

Abbotswood Management Plan

2020-2030

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Community and Leisure Service

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1. General Information

1.1 Location (See Map 1)

The Abbotswood development is situated to the north of Romsey with the adjoining Nature Reserve located to the west of the development. The site is bordered by Cupernham Lane to the west, Castle Lane to the north, Braishfield Road to the east and Woodley Lane and associated housing to the south.

OS Map 1:50,000 Sheet 185 Grid reference centred on SU366230.

Parish:	Romsey Extra
County:	Hampshire
Local Planning Authority:	Test Valley Borough Council

1.2 Summary Description

Abbotswood is situated on south-facing, gently sloping terrain with the highest point being in the north-east corner of the site. The soil consists mainly of Bagshot beds and London Clay, with the exception of the south-west corner of the site, known locally as Minchin Hill woods, which still forms part of the former Valley Gravel terraces which once underlay the majority of the site prior to gravel extraction.

Over a third of the site is designated as a Site of Importance for Nature Conservation (SINC). Locally, this is known as Abbotswood Nature Reserve. The SINC was set aside due to the large population of Great Crested Newts (GCN) (*Triturus cristatus*), a European Protected Species (EPS) present on site.

The Nature Reserve consists of a mosaic of habitats, including pond and wetland habitats, rough grassland, scrub and young Oak woodland.

In addition to GCN, other notable species found on site include Lapwings, Grass Snakes, Slow Worms and six different bat species. Fourteen veteran oaks (at time of writing), and over 30 trees of interest, are located throughout Abbotswood, each of high ecological value.

Pond and wetland habitats within the site include permanent and ephemeral ponds, Sustainable Urban Drainage System (SUDS) features and ditch habitats, all of which facilitate the breeding and movement of all three native newt species, as well as other amphibians.

Due to the public nature of the site and its frequent use for dog walking, cattle are not currently grazed on the nature reserve and therefore the grassland is cut annually to maintain sward height.

1.3 History of the site

The Abbotswood consortium submitted the application for 800 dwellings at Abbotswood, Romsey, in 2008. The application also included the provision of shops, community centre, nursery, 60 bed care/nursing home, parking, recycling centre, formal and informal green spaces and a Nature Reserve.

Prior to construction, the site was used as grazing pasture for cattle, with a dairy situated in the south of the site, to the east of Brook Way.

Banks and mounds within the western side of the Nature Reserve are evidence of previous gravel extraction taken place within the last 100 years. These banks are clearly visible on LIDAR maps of the area. Building foundations located within the same area are likely to be associated with these works. The exact origin of these banks may however be more historic than this, with evidence of Roman and medieval field systems located to the west of Cupernham Lane, and the remains of a Roman building is known to be located off of Sandy Lane to the north.

Historical maps of the site show a number of trees were present as far back as 1808, indicating that some of the veteran oaks on site may be at least 200 years old. Maps indicate that around this time, the land was broken into several enclosures, presumably for farming or pasture. The land use notably changed in the 1930's-1940's, when the gravel extraction works began.

1.4 Past management for conservation

There is no evidence of previous management for nature conservation at Abbotswood. The Nature Reserve was set aside following the approval of the development, with several key changes taking place. New habitat ponds were created to provide compensatory habitat for GCN, as well as SUDS features, newt crossings and cat proof fencing on the boundary adjacent to the new housing development. Cattle grazing was phased out, resulting in the open meadow habitat developing into a mosaic of rough grassland and scrub habitat.

1.5 Conservation status of the site

Over a third of the site has been designated by Hampshire County Council as a Site of Importance for Nature Conservation (SINC) (Appendix 1), due to the presence of

GCN. This area is now mostly encapsulated by the Nature Reserve. There are a number of other legally protected and Biodiversity Action Plan (BAP) species recorded on site prior to the commencement of the development, including:

- Slow worm (*Anguis fragilis*)
- Grass snake (*Natrix natrix*)
- Six bat species, including Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*), Noctule (*Nyctalus noctula*), Serotine (*Eptesicus serotinus*), *Myotis* and Long-eared bat species
- Skylark (*Alauda arvensis*)
- Linnet (*Linaria cannabina*)
- Lapwing (*Vanellinae*)

One long term aim for the site is to raise the protective status of the site and apply for Local Nature Reserve status, in order to further protect the diversity of habitats and wildlife on site.

1.6 Land tenure

Following the completion of the development by the Abbotswood Consortium, the management of the site has been transferred to Test Valley Borough Council, with informal green spaces and the Nature Reserve under the management of the Countryside Officers within the Parks and Countryside Team.

Type of holding:	Public Open Space
Boundaries:	See Map 2
Owner:	Test Valley Borough Council
Address:	Community and Leisure, Test Valley Borough Council, Beech Hurst, Weyhill Road, Andover, SP10 3AJ
Telephone:	(01264) 368000

1.7 Map coverage

OS Map:	1:50 000 (Landranger) Sheet Number 185 1:25 000 (Explorer) Sheet Number 131
Geological Map:	1:50 000 Sheet Number 299 and 315

1.8 Access

There are no Public Rights of Way across the site. The Nature Reserve has a number of permissive paths which cross the site (see Map 3).

A circular cycleway surrounds the housing development, with several others connecting certain amenities to this route, such as the play areas and community centre. There are also connections to Woodley Lane, Braishfield Road and Sandy Lane as part of further commuting routes.

There is no vehicle access permitted on site, other than that necessary for management purposes or emergency services. The secured access points can be viewed on table 1.

Table 1: Vehicle access points for maintenance works and emergency services.

Area (Compartment)	Type of access (all padlocked)	Road name	Grid reference
Nature Reserve (East)	12ft field gate	N/A	SU365230
Nature Reserve (West)	12ft field gate	Cupernham Lane	SU362227
Nature Reserve (1a)	12ft field gate	N/A	SU364230
Nature Reserve (2)	12ft field gate	N/A	SU363227
Development (7, 9a)	Removable bollards (or staggered barriers on cycleway)	Magnolia Walk (or Chivers Road)	SU365233 (or SU365233)
Development (8, 9b)	Staggered barriers on cycleway	Chivers Road (or Braishfield Road)	SU366233 (or SU370229)
Development (9c)	Staggered barriers on cycleway	Braishfield Road (or Cutforth Way)	SU370229 (or SU368227)
Development (9d)	Staggered barriers on cycleway	Cutforth Way	SU367227
Development (10a)	Staggered barriers on cycleway	Chivers Road	SU367231
Development (10b)	Staggered barriers on cycleway	Chivers Road	SU367231

2 Environmental Information

2.1 physical

2.1.1 size

Total area (Development and Nature Reserve):	52.4Ha (133.9 acres)
Total Nature Reserve area:	19.4Ha (47.9 acres)
Total area of informal green space:	8.7Ha (21.5 acres)
Total open water area:	0.8Ha (2 acres)

2.1.2 Hydrology

The site is low lying, on average around 12m above sea level, and gently slopes from north-east to the south-west.

The average rainfall for the area is around 780mm annually. A series of drainage ditches and SUDS features can be found throughout the site, ultimately draining into a SUDS feature located within the Nature Reserve, and then through a ditch/pipe under Cupernham Lane to the West.

There are a number of naturally occurring ponds, as well as several created for habitat mitigation, with some ephemeral and permanent ponds (see Map 4).

2.1.3 Geology and Soils

Historically the underlying geology for the site has been gravel, as part of the Valley Gravel Terraces, with London clay underneath the gravel layer. Following gravel extraction in the area much of the underlying gravel has been depleted, with the exception of the south-west corner of the site. The majority of the site therefore mainly consists of clay, with a deposit of Bagshot beds within the north-east corner of the site.

2.2 Biological

2.2.1 Habitat

a) Ancient Semi-Natural Woodland and Veteran Trees

Stands of ancient semi-natural woodland at Abbotswood can mainly be found in the south-west corner of the site, formerly known as Minchin Woods, and the north-east corner of the site. 14 veteran oaks, with 30 more being labelled as ‘future veterans’ or ‘trees of interest’ are located mainly around the perimeter of the site. Due to the presence of these important specimens, a tree management strategy will be drawn up for the Abbotswood site, outlining the long term management plan for mature, veteran and future veteran trees within the Abbotswood site boundary

b) Scrub

Oak dominated scrub habitat can be found across all compartments within the Nature Reserve (Map 5). Oak is interspersed with other woodland scrub species, including Hawthorn (*C. monogyne*), Blackthorn (*P. spinosa*) and Dog Rose (*R. canina*). The extent of Oak scrub will be managed on a rotational basis to prevent it from spreading into the neighbouring grassland habitat. Formal areas of scrub have also been planted around the Abbotswood development, to provide wildlife corridors and facilitate the movement of species such as Great Crested Newts (*Triturus cristatus*) throughout the site. These areas will also need to be managed going

forward, by preventing encroachment onto formal grass areas and cycleways, as well as thinning the trees as they mature. The density of scrub will need to be thinned in some areas to encourage a greater diversity of understorey vegetation.

c) Dead wood

Dead wood will be retained on site where appropriate to provide habitat for a diversity of species, including insects, reptiles, amphibians, mammals, fungi, mosses and lichens. Standing deadwood will also be retained wherever possible to provide habitat particularly for birds and bats, as well as other species mentioned previously. Log and brash piles will be created within the Nature Reserve using any materials from scrub and tree works. These piles will be placed preferably in shady conditions to retain moisture. Dead hedges will also be used as connective, sheltered habitat to facilitate movement of fauna, and also to provide natural barriers where required, for example around veteran oak trees.

d) Hazel and Willow coppice

Hazel coppice stools are scattered within the woodland areas of the site. Currently there are no formal coppice coupes established, therefore stools will be monitored and managed on an individual basis. Coppiced material will be used to create a barrier around each stool to prevent the regrowth from being stunted by grazing pressure from deer and rabbits.

Willow coppice can be found within most wetland areas throughout the Nature Reserve and adjacent to ditch habitats around the housing estate. These will be coppiced on rotation to prevent these stands from becoming over-stood, and to prevent encroachment and drying of wetland habitats.

e) Open ride

Compartment 6 is allocated as open ride habitat and will be managed as such. Compartment 6 will be cut and collected once annually in October/November, and any scrub managed on rotation. This ride is also the main access to the site for vehicles and will therefore also need to be kept open for ongoing management purposes.

f) Hedgerow

The hedge habitats provide vital linkages throughout the site, as well as providing foraging and sheltering habitat for various species, including newts, mammals, reptiles, birds and invertebrates. These hedges range from more mature hedges, mainly around the boundary of the site, to newly planted, formal hedging within the development.

g) Rough grassland

Rough grassland can be found throughout the site, and provides a vital habitat for a wide range of species, including foraging habitat for pollinators, reptiles and amphibians, such as Great Crested Newts (*T. cristatus*). Areas of grassland will be cut and collected once annually, in the Autumn, with the arising's used to create hibernation and resting habitats for amphibians and reptiles, such as Slow Worms (*Anguis fragilis*) and Grass Snakes (*Natrix natrix*). Due to the presence of a European protected species within this habitat (Great Crested Newt) the annual grass cut will be restricted to the colder autumn months, when the newts are less active and have entered hibernation. As the newts at Abbotswood appear to emerge early from hibernation (around February), there will be no spring cut on any rough grassland areas on site.

h) Amenity grassland

Formal grassland areas are located throughout the development, adjacent to rough grassland and scrub areas, as well as surrounding formal planting areas. These will be cut as required throughout the year and are not therefore managed for their wildlife value. Wherever possible, site managers will seek to improve the wildlife and intrinsic value of amenity grassland areas by planting a variety of wildflower species and altering the cutting regime to suit less dominant species (i.e. cut and remove arising's).

i) Ponds

In total there are 11 ponds located within Abbotswood (Map 4). Six of these are located within the Nature Reserve, three of which were created as part of the mitigation measures for building the development, one designed as SUDS feature, with the remaining two being the original ponds present prior to the development. Most of these are fenced off to prevent public access, with the exception of the ephemeral pond, due to the breeding population of great crested newts present found within all ponds on site.

