                                                                                                                                                                                                                                                                                                                                          | <p>Mixture of grass and native wildflowers with no dominant species</p> <p><b>Management:</b><br/>Year 3: Cut twice – once in late March/ early April, &amp; once in</p> | <p>Mixture of grass and native wildflowers with no dominant species</p> <p><b>Management:</b><br/>Continue annual mowing regime, mowing on a</p> | <p>Carry out baseline survey to check establishment of plant species</p> | Low |

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|  |                             |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                 |                                    |     |
|--|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------|-----|
|  |                             | and small mammals                                                                                                                                                                                              | <p>Plant a mixture of wildflower plug plants below the trees. Include species such as common knapweed, cowslip, ox-eye daisy, primrose, red campion and selfheal. This will provide instant variety to the sward.</p> <p><b>Management:</b><br/> Year 1: Late summer cut to no less than 5cm, then removal of cut material to keep nutrient levels low and encourage wildflower growth and seed germination. In autumn remove any weeds &amp; cut.<br/> Year 2: Cut when height between 10 - 15cm, then every 6 to 8 weeks, always removing the cuttings.</p> <p>Repeated cutting of nettlebed and ruderal vegetation to prevent these from dominating and out-competing the grasses and wildflowers</p> | <p>late August/ early September.<br/> From Year 4: Adopt an annual mowing regime – cutting once in late August/ early September. Vary the time of the cut each year to allow late-flowering plants to set seeds in some years. Repeated cutting of nettlebed and ruderal vegetation</p> <p>Remove cuttings from area.</p> <p>Mow on a rotational basis with some areas left uncut so that any animals that are disturbed during the mowing have a safe refuge to retreat to</p> | rotational basis, removing the cuttings from the area and not cutting below 5cm | Carry out bee and butterfly survey |     |
|  | Planting of perennial bulbs | Provisioning of additional habitat and a food resource for a range of invertebrate and bird species. Snowdrops in particular can provide a late winter nectar and pollen source for early-emerging pollinators | <p>Bulb planting could be carried out in sunny locations between the woodland edges and fields of semi-improved grassland.</p> <p>Species could include bluebell, daffodil and snowdrops.</p> <p><b>Management:</b><br/> Regular management of grass and weeds around bulb planting.</p>                                                                                                                                                                                                                                                                                                                                                                                                                 | As previous                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                 |                                    | Low |

|  |                                               |                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                      |             |                                                                                                                                   |     |
|--|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------|-----|
|  | Creation of wetland scrapes, if feasible      | To provide wetland habitat for a range of wildlife including aquatic invertebrates, amphibians and overwintering birds | <p>Creation of scrapes by digging shallow depressions in the soil with varying depths; deeper areas in the middle and more shallow, gently sloping areas at the edges</p> <p><b>Management:</b><br/>Repeated cutting back of dense vegetation along the margins of the scrapes should be carried out in late summer/ autumn to maintain open, muddy margins.</p> <p>Some areas of taller vegetation should be left to create a diverse habitat structure and provide important shelter for wildlife</p> |                                      |             |                                                                                                                                   | Low |
|  | Erection of bird boxes for a range of species | To provide additional nesting opportunities on the site for breeding birds                                             | <p>A range of bird boxes should be installed and include a mix of standard, open-fronted bird boxes and starling boxes</p> <p>Boxes should not be positioned too close together and attract a range of species such as blue tit, robin and starling</p> <p>The boxes should be checked once a year during the late autumn/ winter to remove old bedding. Any damaged boxes should be replaced</p> <p>Further information on bird boxes can be found in Appendix 2</p>                                   | Any damaged boxes should be replaced | As previous | Carry out annual bird box checks and woodland breeding bird survey. Data submitted to BTO nest Record Scheme, and Wildlife Trust. | Low |