The remaining five ponds are located outside the Nature Reserve, within the green space surrounding the development. Three of these are SUDS features, located within the strategic buffer strip (Compartment 8), however only 2 of them permanently contain water, with the third being ephemeral. These are largely fed by runoff from the Abbotswood development, with their primary purpose being to provide flood alleviation for the development. However they are still valuable habitat for a range of invertebrates, such as Dragonflies, as well as feeding areas for birds and bats. Amphibians, also utilise these areas for breeding, sheltering and foraging.

There is another ephemeral pond located within the most southern part of compartment 8 and a further pond (Comp. 9) to the north of the site within the neighbouring Magnolia Walk development.

Ponds are monitored for GCN on an annual basis, and subsequent management conducted to enhance these ponds for aquatic flora and fauna. Fish have been introduced to the ponds at some point over the last 5 years or so. As they can directly affect the GCN population, as well as cause other ecological damage to the site, a removal program for the site will be established. The extent of wetland plants will also need to be monitored and controlled to prevent particularly the smaller ponds becoming overgrown and eventually drying out.

j) Ditches and other wetland areas

There are a number of ditches linking valuable wetland habitats within the Nature Reserve and the development part of the site. Within the grassland habitat in the Nature Reserve, there are patches of wetland habitat, featuring a variety of wetland flora. Ditches are located to the west of the site, running adjacent to the ride habitat, to the south east of the development, and between SUDS features, all of which provide a valuable drainage feature as well as connective wetland habitat for a range of flora and fauna.

2.2.2 Flora

A full flora survey was conducted prior to the construction of the development in 2002. Species located on site at this time included 3 unimproved grassland indicator species; Grass Vetchling (*Lathyrus nissolia*), Green-winged Orchid (*Orchis morio*) and Hoary Ragwort (*Senecio erucifolius*).

2.2.3 Fauna

Amphibians and Reptiles

Abbotswood has been designated as a SINC due to the presence of a large breeding population of Great Crested Newts, a European protected species and legally protected by the Wildlife and Countryside Act 1981. Ongoing GCN population surveys will be conducted to monitor the state of the population to ensure habitat management objectives are having a positive effect on their population (Appendix 2).

Other species of amphibian historically recorded at the site include Common Toad, Smooth and Palmate newt. Notable reptile species include Grass Snake and Slow Worm (Appendix 2), both of which are again legally protected species under the Wildlife and Countryside Act (1981).

Birds

A survey conducted in 2008 recorded 61 bird species on site, 37 of which were found to be utilising the site for breeding. Notable species included the Barn Owl, Skylark, Song Thrust, Linnet, Reed Bunting and Bullfinch. Full survey results can be seen in Appendix 2. Another full bird survey will be commissioned in order to ascertain if these species are still present following the construction of the

Abbotswood development. Abbotswood Nature Reserve is located approximately 250m from Fishlake Meadows Local Nature Reserve, a wetland site of great ecological importance, particularly for wetland bird species. The proximity of this site, in addition to the habitats present at Abbotswood makes the site of particular importance to bird species.

Invertebrates

Invertebrate surveys conducted prior to established management techniques revealed a species poor invertebrate community in 2007, with only 111 invertebrate species associated with the site. This was mostly due to the lack of habitat diversity and species poor grassland which dominated the site prior to the formation of the Nature Reserve. A full invertebrate survey of the site will be commissioned within the first 2 years of the current management plan in order to ascertain baseline data for the site following the construction of the Abbotswood development and the formation of the Nature Reserve. The results of this survey can be viewed in Appendix 2. Annual aquatic invertebrate surveys will also be conducted, as part of the annual school programme.

Within the previous survey, only 1 notable invertebrate species was detected, the Roesel's Bush-cricket (*Metrioptera roeselii*), a full species list can be seen in Appendix 2.

The annual butterfly survey was first established on site in 2017, with the aim of monitoring long term trends in the butterfly population on site, as an indicator of climatic conditions and impacts of management on site. The results will help guide future management, as well as feed into the national monitoring database (UK Butterfly Monitoring Scheme). The long term aim is to establish monitoring programmes for other invertebrate species, which can be fed into national monitoring schemes, such as for Bumblebees and Dragonflies.

Mammals

The most notable mammal species known to utilise the site are a number of bat species. Six different species were recorded on site, using the site for both foraging and/or roosting opportunities, including:

- Noctule (*Nyctalus noctula*)
- Serotine (*Eptesicus serotinus*)
- Soprano pipistrelle (*Pipistrellus pygmaeus*)
- Common pipistrelle (*Pipistrellus pipistrellus*)
- Long-eared species (*Plecotus sp.*)
- *Myotis* species

Ongoing monitoring of the bat populations located on site will be conducted, by specialist volunteers and through the annual public bat walk (most recent results can

be seen in Appendix 2). New technologies will also be included, including the use of static detectors, which can then contribute to the National Bat Monitoring Programme. Previous surveys have found bats utilising the scrub boundaries throughout the site for foraging and commuting purposes, with the woodland and wetland habitats providing well-used foraging habitats.

Other mammals which have been recorded on site include rabbits (*Oryctolagus cuniculus*), and unconfirmed sightings of foxes (*Vulpes vulpes*) and badgers (*Meles meles*).

2.3 Cultural

2.3.1 Archaeology

Aside from previous gravel extraction works, there are no known archaeological interest for this site. There are building remains and/or rubble located to the west of the Nature Reserve, near to the entrance off of Cupernham Lane, however they are most likely linked to the gravel extraction works, and is now designated as a hibernacula for resident great crested newt population.

2.3.2 Working with the community

As a newly established community, establishing and maintaining a positive relationship with the local residents will be essential to ongoing management of the site. Encouraging public participation in events such as discovery days, guided walks and talks will be important platforms to promote the local volunteer group, provide guidance to residents on local conservation issues, and keep residents informed on general management throughout the site. This will also be achieved through notice boards located on the entrances to the Nature Reserve, as well as within prominent places within the community, such as the community centre, local shops and sports facilities. Additional interpretation boards will also be installed to provide additional information on specific projects or the management of important habitats, such as the GCN breeding ponds.

2.3.3 Volunteers

A local volunteer group will be established to not only achieve management tasks for the site, but also to provide links to the local community, giving residents a sense of ownership and input into the ongoing management of the site. Tasks will include conservation tasks within the Nature Reserve and development, litter picking and other general maintenance tasks around the development, as well as walks, talks and discovery days.

While this group will initially be largely led by Countryside Officers from Test Valley Borough Council's Community and Leisure team, which assist with the implementation of the management plan, as well as having input into its contents.

Volunteers will also be encouraged to help conduct various surveys throughout the year. This will include the annual butterfly survey, which links into the UK Butterfly Monitoring Scheme, bat surveys and bird surveys. The council is keen to utilise any local knowledge, and encourage anyone from the local community with an interest to get involved.

The site also has potential to incorporate other voluntary groups, including school, college and university students, Cubs, Scouts, Girl Guiding and any other local community groups, as well as incorporating the site in the annual school visits programme in the future. The council have also worked collaboratively on student dissertation/PhD projects on other sites, which will also be considered for Abbotswood as they arise.

2.3.4 Public interest

Although there are no formal public footpaths across the Nature Reserve, the presence of permissive paths and the proximity to various housing areas will result in heavy use of the site by local residents. This will result additional pressure to the site, potentially leading to the degradation of habitats, disturbance of protected species and conflicts of interest. Monitoring the use of the site and the subsequent impacts will therefore be vital to meet management targets. For some areas, such as the habitat ponds, public access will be excluded for habitat management or health and safety reasons. The main entrances to the Nature Reserve have Disability Access Kissing gates installed.

Paths

Having been utilised by walkers and other recreational users for a number of years, there are many informal paths throughout the Nature Reserve. Although there are no formal footpaths on site, there are a number of permissive paths which will be maintained to allow public access (Map 3). None of these paths will be hard surfaced, and will therefore be maintained through cut and collect where required, and removal of overhanging vegetation to maintain a 1.2m clearance. Fencing will be used in some cases to exclude public access and to guide walking routes around the site.

A cycleway creates a circular route around the neighbouring Abbotswood housing development, as well as connecting to key areas such as the play area, community centre and other local amenities. The maintenance of these cycle ways will be the responsibility of Hampshire Highways.

Interpretation

As Test Valley Borough Council take over management of the Nature Reserve, old interpretation boards installed by the consortium will need to be removed and replaced. New interpretation boards will be designed and installed at key entrances and features within the site. Temporary notice boards are located at most entrances to the site, to inform local residents of management works taking place within the site, as well as upcoming events and volunteer tasks. Temporary notices will also be used where appropriate throughout the site to alert members of the public to maintenance works or hazards.

There are also notice boards located near prominent locations within the neighbouring development, such as the Sports Pavilion and the Community Centre. These will also be utilised to alert the public to upcoming events, as well as advertising through community groups, shops, social media and the website.

3 Evaluation and Objectives

3.1 Operations Likely to Damage the Site

- Further development of housing into the nature conservation area
- Use of pesticides and herbicides without proper guidance
- Use of heavy machinery, leading to soil compactions and root damage
- Unauthorised fires
- Allowing 'right to roam' policy
- Unauthorised forestry works
- Use of ill equipped/advised contractors
- Planting of non-native or diseased tree stock
- Release or spread of non-native species
- Members of the public picking and removing any flora or fauna from site
- Insufficient control of invasive species, allowing native flora to be out-competed
- Use of fertilisers/manure, or allowing garden waste to be disposed on site
- Dumping of other substances harmful to flora and fauna
- Change in soil structure and pH
- Construction or maintenance of pipelines/cables above or below ground
- Erection of permanent structures within the Nature Reserve
- Construction of tracks or paths through the Nature Reserve
- Drainage of wetland habitats

- Change in water table levels
- Infilling of ditch and pond habitats
- Extraction of minerals
- Physical harm to any animals on site, including killing or removal
- Unsustainable use by dog walkers and other recreational uses of the site, including disturbance of animals, dumping of waste and widening of paths
- Use of the site for unauthorised recreational use, e.g. motorcycles, swimming etc...
- Physical damage to veteran trees through negligent use
- Current and future pests and diseases potentially introduced to the site, including Ash Dieback and Oak Processionary Moth.

3.2 Evaluation of features

3.2.1 Size

The Nature Reserve is around 19.4 hectares in size meaning it would be possible to graze at low stocking densities. However, due to the public nature of the site, re-introducing grazing cattle to the site would require large and continuous efforts with public engagement and appropriate alterations to fencing. Currently, it is agreed that grazing would be impractical and therefore the grassland will be cut and collected annually and on rotation.

3.2.2 Diversity

Abbotswood Nature Reserve is a very diverse site habitat wise. It contains improved and semi-improved acid/neutral grasslands, bramble, scrub, native hedgerows, veteran trees, young/mature woodland and deadwood. This variety of habitat creates a diverse ecosystem that benefits a wide range of flora and fauna.

3.2.3 Naturalness

Grasslands would not exist without the human intervention to create agriculture land. However, they are still an important habitat and hold high ecological value if managed with a conservation aim.

Abbotswood Nature Reserve is comprised of improved/semi-improved grassland. Improved and semi-improved grasslands tend to have a lower ecological value due to the application of fertilisers and improvement for agriculture use.