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|  |                                                       |                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                       |             |  |     |
|--|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------|--|-----|
|  | Erection of bat boxes on mature trees within woodland | To enhance the site for bats by creating additional roosting habitat                                                       | <p>Install boxes on mature trees. Check boxes once a year and clean out any debris</p> <p>Further information on bat boxes can be found in Appendix 2</p>                                                                                                                                                                                                                                                                                 | <p>Ensure vegetation does not grow over boxes as this will deter bats from using them</p> <p>Any damaged boxes should be replaced</p> | As previous |  | Low |
|  | Provision of log piles                                | Increased habitat for invertebrates and small mammals as well as providing hibernation habitat for amphibians and reptiles | <p>Creation of at least one log pile in a suitable area within the woodland</p> <p>Use logs from broad-leaved trees of varying sizes. These should be partially buried in the ground in a semi-shaded area (i.e. somewhere warm enough for insects but not exposed to prolonged sunlight which can dry out the wood). Some logs should be positioned upright as this is suitable for stag beetles which lay their eggs into deadwood.</p> |                                                                                                                                       |             |  | Low |
|  | Provision of compost heaps                            | Increased habitat for invertebrates, reptiles and small mammals                                                            | Can be created using cuttings from the grassland piled up into a heap                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                       |             |  | Low |
|  | Provision of invertebrate houses                      | Increased habitat for invertebrates                                                                                        | <p>Install invertebrate house "bug hotel" within semi-improved grassland</p> <p>Further information can be found in Appendix 2</p>                                                                                                                                                                                                                                                                                                        |                                                                                                                                       |             |  | Low |

## 6. REFERENCES

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**MAPS**

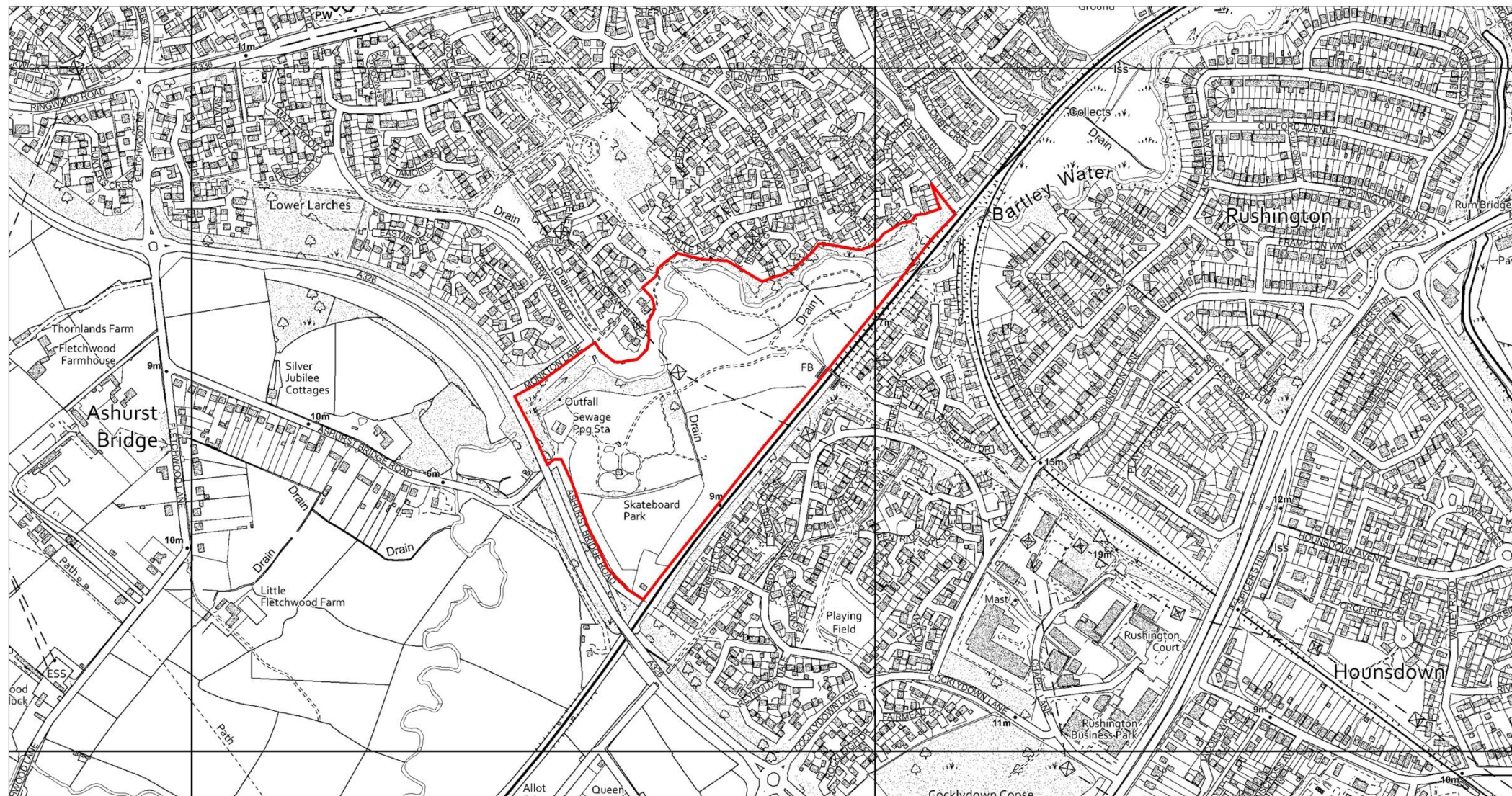
Location within county:



## Map 1. Site Location

Bartley Park

Scale 1:8000



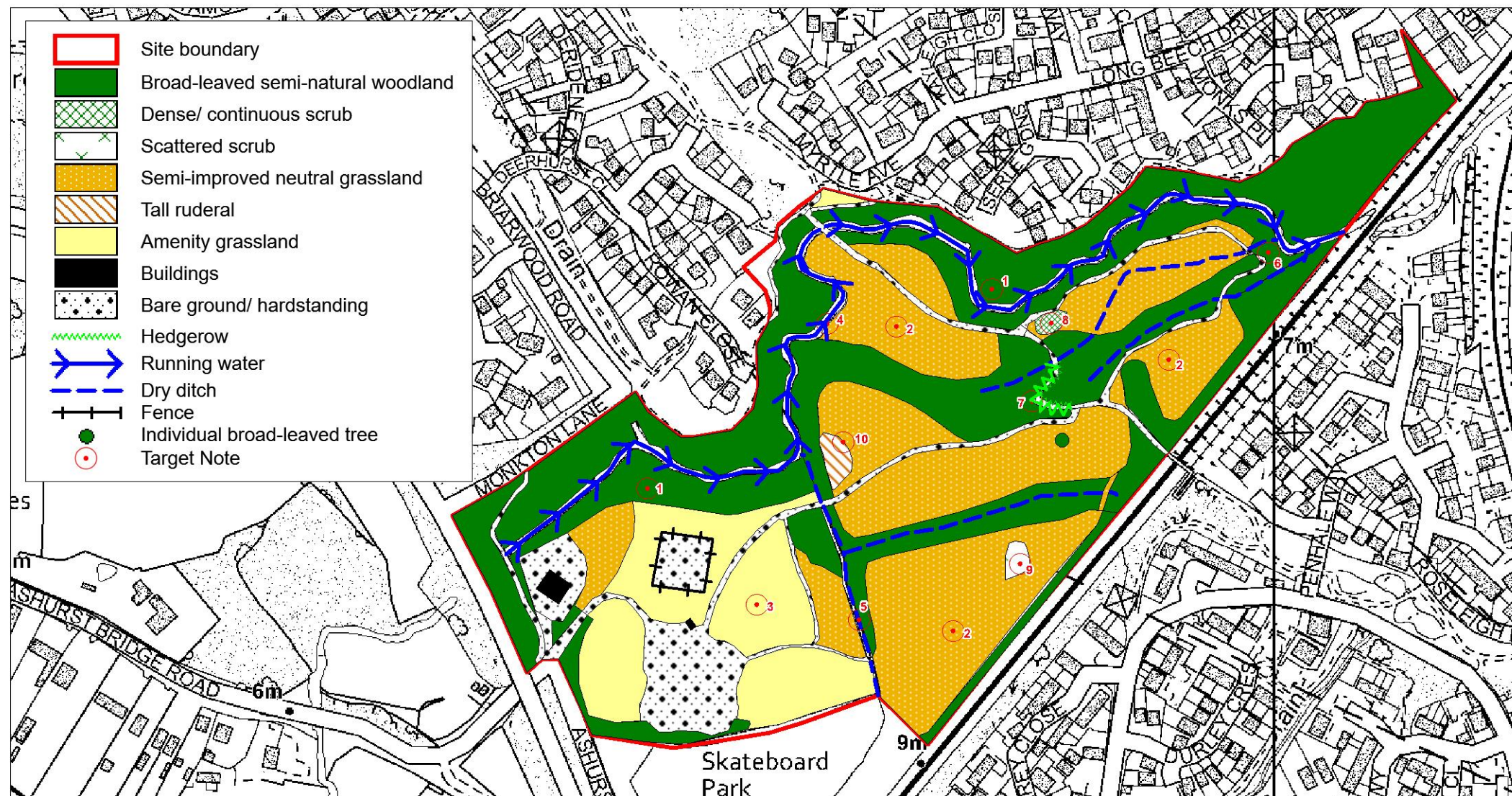
Location within county:



## Map 2. Phase 1 Habitat Survey Map

Bartley Park

Scale 1:3500



## **PHOTOGRAPHS**



**Photograph 1:** Semi-improved grassland to the north of Bartley Park



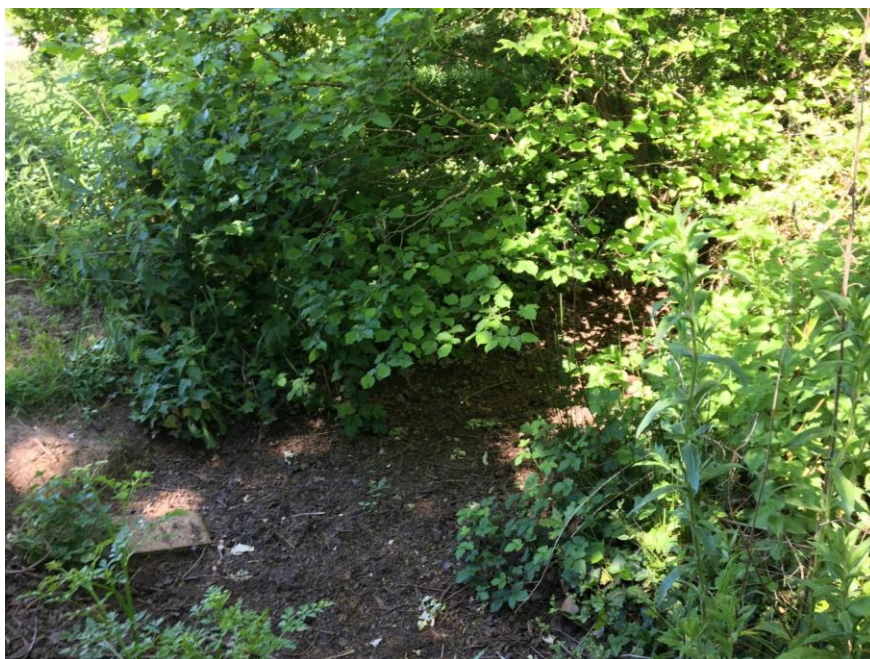
**Photograph 2:** Semi-improved grassland to the south of Bartley Park



**Photograph 3:** Amenity grassland to the south-west of the site



**Photograph 4:** Bartley Water along the northern boundary



**Photograph 5:** Dry ditch at the centre of the site



**Photograph 6:** Short section of hedge at the centre of the site



**Photograph 7:** Scrub and tall ruderal vegetation suitable for reptiles



**Photograph 8:** Tree that has potential bat roosting features

## **APPENDICES**

## Appendix 1:

Botanical species list compiled during Phase 1 habitat survey with a qualitative measure of abundance based on DAFOR scale

**Appendix 1.** Botanical species list compiled during Phase 1 habitat survey with a qualitative measure of abundance based on DAFOR scale

The DAFOR scale provides an assessment of the abundance of particular species.

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare. Species can also be Locally Dominant (LD) or Locally Abundant (LA) meaning there is a particularly dense patch but it does not extend to an entire area, for example a nettle bed.