However, Abbotswood Nature Reserve appears to have maintained a decent variety of wildflowers and value for wildlife which can be further developed with conservation management.

The nature reserve and development contain a number of veteran trees, estimated to be somewhere close to 200 years old in age.

All woodland on site was created mainly through natural regeneration and therefore is comprised of young to mature English Oak and Silver Birch.

3.2.4 Fragility

Grasslands require constant management to prevent the habitat from natural succession and reverting to woodland.

Scrub habitat also require regular and rotational management to maintain a varied age structure to benefit the widest range of species.

Recreational pressure also presents a risk and one that will increase with the growth of the housing estate.

Health and Safety

The health and safety of employees is subject to the Test Valley Borough Council Health and Safety Policy and Lone Working Policy, as well as through liaison with the Health and Safety Officer.

A Risk Assessment will be carried out by Countryside Officers before any management task on site. Any volunteer task will also have a risk assessment carried out before commencement and this will be relayed to the volunteers before any task with hard copies available for any who wish to read it.

Any Test Valley Borough Council staff leading a volunteer task will hold an up to date First Aid qualification.

Legal Constraints

The council is required to seek permission from the Secretary of State to undertake work on trees covered under Tree Preservation Orders (TPO), of which there are a number of individual TPO trees and TPO areas within the Abbotswood Nature Reserve and development, outlined within the table below.

Table 2: Details of the relevant Tree Preservation Orders within the Abbotswood Nature Reserve and development.

TPO number	Area/Individual	Compartment (map 5)
TPO.TVBC.0111	Area	3
TPO.TVBC.0080	Area	2
TPO.TVBC.0944	Area and individuals	1
TPO.TVBC.434	Area and individuals	10
TPO.TVBC.0775	Area	N/A
TPO.TVBC.453	Individuals	N/A

A felling licence from the Forestry Commission will also be required for any works in which more than 5m³ per calendar quarter.

Due to Great Crested Newts being a UKBAP and EPS, any monitoring or site management that could disturb or harm them will be carried out under the

supervision of a qualified and licenced person under a valid Natural England Licence.

4 Long Term Vision, Objectives and Strategy

4.1 Rational for Proposed Management Options

The main aim for Abbotswood Nature Reserve is to conserve and enhance the site for native flora and fauna, while providing a space for members of the public to access and benefit from the natural environment. The Nature Reserve in particular was initially created as compensatory habitat for the Abbotswood housing development. Ongoing management should aim to increase the diversity of species and the richness of habitats found on site.

The site is highly important locally as it provides much needed green space in the expanding urban area of Romsey, providing a mosaic of habitats and therefore supporting a diverse range of species, many of which are locally and nationally scarce. Its proximity to other protected areas such as Fishlake Meadows Local Nature Reserve also make it a potentially important connective site for species such as migrating birds.

Abbotswood is important on a national level, due to the large breeding population of GCN, as well as other legally protected species such as Bats and Slow Worms.

This site is particularly prominent for veteran trees, which are under threat from development, damaging recreational use and neglectful management. It is therefore vital to preserve the range of habitats present at Abbotswood, and enhance their value for wildlife.

As the urban population is now greater than rural for the first time in our history, we become increasingly disconnected from nature, an outcome which can impact the mental and physical health of people living in these areas. Sites such as Abbotswood, which are within easy reach of people living in urban/sub-urban areas, are therefore highly valuable in providing much needed access to nature. Such areas provide recreational and educational opportunities for the local community.

Various active management strategies will need to be employed to manage and enhance the site for nature conservation. Particular care should be taken around protected species and features, such as veteran oaks. If left unmanaged, much of the site would revert to oak woodland, reducing the overall diversity of habitats and therefore species the site is able to support. Scrub management will be vital to prevent the succession of valuable grassland habitats to woodland. Equally, woodland habitats will need to be enhanced to maximise its value to wildlife. Traditional woodland management practices such as tree thinning and coppicing will be used to achieve this. Utilising material from woodland management and the cut

and collect of grassland on site will provide additional habitats for a range of species, including reptiles, amphibians and insects.

Grasslands are highly important habitats for wildflower species, and subsequently pollinating insects which are in decline nationally due to agricultural intensification and lack of adequate management techniques. The extent of grassland habitat will therefore be maintained, and enhanced through an annual cut and collect regime, creation of rides and other connective habitats.

Non- native and invasive species can arguably enhance the species diversity of a site, but ultimately will likely result in a decline in native species. The extent of both aquatic and terrestrial non-native/invasive species will need to be controlled. Native invasive species such as Bracken and Ragwort can result in a decline in species diversity by outcompeting other species and will also need to be managed at a sustainable level.

Test Valley Borough Council will use a range of contractors and resources to achieve these management goals. Wherever possible, volunteers from the local community will be involved in conducting management tasks, in order to gain support from the local community for the ongoing management of the site, and to help achieve one of the main aims of the site; to enhance the quality of life of the local residents.

4.2 Identification of Operational Objectives

The long term aims of the site can be broadly categorised into four management options:

- A – Active Conservation Management
- B – Monitoring and Research
- C – Education and Access
- D – Administration and Public Relations

Management features which are incorporated within each category are outlined on the table below. Together with appropriate objectives, these management options will provide a broad guide for the operational management of the site.

Table 3: Broad management options and objectives for various aspects of the Abbotswood Nature Reserve and development.

Feature/Habitat	Management Option	Outline Prescription
Woodland	A	Thin in favour of best individuals and removal of non-native species
Veteran trees	A	Retain dead wood where possible and reduce public

		access under canopy if necessary
Scrub	A	Thin in favour of best individuals and manage extent. Removal of 15% of scrub on a two year rotation is advised
Feature/Habitat	Management Option	Outline Prescription
Coppice	A	Coppice 20% of hazel and willow per compartment on 4 year rotation
Grassland	A	Cut and collect once annually. Look to enhance diversity through planting and management if needed
Hedges	A	Replant where required and cut on 2 year rotation
Pond/wetlands	A	Control of non-native and invasive species to no more than 10% coverage of compartment and periodic control of extent of aquatic plants to prevent infilling
Amphibians and reptiles	B	Conduct annual amphibian survey, focussing on protected surveys. Compile baseline information for all species, utilising local knowledge.
Birds	B	Conduct a Common Bird Census (CBC) with assistance from local volunteers annually
Butterflies	B	Conduct annual butterfly monitoring surveys, with the support of local volunteers/residents
Other invertebrates	B	Compile baseline information for invertebrate species, utilising local knowledge and experts. Aquatic invertebrates will be surveyed annually within the events programme and school visits
Mammals	B	Compile baseline information using local knowledge and experts, including data from organised events such as bat walks.

Flora	B	Commission HBIC plant survey for all areas under TVBC management to establish baseline data
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Feature/Habitat	Management Option	Outline Prescription
Public access	C and D	Create and maintain permissive paths throughout the site, outlining desired routes using maps on site
School involvement	C	Add site to the annual school visits programme and encourage independent visits to the site
Interpretation	C and D	Design and install interpretation boards on site near prominent features, i.e. entrances and habitat ponds
Control of invasive species	A	Where appropriate control to no more than 10% coverage of compartment, using good practice techniques
Increased public awareness	D	Through interpretation boards, guided walks and talks, local volunteer group, social media, website and local newspapers
Control of non-native species	A	Remove as much as possible, using appropriate techniques

5. Management prescriptions and operations

5.1 Prescriptions

Abbotswood Nature Reserve has been divided into compartments, based on habitat types and subsequent management options. This section will outline the management objective for each compartment and the associated management prescriptions.

Compartment Breakdown: (see Map 5)

Compartment 1: *Grassland, Permissive paths, Scrub, Hedge habitat and Veteran Oaks*

- Monitor and maintain stock fencing
- Monitor/maintain/replace Cat-Proof fencing
- Monitor veteran Oaks and survey on a five year rotation
- Maintain open grassland through cut and collect at a height of 6 inches in September Annually
- Top out and collect/pull ragwort in grassland annually before going to seed
- Maintain scrub at 30% coverage of compartment.
- Cut and Collect Permissive paths and 1m either side (map 3) as required
- Maintain bramble/hedge boundary, cut back from path annually, cut 1/5 on 5 year rotation

Compartment 2: *Mature oak woodland, veteran oaks, permissive path*

- Thin mature oak to favour best trees on sectional rotation every 2 years
- Survey veteran oaks every 5 years and manage accordingly
- Monitor fly tipping
- Retain deadwood where possible
- Cut back 1m from path as required.
- Monitor antisocial behaviour and digging for dirt bike track. Infill with gravel and top soil
- Maintain boundary fencing along Cupernham lane
- Install interpretation on Cupernham lane entrance
- Use brash from tree felling to direct paths to reduce desire lines

Compartment 3: *mature oak woodland, veteran oaks, glade/grassland*

- Thin oak to favour best trees on sectional rotation every 2 years
- Monitor antisocial behaviour
- Monitor fly tipping
- Cut and collect grassland areas annually
- Cut wayleave every 5 years
- Cut 1 meter either side of path and maintain 2.5 m head room
- Coppice 25% of blackthorn on 3 year rotation
- Maintain stock netting fencing.

Compartment 4 and sub-compartment 4.1: *rough grassland and GCN breeding ponds (ponds 1, 2, 3, 4 and 5)*

- Maintain post and rail fencing around the compartment to discourage public access
- Remove non-native species (Signal Crayfish, *Crassula helmsii*, Ragwort, Fish)
- Undertake annual surveys to monitor GCN
- Coppice Willow and blackthorn at 50% on 3 year rotation
- Remove shading vegetation on south side of ponds, Retain on coppice on north edge.
- Retain fringe of marginal and emergent vegetation at 25-50% coverage of pond
- Control growth of aquatic, submerged and floating vegetation at no more than 2/3 coverage of pond leaving a minimum of 1/3 open water
- Control bramble growth
- Install interpretation boards to encourage people to stay out of fenced areas.
- Cut and collect 50% grass on alternate years, leaving 3 meter buffer strip around each pond.

Compartment 5: *Permissive path, veteran oak, grassland, and scrub.*

- Cut and collect 1m either side of permissive paths as required
- Cut and collect scalloped edges of rides in late summer biannually
- Control scrub to no more than 50% of the compartment on rotation to encourage varied age structures
- Survey veteran trees on a five year basis
- Monitor cat proof fencing, replace with stock netting by 2023.

Compartment 6: *woodland edge and ride habitat*

- Cut and collect banks and ride annually in late summer
- Control bramble growth to maintain a width of 6 meters from the centre of the ride.
- Ensure sump/drainage pipe is flowing.
- Monitor fly tipping.

Compartment 7: *Large attenuation basin within reserve (pond 6)*

- Remove non-native species (Signal Crayfish, *Crassula helmsii*, Fish)
- Control dog and public access to protect banks from erosion.
- Undertake annual surveys to monitor GCN
- Coppice Willow at 50% on 3 year rotation
- Remove shading vegetation on south side of ponds, Retain on coppice on north edge.
- Retain fringe of marginal and emergent vegetation at 25-50% coverage of pond
- Control growth of aquatic, submerged and floating vegetation at no more than 2/3 coverage of pond leaving a minimum of 1/3 open water

Compartment 8: *rough grassland, scrub and attenuation basins (ponds 10, 9, 8 and 7 – see map 4)*

- Cut and collect grassland once annually in late summer
- Control scrub at 25% of compartment
- Cut and collect 1m along path as required
- Conduct GCN surveys annually
- Remove Fish annually and other non-native species

Compartment 9: *pond habitat (pond 11 - map 4)*

- Maintain/ remove board walk/wooden structure
- Maintain vegetation cover with 50% clear water.

Compartment 10: *woodland and scrub, Veteran Oaks*

- Cut and collect path as needed 1 meter either side.
- Survey veteran oaks on a 5 year basis.
- Control bracken
- Control scrub

5.2 Project Register

The overall summary of management (Table 5) and monitoring (Table 6) can be seen below.

Table 4: Summary of Management Projects

Project	Compartments
Maintain/repair fencing where required	Whole site
Fish removal from ponds	4, 4.1, 7, 8
Removal of non-native/invasive plant species	Whole site
Control extent of wetland plant species	4, 4.1, 7, 8, 9
Monitor extent of bankside, marginal and aquatic vegetation within ponds	4, 4.1, 7, 8, 9
Management of scrub habitats	Whole site
Removal of tree guards	8,
Enhancement of deadwood hibernacula	1, 2, 3, 4, 4.1, 5, 7, 10
Selective thinning in favour of best individuals	2, 5,
Coppicing of hazel	2, 3, 10
Coppicing of willow	4, 4.1
Bracken control	10
Maintain planted hedgerows	Whole site
Replacement planting where required	8, 10,
Maintain drainage ditches	3, 8,
Cut and collect grass areas	Whole site
Interpretation boards	1, 5, 6, 8
Path maintenance	Whole site
Enhancement of amenity grassland areas through No-Mow Scheme	8,

Table 5: Summary of Monitoring Projects

Project	Compartment
Great crested newt surveys	4, 4.1, 7, 8
Survey freshwater invertebrates	4, 4.1, 7, 8
Survey terrestrial invertebrates	Whole site
National butterfly monitoring survey	Nature Reserve
Survey birds	Whole site
National bat monitoring survey	Whole site (focus on Nature Reserve)

Enhance/maintain hedgerows	Remove tree guards and stakes	8 and around housing estate			*	*								
		10				*								
Maintenance of drainage ditches	Keep pipes and ditches clear of debris	1, 6, 8 and around housing estate	*	*	*	*	*	*	*	*	*	*	*	*
	Inspection of stump, Pump out of sediment within Sump	1	*	*	*	*	*	*	*	*	*	*	*	*

Objective	Prescription	Compartment	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Maintain and enhance grassland habitat	Cut and collect once in late summer, leaving a 1-2m margin around scrub on highest setting.	1 & 8	*	*	*	*	*	*	*	*	*	*	*	*	
		4 (1/3 alternating annually)	*	*	*	*	*	*	*	*	*	*	*	*	*
		5	*	*		*		*		*		*		*	
	Enhance the diversity of amenity grassland areas through no-mow scheme (where appropriate and leaving 1-2m adjacent to cycle ways)	8 and all amenity grassland	*	*	*	*	*	*	*	*	*	*	*	*	*
	Monitor and control of non-native terrestrial plant species e.g. ragwort via pulling and topping grassland early summer	1, 3, 5	*	*	*	*	*	*	*	*	*	*	*	*	*
Replace and maintain signage	Replacement/ installation of interpretation boards	1	*		*										
		5	*		*										
		6	*		*										
Monitor fly tipping	Ongoing monitoring	Whole site	*	*	*	*	*	*	*	*	*	*	*	*	
Monitor litter	Install and maintain dual use litter and dog waste bins	8			*										
		Around housing estate	*												
	Ongoing monitoring of litter levels (with annual litter pick)	Whole site	*	*	*	*	*	*	*	*	*	*	*	*	*

5.5 Monitoring and Review

The management plan is a fluid document which is subject to change. Management strategies, timings and techniques will be adjusted according to the success of

projects and prior experience of on-site conditions. The work schedule will be reviewed annually to ensure the required works have been completed. The

management plan will be reviewed in full every 5 years, during which management objectives and prescriptions will be revised.

5.6 Monitoring Progress

Ongoing surveys of flora and fauna will be conducted on site in order to monitor the effects of management on the species assemblage. Baseline data will be established within the first 3 years of management, which will help guide objectives and prescriptions, and monitor changes as a result of management strategies. This will aid the reviewing process and ongoing monitoring.

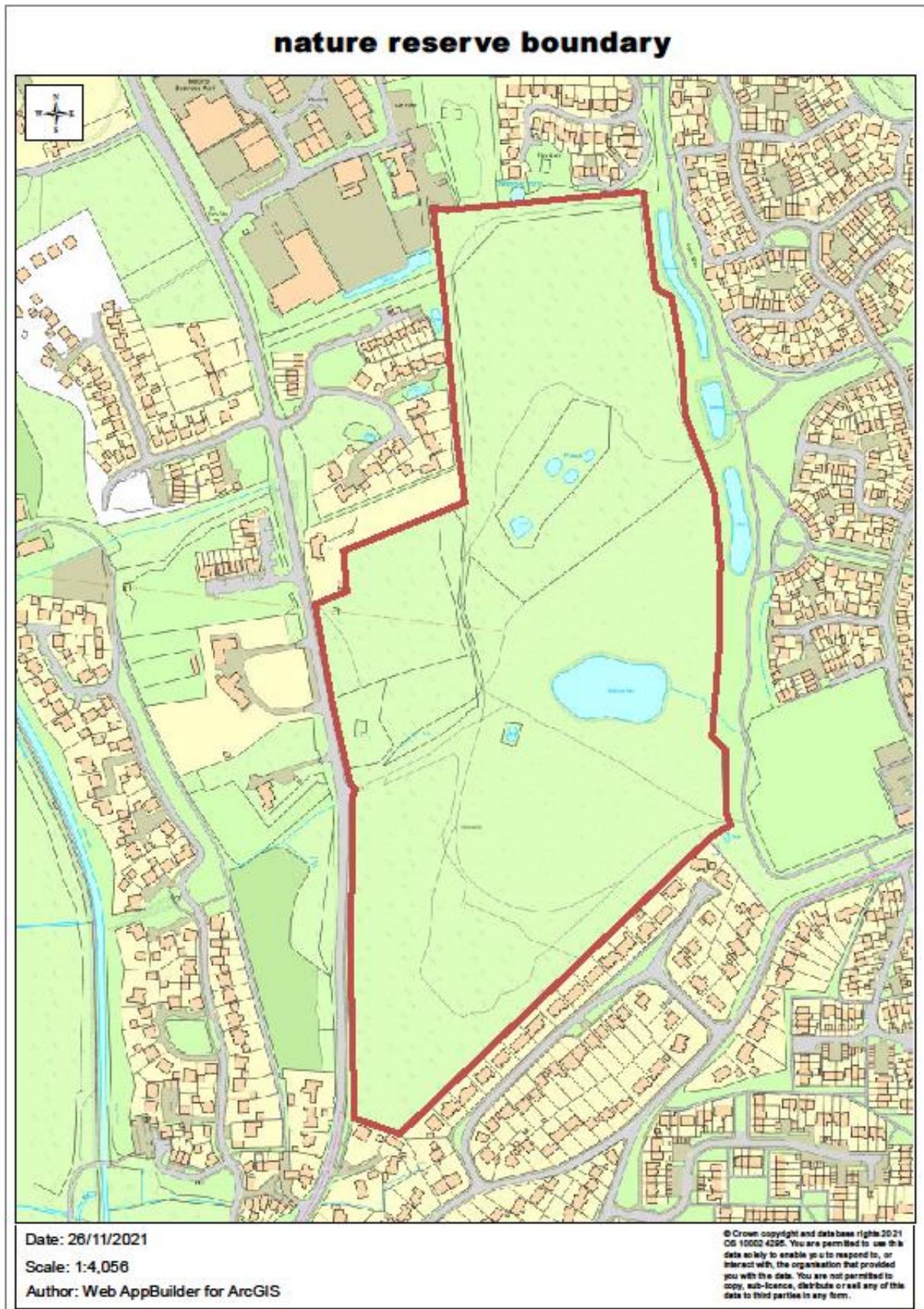
As part of establishing baseline data, fixed point photography will be used to give a visual representation of the condition of the site. This technique can also be used to record the effects of certain projects to monitor the changes which occur as a result and longer term effects of the works. Aerial photography made available through Hampshire County Council can also be used to monitor changes across the site.

Appendices

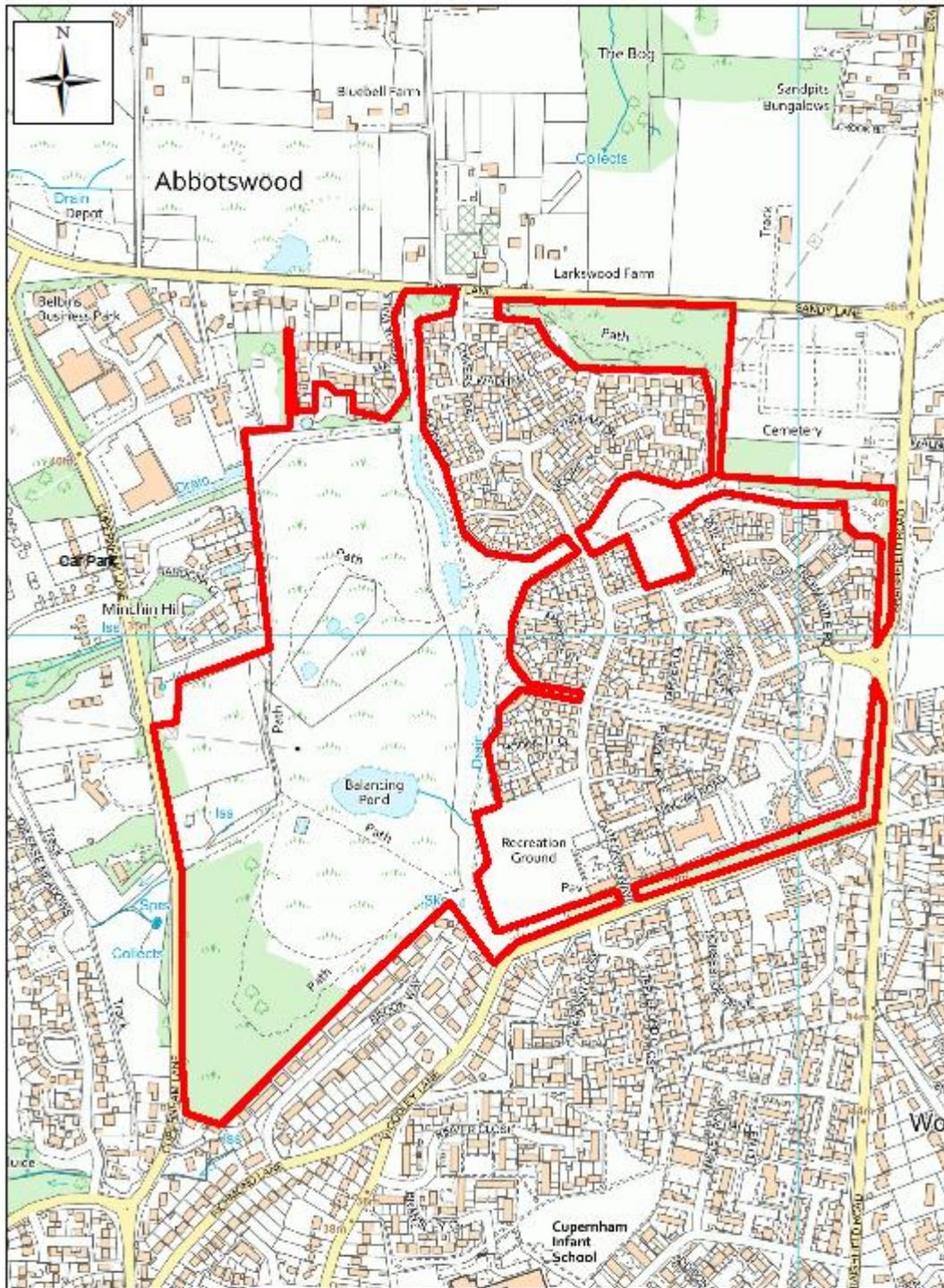
Appendix 1

Maps

Map 1



Map 2



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Boundary of TVBC owned and Managed Land