| Scientific name                   | Common name                  | Woodland | Hedgerow | Grassland |
|-----------------------------------|------------------------------|----------|----------|-----------|
| <b>Grasses, sedges and rushes</b> |                              |          |          |           |
| <i>Poa annua</i>                  | annual meadow-grass          |          |          | O         |
| <i>Dactylis glomerata</i>         | cock's-foot                  |          |          | O         |
| <i>Agrostis stolonifera</i>       | creeping bent                |          |          | O         |
| <i>Festuca</i> sp.                | fescue species               |          |          | O         |
| <i>Alopecurus pratensis</i>       | meadow foxtail               |          |          | LD        |
| <i>Carex pendula</i>              | pendulous sedge              | O        |          | O         |
| <i>Lolium perenne</i>             | perennial rye-grass          |          |          | D         |
| <i>Poa trivialis</i>              | rough meadow-grass           |          |          | R         |
| <i>Anthoxanthum odoratum</i>      | sweet vernal-grass           |          |          | LA        |
| <i>Melica uniflora</i>            | wood melick                  | R        |          |           |
| <i>Holcus lanatus</i>             | Yorkshire-fog                |          |          | O         |
| <b>Herbs</b>                      |                              |          |          |           |
| <i>Hyacinthoides non-scripta</i>  | bluebell                     | R        |          |           |
| <i>Pteridium aquilinum</i>        | bracken                      |          |          | O         |
| <i>Rumex obtusifolius</i>         | broad-leaved dock            |          |          | O         |
| <i>Galium aparine</i>             | cleavers                     | O        |          | O         |
| <i>Cerastium fontanum</i>         | common mouse-ear             |          |          | R         |
| <i>Senecio jacobaea</i>           | common ragwort               |          |          | R         |
| <i>Rumex acetosella</i>           | common sorrel                |          |          | O         |
| <i>Vicia sativa</i>               | common vetch                 |          |          | O         |
| <i>Oenanthe pimpinelloides</i>    | corky-fruited water-dropwort | R        |          |           |
| <i>Anthriscus sylvestris</i>      | cow parsley                  |          | R        | O         |
| <i>Ranunculus repens</i>          | creeping buttercup           |          | R        | O         |
| <i>Cirsium arvense</i>            | creeping thistle             |          |          | O         |
| <i>Cruciata laevipes</i>          | crosswort                    |          |          | O         |
| <i>Cardamine pratensis</i>        | cuckooflower                 |          |          | R         |
| <i>Rumex crispus</i>              | curled dock                  |          |          | O         |
| <i>Geranium dissectum</i>         | cut-leaved crane's-bill      |          |          | O         |
| <i>Bellis perennis</i>            | daisy                        |          |          | F         |
| <i>Taraxacum</i> sp.              | dandelion species            |          |          | O         |
| <i>Veronica chamaedrys</i>        | germander speedwell          |          |          | O         |
| <i>Chenopodium</i> sp.            | goosefoot species            |          |          | R         |
| <i>Plantago major</i>             | greater plantain             |          |          | R         |
| <i>Stellaria holostea</i>         | greater stitchwort           |          |          | R         |
| <i>Galium mollugo</i>             | hedge bedstraw               |          |          | R         |
| <i>Oenanthe crocata</i>           | hemlock water-dropwort       |          |          | R         |
| <i>Geranium robertianum</i>       | herb-Robert                  | R        |          |           |
| <i>Heracleum sphondylium</i>      | hogweed                      |          | O        | O         |
| <i>Stellaria graminea</i>         | lesser stitchwort            | O        |          |           |
| <i>Arum maculatum</i>             | lords and ladies             | R        |          |           |
| <i>Ranunculus acris</i>           | meadow buttercup             |          |          | F         |
| <i>Filipendula ulmaria</i>        | meadowsweet                  |          |          | R         |
| <i>Urtica dioica</i>              | nettle (common)              |          | O        | O         |

|                                |                   |   |   |   |
|--------------------------------|-------------------|---|---|---|
| <i>Leucanthemum vulgare</i>    | ox-eye daisy      |   |   | O |
| <i>Matricaria discoidea</i>    | pineappleweed     |   |   | R |
| <i>Trifolium pratense</i>      | red clover        |   |   | O |
| <i>Plantago lanceolata</i>     | ribwort plantain  |   |   | O |
| <i>Capsella bursa-pastoris</i> | shepherd's-purse  |   |   | O |
| <i>Potentilla anserina</i>     | silverweed        |   |   | R |
| <i>Viola</i> sp.               | violet species    | R |   |   |
| <i>Trifolium repens</i>        | white clover      |   |   | O |
| <i>Lamium album</i>            | white dead-nettle |   | R | R |
| <i>Geum urbanum</i>            | wood avens        | R |   |   |
| <i>Achillea millefolium</i>    | yarrow            |   |   | F |
| <b>Woody species</b>           |                   |   |   |   |
| <i>Alnus glutinosa</i>         | alder             | O |   |   |
| <i>Fraxinus excelsior</i>      | ash               | O | O |   |
| <i>Prunus spinosa</i>          | blackthorn        | O | O |   |
| <i>Rubus fruticosus</i> agg.   | bramble           | F |   |   |
| <i>Cornus sanguinea</i>        | dogwood           | F |   |   |
| <i>Sambucus nigra</i>          | elder             | O | O |   |
| <i>Acer campestre</i>          | field maple       | F | F |   |
| <i>Ulex europaeus</i>          | gorse             | R |   |   |
| <i>Crataegus monogyna</i>      | hawthorn          | F | D |   |
| <i>Corylus avellana</i>        | hazel             | F | O |   |
| <i>Ilex aquifolium</i>         | holly             | O |   |   |
| <i>Hedera helix</i>            | ivy               | F | O |   |
| <i>Quercus robur</i>           | oak               | A |   |   |
| <i>Rosa</i> sp.                | rose species      | O |   |   |
| <i>Betula pendula</i>          | silver birch      | R |   |   |
| <i>Populus alba</i>            | white poplar      | O |   |   |
| <i>Prunus avium</i>            | wild cherry       | R |   |   |
| <i>Salix</i> sp.               | willow species    | A |   |   |
| <b>Non-flowering plants</b>    |                   |   |   |   |
| <i>Equisetum arvense</i>       | horsetail         | R |   |   |