Map 3



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Abbotswood Permissive Paths

Map 4



Scale:
Date:
Drawn:
Dept:
Doc:

Test Valley Borough Council Mapping



Map 5

Abbotswood compartments

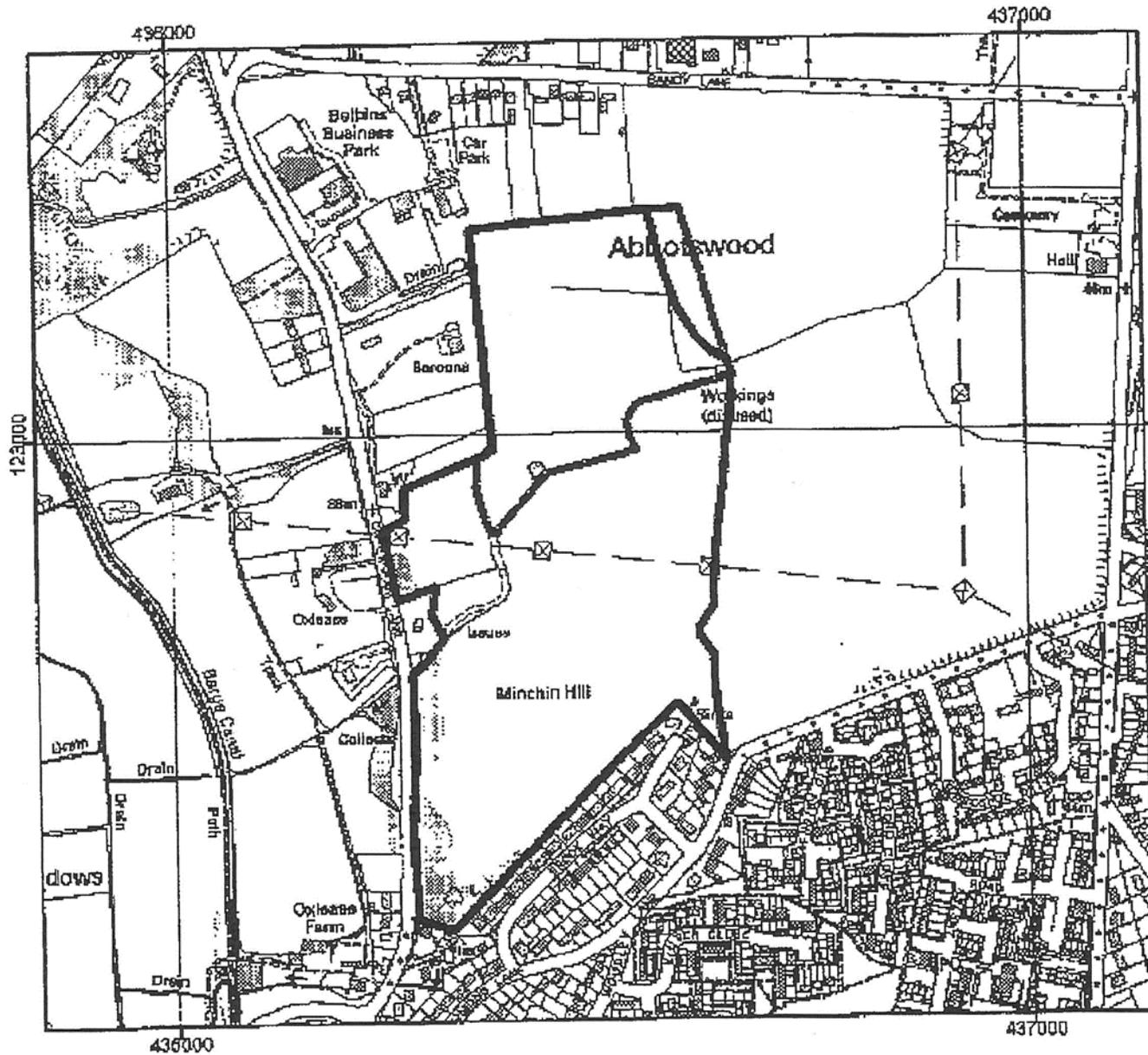


Date: 30/11/2021

Scale: 1:8,112

Author: Web AppBuilder for ArcGIS

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Hampshire
County Council

Sites of Importance
for Nature Conservation
(SINCs)

Chivers Land (SU3502310) -
WE Chivers and Sons Ltd

-  Amended SINC boundary
-  Previous SINC layer

Scale 1:7,000

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Appendix 2

Survey data

INVERTEBRATE SURVEY OF
ABBOTSWOOD LNR
SOUTH HAMPSHIRE

OCTOBER 2019



Araneus marmoreus var. pyramidatus

Dr. Jonty Denton FRES FLS CEcol MCIEEM

Summary

A baseline survey of terrestrial and aquatic invertebrates was carried out across the LNR in the summer of 2019.

Survey date/s: 26th April, 4th May, 1st, 4th July 14th September 2019

Species total: A total of 273 invertebrate taxa identified of which 5 species had conservation designations.

Species		Family	Order	Conservation status
<i>Pardosa proxima</i>	A wolf spider	Lycosidae	Araneae	NS
<i>Telmatophilus schoenherrii</i>	A Typha beetle	Cryptophagidae	Coleoptera	RDB K
<i>Pelenomus canaliculatus</i>	A weevil	Curculionidae	Coleoptera	Nb
<i>Calamotropha paludella</i>	A micromoth	Crambidae	Lepidoptera	N:Nb

UKBAP / SPI (NERC S41) species:

Cinnabar Moth (*Tyria jacobaeae*) [Research Only] – Ragwort

The project brief was to provide baseline records for invertebrates across the wildlife area.

METHODOLOGY AND SITE VISITS

The main emphasis of the survey was to find as many rare and notable species as possible within the reviewed groups.

The site was visited specifically for invertebrate surveying on the following dates;- 26th April, 4th May, 1st, 4th July 14th September 2019

Standard field techniques were employed to sample the invertebrate fauna across the site. These included sweeping vegetation with a wide mouthed sweep net, beating trees and bushes over a beating tray, and grubbing amongst tussocks and key host plant rosettes. Spot-netting at flowers and other resources and visual/hand searching of dead wood, tree trunks, bare ground etc. Aquatic sampling was carried out using a 0.5mm mesh GB nets pond net.

Because it is impracticable to survey all the potential invertebrates within any given site, only specific groups of species were examined during fieldwork. These groups are sufficiently well known as to allow meaningful comparisons to be made with other sites, both locally and nationally. They are also important as indicators of the quality of a site and the habitats present (see Brooks 1993).

Groups covered during the survey were:

- Mollusca (slugs and snails)
- Arachnida (spiders, harvestmen & pseudoscorpions)
- Isopoda (woodlice)
- Thysanura (bristletails)
- Ephemeroptera (mayflies)
- Odonata (dragonflies & damselflies)
- Plecoptera (stoneflies)
- Orthoptera (grasshoppers & crickets)
- Dictyoptera (cockroaches)
- Dermaptera (earwigs)
- Hemiptera-Heteroptera (true-bugs)
- Hemiptera-Homoptera (hoppers)
- Neuroptera (lace-wings)
- Mecoptera (scorpion-flies)
- Lepidoptera (butterflies & moths)
- Trichoptera (caddis flies)
- Diptera (true flies)
- Aculeate Hymenoptera (ants, bees & wasps)
- Coleoptera (beetles)

RESULTS

A total of **274** species of invertebrate were recorded. A full species list with UK statuses is given in Appendix 1. Of the 274 species, **5 species have a conservation designation**. These are summarised in Table 1. IUCN re-evaluated species have their IUCN criteria given followed by their current UK rarity status in brackets. Those species that have not yet been IUCN re-evaluated have their current statuses in square brackets.

Table 1. list of species with a conservation designation.

Species	Family	Order	Conservation status
<i>Pardosa proxima</i>	Lycosidae	Araneae	NS
<i>Telmatophilus schoenherrii</i>	Cryptophagidae	Coleoptera	RDB K
<i>Pelenomus canaliculatus</i>	Curculionidae	Coleoptera	Nb
<i>Calamotropha paludella</i>	Crambidae	Lepidoptera	N:Nb
<i>Tyria jacobaeae</i>	Erebidae	Lepidoptera	Section 41 Priority Species – research only

ECOLOGICAL ASSESSMENT

PONDS

Crassula helmsii is present in all and very dense in the lower basins. Three-spined sticklebacks were also present which means they are no longer likely to produce Great Crested newts as the eggs and larvae will be predated by the sticklebacks. Adult GCN can be long lived and their presence will simply give a false impression of the viability of the population. The ponds were poorly designed being too deep and bowl shaped. Ponds which desiccate occasionally are on the whole better for wildlife as they prevent fish populations developing, and more species of invertebrate are associated with ephemeral water bodies.

Balancing Lake

This is already developing some interest with extensive areas of common spike-rush on the draw down zones and marginals including *Typha* beds and sea Clubrush. The spectacular spider *Araneus marmoreus* var. *pyramidatus* is well established in the emergent zones. The weevil *Phytobius canaliculatus* is associated with *Myriophyllum*. Water-plantain is also frequent and host to several insect species.

Pale galingale is locally frequent but is an alien species and shouldn't be allowed to get too dominant.

Localised trampling and dog activity will lead to temporary disturbance but this also produces local open conditions which are exploited by a good range of beetles and bugs.

Cetti's Warblers were utilising the scrub around the lake edge.

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APPENDICES

APPENDIX 1. SPECIES LIST, 2019

Species	Family	Order	Conservation status
<i>Anyphaena accentuata</i>	Anyphaenidae	Araneae	common
<i>Agalenatea redii</i>	Araneidae	Araneae	local
<i>Araneus marmoreus</i> var. <i>pyramidatus</i>	Araneidae	Araneae	local
<i>Araneus quadratus</i>	Araneidae	Araneae	common
<i>Araniella cucurbitina</i> sensu stricto	Araneidae	Araneae	common
<i>Argiope bruennichi</i>	Araneidae	Araneae	local
<i>Hypsosinga pygmaea</i>	Araneidae	Araneae	Local
<i>Larinioides cornutus</i>	Araneidae	Araneae	common
<i>Mangora acalypha</i>	Araneidae	Araneae	common
<i>Clubiona phragmitis</i>	Clubionidae	Araneae	local
<i>Clubiona reclusa</i>	Clubionidae	Araneae	common
<i>Dictyna arundinacea</i>	Dictynidae	Araneae	common

<i>Erigone atra</i>	Linyphiidae	Araneae	common
<i>Hypomma bituberculatum</i>	Linyphiidae	Araneae	common
<i>Linyphia triangularis</i>	Linyphiidae	Araneae	common
<i>Pardosa proxima</i>	Lycosidae	Araneae	NS
<i>Pardosa saltans</i>	Lycosidae	Araneae	common
<i>Pirata piraticus</i>	Lycosidae	Araneae	common
<i>Trochosa terricola</i>	Lycosidae	Araneae	common
<i>Philodromus albidus</i>	Philodromidae	Araneae	common
<i>Philodromus aureolus</i>	Philodromidae	Araneae	common
<i>Philodromus cespitum</i>	Philodromidae	Araneae	common
<i>Philodromus dispar</i>	Philodromidae	Araneae	common
<i>Tibellus oblongus</i>	Philodromidae	Araneae	common
<i>Pisaura mirabilis</i>	Pisauridae	Araneae	common
<i>Pachygnatha degeeri</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha extensa</i>	Tetragnathidae	Araneae	common
<i>Tetragnatha montana</i>	Tetragnathidae	Araneae	common
<i>Anelosimus vittatus</i>	Theridiidae	Araneae	common
<i>Phylloneta sisypbia</i>	Theridiidae	Araneae	common
<i>Theridion varians</i>	Theridiidae	Araneae	common
<i>Xysticus cristatus</i>	Thomisidae	Araneae	common
<i>Xysticus ulmi</i>	Thomisidae	Araneae	common
<i>Anthicus antherinus</i>	Anthicidae	Coleoptera	common
<i>Exapion ulicis</i>	Apionidae	Coleoptera	common
<i>Cantharis decipiens</i>	Cantharidae	Coleoptera	common
<i>Cantharis lateralis</i>	Cantharidae	Coleoptera	common
<i>Rhagonycha fulva</i>	Cantharidae	Coleoptera	common
<i>Acupalpus dubius</i>	Carabidae	Coleoptera	common
<i>Agonum marginatum</i>	Carabidae	Coleoptera	common
<i>Amara aenea</i>	Carabidae	Coleoptera	common

<i>Bembidion biguttatum</i>	Carabidae	Coleoptera	common
<i>Harpalus affinis</i>	Carabidae	Coleoptera	common
<i>Paradromius linearis</i>	Carabidae	Coleoptera	common
<i>Pterostichus madidus</i>	Carabidae	Coleoptera	common
<i>Pterostichus nigrita</i>	Carabidae	Coleoptera	common
<i>Grammoptera ruficornis</i>	Cerambycidae	Coleoptera	common
<i>Crepidodera aurea</i>	Chrysomelidae	Coleoptera	common
<i>Donacia simplex</i>	Chrysomelidae	Coleoptera	common
<i>Galerucella lineola</i>	Chrysomelidae	Coleoptera	common
<i>Longitarsus pratensis</i>	Chrysomelidae	Coleoptera	common
<i>Longitarsus succineus</i>	Chrysomelidae	Coleoptera	common
<i>Psylliodes chrysocephala</i>	Chrysomelidae	Coleoptera	common
<i>Anisosticta novemdecimpunctata</i>	Coccinellidae	Coleoptera	local
<i>Coccidula rufa</i>	Coccinellidae	Coleoptera	local
<i>Coccinella septempunctata</i>	Coccinellidae	Coleoptera	common
<i>Harmonia axyridis</i>	Coccinellidae	Coleoptera	common
<i>Propylea quattuordecimpunctata</i>	Coccinellidae	Coleoptera	common
<i>Stethorus punctillum</i>	Coccinellidae	Coleoptera	common
<i>Subcoccinella vigintiquattuor punctata</i>	Coccinellidae	Coleoptera	common
<i>Tytthaspis sedecimpunctata</i>	Coccinellidae	Coleoptera	common
<i>Atomaria fuscata</i>	Cryptophagidae	Coleoptera	common
<i>Micrambe ulicis</i>	Cryptophagidae	Coleoptera	common
<i>Telmatophilus schoenherrii</i>	Cryptophagidae	Coleoptera	RDB K
<i>Telmatophilus typhae</i>	Cryptophagidae	Coleoptera	common
<i>Archarius salicivorus</i>	Curculionidae	Coleoptera	common
<i>Pelenomus canaliculatus</i>	Curculionidae	Coleoptera	Nb
<i>Phyllobius pomaceus</i>	Curculionidae	Coleoptera	common

<i>Phyllobius pyri</i>	Curculionidae	Coleoptera	common
<i>Phyllobius roboretanus</i>	Curculionidae	Coleoptera	common
<i>Polydrusus cervinus</i>	Curculionidae	Coleoptera	common
<i>Polydrusus pterygomalis</i>	Curculionidae	Coleoptera	common
<i>Rhamphus oxyacanthae</i>	Curculionidae	Coleoptera	common
<i>Sitona hispidulus</i>	Curculionidae	Coleoptera	common
<i>Sitona lineatus</i>	Curculionidae	Coleoptera	common
<i>Dasytes aeratus</i>	Dasytidae	Coleoptera	common
<i>Dryops luridus</i>	Dryopidae	Coleoptera	local
<i>Agabus bipustulatus</i>	Dytiscidae	Coleoptera	common
<i>Agabus nebulosus</i>	Dytiscidae	Coleoptera	common
<i>Colymbetes fuscus</i>	Dytiscidae	Coleoptera	common
<i>Dytiscus marginalis</i>	Dytiscidae	Coleoptera	common
<i>Hydroporus palustris</i>	Dytiscidae	Coleoptera	common
<i>Hydroporus planus</i>	Dytiscidae	Coleoptera	common
<i>Hydroporus tessellatus</i>	Dytiscidae	Coleoptera	common
<i>Hygrotus impressopunctatus</i>	Dytiscidae	Coleoptera	common
<i>Hygrotus inaequalis</i>	Dytiscidae	Coleoptera	common
<i>Laccophilus minutus</i>	Dytiscidae	Coleoptera	common
<i>Liopterus haemorrhoidalis</i>	Dytiscidae	Coleoptera	local
<i>Haliphus ruficollis</i>	Halipidae	Coleoptera	common
<i>Anacaena limbata</i>	Hydrophilidae	Coleoptera	common
<i>Helochaeres lividus</i>	Hydrophilidae	Coleoptera	common
<i>Helophorus aequalis</i>	Hydrophilidae	Coleoptera	common
<i>Helophorus brevipalpis</i>	Hydrophilidae	Coleoptera	common
<i>Helophorus grandis</i>	Hydrophilidae	Coleoptera	common
<i>Helophorus minutus</i>	Hydrophilidae	Coleoptera	common
<i>Hydrobius fuscipes</i>	Hydrophilidae	Coleoptera	common
<i>Laccobius bipunctatus</i>	Hydrophilidae	Coleoptera	common

<i>Hygrobia hermanni</i>	Hygrobiidae	Coleoptera	local
<i>Kateretes rufilabris</i>	Kateretidae	Coleoptera	common
<i>Cartodere bifasciata</i>	Latridiidae	Coleoptera	common
<i>Cartodere nodifer</i>	Latridiidae	Coleoptera	common
<i>Corticaria impressa</i>	Latridiidae	Coleoptera	common
<i>Corticarina minuta</i>	Latridiidae	Coleoptera	common
<i>Cortinicara gibbosa</i>	Latridiidae	Coleoptera	common
<i>Monotoma picipes</i>	Monotomidae	Coleoptera	common
<i>Nanophyes marmoratus</i>	Nanophyidae	Coleoptera	common
<i>Epuraea melanocephala</i>	Nitidulidae	Coleoptera	common
<i>Anaspis fasciata</i>	Scraptiidae	Coleoptera	common
<i>Anaspis maculata</i>	Scraptiidae	Coleoptera	common
<i>Anaspis regimbarti</i>	Scraptiidae	Coleoptera	common
<i>Alianta incana</i>	Staphylinidae	Coleoptera	common
<i>Cypha longicornis</i>	Staphylinidae	Coleoptera	common
<i>Paederus riparius</i>	Staphylinidae	Coleoptera	common
<i>Stenus cicindeloides</i>	Staphylinidae	Coleoptera	common
<i>Stenus comma</i>	Staphylinidae	Coleoptera	common
<i>Stenus junco</i>	Staphylinidae	Coleoptera	common
<i>Sunius propinquus</i>	Staphylinidae	Coleoptera	common
<i>Tachyporus chrysomelinus</i>	Staphylinidae	Coleoptera	common
<i>Xantholinus linearis</i>	Staphylinidae	Coleoptera	common
<i>Leptogaster cylindrica</i>	Asilidae	Diptera	common
<i>Bibio marci</i>	Bibionidae	Diptera	common
<i>Dilophus febrilis</i>	Bibionidae	Diptera	common
<i>Lucilia caesar</i>	Calliphoridae	Diptera	common
<i>Iteomyia major</i>	Cecidomyiidae	Diptera	common
<i>Thaumatomyia notata</i>	Chloropidae	Diptera	common
<i>Dolichopus pennatus</i>	Dolichopodidae	Diptera	common

<i>Lonchoptera lutea</i>	Lonchopteridae	Diptera	common
<i>Epistrophe eligans</i>	Syrphidae	Diptera	common
<i>Episyrphus balteatus</i>	Syrphidae	Diptera	common
<i>Eristalis arbustorum</i>	Syrphidae	Diptera	common
<i>Eristalis pertinax</i>	Syrphidae	Diptera	common
<i>Eristalis tenax</i>	Syrphidae	Diptera	common
<i>Eupeodes corollae</i>	Syrphidae	Diptera	common
<i>Helophilus pendulus</i>	Syrphidae	Diptera	common
<i>Melanostoma mellinum</i>	Syrphidae	Diptera	common
<i>Melanostoma scalare</i>	Syrphidae	Diptera	common
<i>Gymnocheta viridis</i>	Tachinidae	Diptera	common
<i>Tipula oleracea</i>	Tipulidae	Diptera	common
<i>Tipula paludosa</i>	Tipulidae	Diptera	common
<i>Cloeon dipterum</i>	Baetidae	Ephemeroptera	common
<i>Acanthosoma haemorrhoidale</i>	Acanthosomatidae	Hemiptera	common
<i>Anthocoris confusus</i>	Anthocoridae	Hemiptera	common
<i>Aphrodes makarovi</i>	Cicadellidae	Hemiptera	common
<i>Cicadula quadrinotata</i>	Cicadellidae	Hemiptera	common
<i>lassus lanio</i>	Cicadellidae	Hemiptera	common
<i>Limotettix striola</i>	Cicadellidae	Hemiptera	local
<i>Coreus marginatus</i>	Coreidae	Hemiptera	common
<i>Gonocerus acuteangulatus</i>	Coreidae	Hemiptera	common
<i>Corixa panzeri</i>	Corixidae	Hemiptera	common
<i>Corixa punctata</i>	Corixidae	Hemiptera	common
<i>Hesperocorixa sahlbergi</i>	Corixidae	Hemiptera	common
<i>Sigara (Pseudovermicorixa) nigrolineata</i>	Corixidae	Hemiptera	common
<i>Sigara (Sigara) dorsalis</i>	Corixidae	Hemiptera	common
<i>Sigara (Subsigara) distincta</i>	Corixidae	Hemiptera	common
<i>Sigara (Vermicorixa) lateralis</i>	Corixidae	Hemiptera	common

Conomelus anceps	Delphacidae	Hemiptera	common
Gerris (Gerris) lacustris	Gerridae	Hemiptera	common
Gerris (Gerris) odontogaster	Gerridae	Hemiptera	common
Gerris (Gerris) thoracicus	Gerridae	Hemiptera	common
Hydrometra stagnorum	Hydrometridae	Hemiptera	common
Chilacis typhae	Lygaeidae	Hemiptera	common
Cymus melanocephalus	Lygaeidae	Hemiptera	common
Heterogaster urticae	Lygaeidae	Hemiptera	common
Ischnodemus sabuleti	Lygaeidae	Hemiptera	common
Kleidocerys resedae	Lygaeidae	Hemiptera	common
Nysius senecionis	Lygaeidae	Hemiptera	common
Scolopostethus thomsoni	Lygaeidae	Hemiptera	common
Amblytylus nasutus	Miridae	Hemiptera	common
Asciodema obsoleta	Miridae	Hemiptera	common
Atractotomus mali	Miridae	Hemiptera	common
Capsus ater	Miridae	Hemiptera	common
Closterotomus norwegicus	Miridae	Hemiptera	common
Deraeocoris (Deraeocoris) flavilinea	Miridae	Hemiptera	common
Deraeocoris (Deraeocoris) ruber	Miridae	Hemiptera	common
Deraeocoris (Knightocapsus) lutescens	Miridae	Hemiptera	common
Dicyphus epilobii	Miridae	Hemiptera	common
Dicyphus stachydis	Miridae	Hemiptera	common
Leptopterna dolabrata	Miridae	Hemiptera	common
Lygocoris (Lygocoris) pabulinus	Miridae	Hemiptera	common
Neolygus viridis	Miridae	Hemiptera	common
Notostira elongata	Miridae	Hemiptera	common
Phylus (Phylus) melanocephalus	Miridae	Hemiptera	common
Plagiognathus arbustorum	Miridae	Hemiptera	common