**Appendix 2:**  
Information on bird and bat boxes and insect hotels

## Appendix 2. Information on bird and bat boxes and insect hotels

| Type                                                                                                                          | Typical species                       | Height | Additional information                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard bird box e.g. Schwegler 1B<br>      | Blue tits, great tits                 | 2-4m   | <ul style="list-style-type: none"> <li>Position on a building or tree, angled north and east (away from prevailing winds) and tilt forward slightly.</li> <li>Chances of occupation can be increased by positioning boxes near vegetation.</li> </ul> |
| Starling box e.g. Schwegler 3S<br>           | Starlings, woodpeckers and nuthatches | ≥ 2m   | <ul style="list-style-type: none"> <li>Position on a tree, angled north and east (away from prevailing winds) and tilt forward slightly.</li> <li>Chances of occupation can be increased by positioning boxes near vegetation.</li> </ul>             |
| Open-fronted bird box e.g. Schwegler 2H<br> | Robins, wrens                         | ≤ 2m   | <ul style="list-style-type: none"> <li>Mount on a tree or shrub</li> <li>Conceal amongst foliage to keep well hidden from predators.</li> </ul>                                                                                                       |
| Bat box e.g. 2F Schwegler<br>              | Bats                                  | 2.5-5m | <ul style="list-style-type: none"> <li>Site on mature trees with 1 or 2 boxes per tree</li> <li>South-east to south-west facing</li> <li>Away from lighting</li> <li>Near to vegetation without it obscuring entrance</li> </ul>                      |
| Insect hotel<br>                           | Invertebrates                         | ≥ 1m   | <ul style="list-style-type: none"> <li>Position in sunny location on a tree, fence or wall near to bee-friendly vegetation</li> <li>Ensure it is accessible with no vegetation blocking the entrance</li> </ul>                                       |

Appendix 3:  
Annual Work Plan



[illegible]

## Appendix 4: Long-term Work Plan

#### Appendix 4. Long-term Work Plan

| Operational Objective                                      | Activity                                                         | Year |   |   |   |   |   |   |   |   |    |
|------------------------------------------------------------|------------------------------------------------------------------|------|---|---|---|---|---|---|---|---|----|
|                                                            |                                                                  | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| <b>Maintain and enhance existing habitats for wildlife</b> | Mowing of semi-improved grassland areas. Remove all cuttings     | X    | X | X | X | X | X | X | X | X | X  |
|                                                            | Thinning/ light pruning of the woodland                          | X    |   |   |   | X |   |   |   | X |    |
|                                                            | Rotational coppicing                                             |      |   |   | X |   |   |   | X |   |    |
|                                                            | Cutting back of vegetation overhanging Bartley Water             | X    |   |   | X |   |   | X |   |   | X  |
|                                                            | Butterfly and bumblebee survey                                   | X    | X | X | X | X | X | X | X | X | X  |
|                                                            | Botanical survey                                                 |      |   |   |   | X |   |   |   |   | X  |
| <b>Creating space for wildlife</b>                         | Create wildflower areas through scattering seeds or plug plants  | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Additional tree and shrub planting                               | X    |   |   |   |   | X |   |   |   |    |
|                                                            | Pruning of fruit trees                                           | X    | X | X | X | X | X | X | X | X | X  |
|                                                            | Wildflower planting below fruit trees                            | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Planting of perennial bulbs                                      | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Creation of scrapes                                              | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Management of scrapes – cutting back dense vegetation at margins | X    | X | X | X | X | X | X | X | X | X  |
|                                                            | Put up a range of bird and bat boxes                             | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Install insect hotels                                            | X    |   |   |   |   |   |   |   |   |    |
|                                                            | Create log piles and compost heaps in sheltered locations        | X    |   |   |   |   |   |   |   |   |    |
| <b>Comply with health and safety requirements</b>          | Breeding bird survey                                             | X    |   |   | X |   |   | X |   |   | X  |
|                                                            | Butterfly and bumblebee survey                                   | X    | X | X | X | X | X | X | X | X | X  |
|                                                            | Botanical survey                                                 |      |   |   |   | X |   |   |   |   | X  |

[illegible]