<i>Plagiognathus chrysanthemii</i>	Miridae	Hemiptera	common
<i>Psallus perrisi</i>	Miridae	Hemiptera	common
<i>Stenodema (Brachystira) calcarata</i>	Miridae	Hemiptera	common
<i>Stenodema laevigata</i>	Miridae	Hemiptera	common
<i>Himacerus mirmicoides</i>	Nabidae	Hemiptera	common
<i>Himacerus apterus</i>	Nabidae	Hemiptera	common
<i>Nabis flavomarginatus</i>	Nabidae	Hemiptera	common
<i>Nabis rugosus</i>	Nabidae	Hemiptera	common
<i>Ilyocoris cimicoides</i>	Naucoridae	Hemiptera	common
<i>Notonecta (Notonecta) glauca</i>	Notonectidae	Hemiptera	common
<i>Notonecta maculata</i>	Notonectidae	Hemiptera	common
<i>Notonecta viridis</i>	Notonectidae	Hemiptera	common
<i>Aelia acuminata</i>	Pentatomidae	Hemiptera	common
<i>Dolycoris baccarum</i>	Pentatomidae	Hemiptera	common
<i>Palomena prasina</i>	Pentatomidae	Hemiptera	common
<i>Plea minutissima</i>	Pleidae	Hemiptera	common
<i>Cacopsylla peregrina</i>	Psyllidae	Hemiptera	common
<i>Livia juncorum</i>	Psyllidae	Hemiptera	common
<i>Stictopleurus abutilon</i>	Rhopalidae	Hemiptera	local
<i>Saldula saltatoria</i>	Saldidae	Hemiptera	common
<i>Eurygaster testudinaria</i>	Scutelleridae	Hemiptera	common
<i>Physatocheila dumetorum</i>	Tingidae	Hemiptera	common
<i>Tingis cardui</i>	Tingidae	Hemiptera	common
<i>Microvelia reticulata</i>	Veliidae	Hemiptera	common
<i>Velia caprai</i>	Veliidae	Hemiptera	common
<i>Galba truncatula</i>	Lymnaeidae	Hygrophila	common
<i>Lymnaea stagnalis</i>	Lymnaeidae	Hygrophila	common
<i>Radix balthica</i>	Lymnaeidae	Hygrophila	common
<i>Planorbarius corneus</i>	Planorbidae	Hygrophila	common

Planorbis carinatus	Planorbidae	Hygrophila	common
Andrena haemorrhoa	Andrenidae	Hymenoptera	common
Bombus hypnorum	Apidae	Hymenoptera	common
Bombus lucorum sensu lato	Apidae	Hymenoptera	common
Bombus pascuorum	Apidae	Hymenoptera	common
Bombus terrestris	Apidae	Hymenoptera	common
Biorhiza pallida	Cynipidae	Hymenoptera	common
Lasius flavus	Formicidae	Hymenoptera	common
Lasius niger	Formicidae	Hymenoptera	common
Myrmica ruginodis	Formicidae	Hymenoptera	common
Athalia cordata	Tenthredinidae	Hymenoptera	common
Vespula vulgaris	Vespidae	Hymenoptera	common
Oniscus asellus	Oniscidae	Isopoda	common
Philoscia muscorum	Philosciidae	Isopoda	common
Porcellio scaber	Porcellionidae	Isopoda	common
Adela reaumurella	Adelidae	Lepidoptera	common
Agriphila straminella	Crambidae	Lepidoptera	common
Calamotropha paludella	Crambidae	Lepidoptera	N:Nb
Tyria jacobaeae	Erebidae	Lepidoptera	Section 41 Priority Species - research only
Opisthograptis luteolata	Geometridae	Lepidoptera	common
Parornix devoniella	Gracillariidae	Lepidoptera	common
Phyllonorycter coryli	Gracillariidae	Lepidoptera	common
Phyllonorycter nicellii	Gracillariidae	Lepidoptera	common
Thymelicus sylvestris	Hesperiidae	Lepidoptera	common
Euthrix potatoria	Lasiocampidae	Lepidoptera	common
Lycaena phlaeas	Lycaenidae	Lepidoptera	common
Micropterix calthella	Micropterigidae	Lepidoptera	common
Stigmella aceris	Nepticulidae	Lepidoptera	common
Stigmella crataegella	Nepticulidae	Lepidoptera	common

Stigmella floslactella	Nepticulidae	Lepidoptera	common
Stigmella microtheriella	Nepticulidae	Lepidoptera	common
Stigmella oxyacanthella	Nepticulidae	Lepidoptera	common
Stigmella perpygmaeella	Nepticulidae	Lepidoptera	common
Nonagra typhae	Noctuidae	Lepidoptera	common
Aglais io	Nymphalidae	Lepidoptera	common
Aphantopus hyperantus	Nymphalidae	Lepidoptera	common
Maniola jurtina	Nymphalidae	Lepidoptera	common
Melanargia galathea	Nymphalidae	Lepidoptera	common
Gonepteryx rhamni	Pieridae	Lepidoptera	common
Anthocharis cardamines	Pieridae	Lepidoptera	common
Pieris brassicae	Pieridae	Lepidoptera	common
Pieris rapae	Pieridae	Lepidoptera	common
Acrobasis advenella	Pyralidae	Lepidoptera	common
Ditula angustiorana	Tortricidae	Lepidoptera	common
Aeshna cyanea	Aeshnidae	Odonata	common
Aeshna grandis	Aeshnidae	Odonata	common
Aeshna mixta	Aeshnidae	Odonata	common
Anax imperator	Aeshnidae	Odonata	common
Enallagma cyathigerum	Coenagrionidae	Odonata	common
Pyrrhosoma nymphula	Coenagrionidae	Odonata	common
Libellula depressa	Libellulidae	Odonata	common
Sympetrum striolatum	Libellulidae	Odonata	common
Conocephalus dorsalis	Conocephalidae	Orthoptera	common
Conocephalus fuscus	Conocephalidae	Orthoptera	common
Tetrix subulata	Tetrigidae	Orthoptera	common
Metrioptera roeselii	Tettigoniidae	Orthoptera	common
Valenzuela flavidus	Caeciliusidae	Psocoptera	common
Arion (Mesarion) subfuscus	Arionidae	Pulmonata	common

Zonitoides (Zonitoides) nitidus	Gastrodontidae	Pulmonata	common
Tandonia budapestensis	Milacidae	Pulmonata	common
Succinea putris	Succineidae	Pulmonata	common
Helobdella stagnalis	Glossiphoniidae	Rhynchobdellida	common
Limnephilus rhombicus	Limnephilidae	Trichoptera	common

Appendix 3. Status categories for rare and Notable species

Red Data Book Category 1 (RDB 1) – Endangered

Definition.

Taxa in danger of extinction *in Great Britain* and whose survival is unlikely if the causal factors continue operating.

Included are those taxa whose numbers have been reduced to a critical level or whose habitats have been so dramatically reduced that they are deemed to be in immediate danger of extinction. Also included are *some* taxa that are *possibly* extinct.

Criteria.

Species which are known *or believed to occur* as only a single population within one 10 km square of the National Grid.

Species which only occur in habitats known to be especially vulnerable.

Species which have shown a rapid or continuous decline over the last twenty years and are now *estimated* to exist in five or fewer 10 km squares.

Species which are *possibly* extinct *but have been recorded this century* and if rediscovered would need protection.

Red Data Book Category 2 (RDB 2) - Vulnerable

Definition.

Taxa *believed* likely to move into the endangered category in the near future if the causal factors continue operating.

Included are taxa of which most or all of the populations are decreasing because of *over-exploitation*, extensive destruction of habitat or other environmental disturbance; taxa with populations that have been seriously depleted and whose ultimate security is not yet assured; and taxa with populations that are still abundant but are under threat from serious adverse factors throughout their range.

Criteria.

Species declining throughout their range.

Species in vulnerable habitats.

Red Data Book Category 3 (RDB 3) – Rare**Definition.**

Taxa with small populations *in Great Britain* that are not at present endangered or vulnerable, but are at risk.

These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range.

Criterion.

Species which are estimated to exist in only fifteen or fewer 10 km squares. *This criterion may be relaxed where populations are likely to exist in over fifteen 10 km squares but occupy small areas of especially vulnerable habitat*

Nationally Scarce Category A - Notable A (Na)**Definition.**

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well recorded groups, within seven or fewer vice-counties.

Nationally Scarce Category B - Notable B (Nb)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 31 and 100 10 km squares of the National Grid or, for less well recorded groups, within eight and twenty vice-counties.

Nationally Scarce - Notable (N)

Definition.

Taxa which do not fall within **RDB** categories but which are none-the-less uncommon in Great Britain and are thought to occur in between 16 to 100 10 km squares of the National Grid. Species within this category are often too poorly known for their status to be more precisely estimated.

Summary of the IUCN categories and criteria.

- **REGIONALLY EXTINCT (RE)**

A taxon is Extinct when there is no reasonable doubt that the last individual has died. In this review the last date for a record is set at fifty years before publication.

- **CRITICALLY ENDANGERED (CR)**

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered.

- **ENDANGERED (EN)**

A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered.

- **VULNERABLE (VU)**

A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable.

- **NEAR THREATENED (NT)**

A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

- **LEAST CONCERN (LC)**

A taxon is Least Concern when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened. Widespread and abundant taxa are included in this category.

- **DATA DEFICIENT (DD)**

A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

- **NOT EVALUATED (NE)**

A taxon is Not Evaluated when it has not yet been evaluated against the criteria.

GB Rarity Status categories and criteria

- **Nationally Rare (NR)**

Native species which have not been recorded from more than 15 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 15 hectads. This category includes species which are probably extinct.

- **Nationally Scarce (NS)**

Native species which are not regarded as Nationally Rare AND which have not been recorded from more than 100 British hectads since 31st December 1979 and where there is reasonable confidence that exhaustive recording would not find them in more than 100 hectads.

Other species status terminology.

- **Local.** Species that are restricted in distribution either geographically or by habitat. Also used for species that are widespread but infrequently encountered, e.g. encountered in no more than 300 10km squares of the national Ordnance Survey grid since 1970. Or those species listed as such, based upon modern geographical data, by ISIS (2010) and/or relevant recording schemes.
- **Widely Scattered.** Generally distributed but at low densities.
- **Southern.** Mainly or completely confined to southern England and/or its westerly or easterly regions – as indicated.
- **Common.** Generally widespread throughout the UK.
- **Unknown.** Usually indicates a lack of available data for difficult taxa but may also imply recent taxonomic confusion.

Pre-Development Bird survey carried out by EPR

APPENDIX 3: BIRD SPECIES LIST

Number of registrations per visit (e.g. 40 Rooks = 1)

B – Breeding; F – Foraging; P – Passage; O – Fly over

SPECIES	UK STATUS		STATUS AT SITE
Grey Heron <i>Ardea cinerea</i>		O	Occasional birds over.
Mallard <i>Anus platyrhynchos</i>		B	Territories at western pond and by ephemeral pool in SE corner.
Red Kite <i>Milvus milvus</i>	Amber WCA Sch 1	O	A single sighting of a bird that came up from the western woodland and flew east across the site.
Sparrowhawk <i>Accipiter nisus</i>		O	Seen once soaring from woodland in the NE corner. Occasionally hunting across the site
Buzzard <i>Buteo buteo</i>		F	Regularly flying over the site and occasional feeding.
Kestrel <i>Falco tinnunculus</i>	Amber	F	Occasional bird feeding over western grassland.
Hobby <i>Falco subbuteo</i>	WCA Sch 1	O	A bird flew through on 29 April.
Pheasant <i>Phasianus colchicus</i>		B	Male seen on occasion in central grassland.
Lapwing <i>Vanellus vanellus</i>	Amber	B	5 Territories present in central and eastern grasslands 11 adults and 4 broods of young on the 11 June.
Ruff <i>Philomachus pugnax</i>	Amber	P	Single recorded on one date by DS on eastern grassland.
Snipe <i>Gallinago gallinago</i>	Amber	F	Up to nine birds (7/4/04) flushed from wet areas around eastern side of site.
Woodpigeon <i>Columba palumbus</i>		B	Regularly seen in the trees and woodland around edge of site.
Collared Dove <i>Streptopelia decaocto</i>		F	1 to 2 Territories around houses along southern boundary of site.
Cuckoo <i>Cuculus canorus</i>	Amber	B	Occasional bird calling from wooded edges of western side of site.
Barn Owl <i>Tyto alba</i>	Amber WCA Sch 1	F	Bird seen hunting over central grassland during a late afternoon visits in winter 2003/4 and early spring.
Little Owl <i>Athene noctua</i>		B	Bird seen on occasion around northern woodland.
Tawny Owl <i>Strix aluco</i>		B	Calling bird heard on night of 21 July around western side of site.

SPECIES	UK STATUS		STATUS AT SITE
<i>Swift</i> <i>Apus apus</i>		O	Occasional birds seen overhead.
<i>Green Woodpecker</i> <i>Picus viridus</i>	Amber	B	3 Territories (SE corner and north woodlands)??
<i>Great Spotted Woodpecker</i> <i>Dendrocopus major</i>		B	1-2 Territories.
<i>Skylark</i> <i>Alauda arvensis</i>	Red BAP	B	8 Territories in central and western grasslands.
Swallow Hirundo rustica	Amber	F	Occasional birds foraging over grasslands.
House Martin <i>Delichon urbica</i>	Amber	F	Occasional birds foraging over grasslands.
Meadow Pipit <i>Anthus pratensis</i>	Amber	P	Flocked up birds at end of winter with maximum of ?? on ??
<i>Yellow Wagtail</i> <i>Motacilla flava</i>	Amber	P	A couple seen on central grassland.
<i>Pied Wagtail</i> <i>Motacilla alba yarrellii</i>		F	Occasional birds in central grassland.
<i>Wren</i> <i>Troglodytes troglodytes</i>		B	Common in scrub and woodland largely around the periphery of the site.
<i>Dunnock</i> <i>Prunella modularis</i>	Amber	B	Up to 22 Territories in scrub and woodland largely around the periphery of the site.
<i>Robin</i> <i>Erithacus rubecula</i>		B	Common in scrub and woodland largely around the periphery of the site.
<i>Nightingale</i> <i>Luscinia megarhynchos</i>	Amber	B	A singing bird in the northern woodland.
<i>Stonechat</i> <i>Saxicola torquata</i>	Amber	B	A single territory in the SW corner of the site.
<i>Whentear</i> <i>Oenanthe oenanthe</i>		P	A male on the central eastern grassland on the 27 April.
<i>Blackbird</i> <i>Turdus merula</i>		B	Around 14 territories in scrub and woodland largely around the periphery of the site.
<i>Song Thrush</i> <i>Turdus philomelos</i>	Red	B	Up to 6-8 territories in scrub and woodland largely around the periphery of the site.
<i>Mistle Thrush</i> <i>Tudus viscivorus</i>	Amber	F	Occasional around the NE end of the site.

SPECIES	UK STATUS		STATUS AT SITE
<i>Lesser Whitethroat</i> <i>Sylvia curruca</i>		B	Recorded along the southern boundary and in the north west corner.
<i>Whitethroat</i> <i>Sylvia communis</i>		B	Around six territories in scrub at various locations around the edges of the site and near the western pond.
<i>Garden Warbler</i> <i>Sylvia borin</i>		B	Recorded on occasion in the NE and SW corners of the site.
<i>Blackcap</i> <i>Sylvia atricapilla</i>		B	Occasion particularly around the SE corner.
<i>Chiffchaff</i> <i>Phylloscopus collybita</i>		B	Around five territories around the periphery of the site.
<i>Willow Warbler</i> <i>Phylloscopus trochilus</i>	Amber	B	2 territories in the south western and northern woodlands.
<i>Goldcrest</i> <i>Regulus regulus</i>	Amber	B	A territory around the western boundary near the pond.
<i>Long-tailed Tit</i> <i>Aegithalos caudatus</i>		B	1-2 territories.
Blue Tit <i>Parus caeruleus</i>		B	6-8 territories in wooded areas around the periphery of the site.
Great Tit <i>Parus major</i>		B	4-5 territories in wooded areas around the periphery of the site.
Nuthatch <i>Sitta europaea</i>		B	Recorded on occasion around the western boundary near the pond.
Treecreeper <i>Certhia familiaris</i>		B	Recorded on occasion around the western boundary near the pond.
<i>Jay</i> <i>Garrulus glandarius</i>		F	Once flying in the central scrub from the western side of the site.
<i>Magpie</i> <i>Pica pica</i>		B	Regular feeding around the site. At least one pair breeding.
<i>Jackdaw</i> <i>Corvus monedula</i>		F	Regularly a handful of birds feeding with Rooks in the central grasslands and probably breeding in the western woodland.
<i>Rook</i> <i>Corvus frugilegus</i>		F	A Rookery just off site to the west with flocks of up to 50-100 birds in central grasslands once fledged.
<i>Carrion Crow</i> <i>Corvus corone corone</i>		B	Occasion birds, particularly around the north of the site.
<i>Starling</i> <i>Sturnus vulgaris</i>	Red	F	Occasional flocks of 20-50 birds feeding in central grasslands.
<i>House Sparrow</i> <i>Passer domesticus</i>	Red	F	A few birds recorded regularly in hedge along southern and eastern boundary, and in scrub within eastern grassland.
<i>Chaffinch</i>		B	5-6 Territories in scrub and periphery of site.

SPECIES	UK STATUS		STATUS AT SITE
<i>Fringula coelebs</i>			
<i>Brambling</i> <i>Fringilla montifringilla</i>		P	Recorded on several casual occasions in scrub at western edge of site with a maximum of 6-10 on 9 April. Last seen 13 April.
<i>Greenfinch</i> <i>Carduelis chloris</i>		B	Around 12 Territories in wood edge and scrub across site.
<i>Goldfinch</i> <i>Carduelis carduelis</i>		B	Occasional birds recorded.
<i>Siskin</i> <i>Carduelis spinus</i>			Seen on occasion in western part of site in spring.
<i>Linnet</i> <i>Carduelis cannabina</i>	Red BAP	B	7-9 Territories in various parts of site but most associated with gorse and bramble scrub in the north and near the western pond.
<i>Bullfinch</i> <i>Pyrrhula pyrrhula</i>	Red	B	A couple of Territories recorded in NW and southern parts of site.
<i>Hawfinch</i> <i>Coccothraustes coccothraustes</i>	Amber	B	Pair seen on several occasions in early spring in SW corner of site. Male seen singing.
Reed Bunting <i>Emberiza choeniclus</i>	Red BAP	B	One territory in the willows just east of the western pond.

Annex I – Birds listed on Annex I of the Habitats Directive.

WCA Sch 1 – Birds listed on Schedule 1 of the Wildlife and Countryside Act 1981.

BAP – UK Biodiversity Action Plan Priority Species

Birds of Conservation Concern (BoCC): Red List; Amber List (after Gregory *et al.* 2002).

Total species list: 63 species

Breeding (possible, probable, confirmed): 38 species

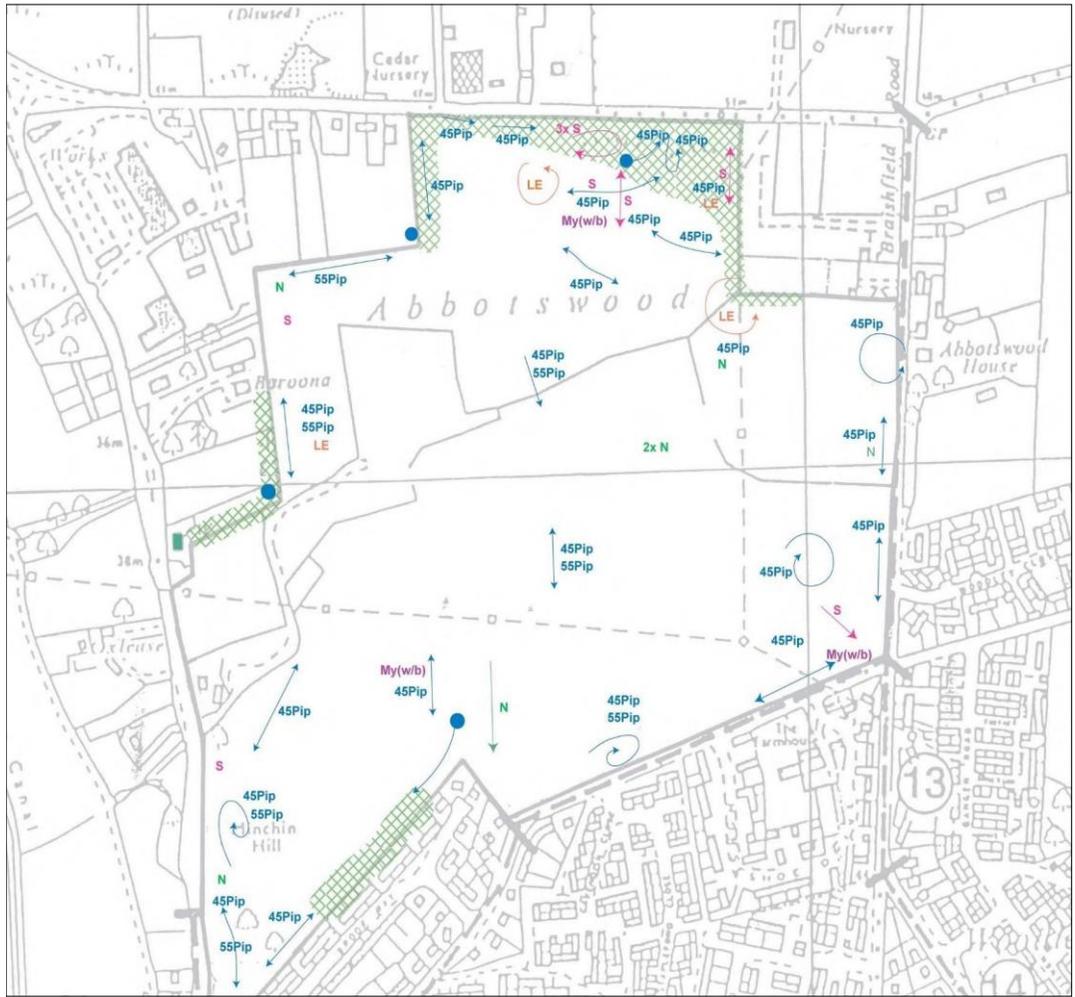
Pre-development Bird Survey carried out by EP



-  Lapwing Territories
-  Linnet Territories
-  Skylark Territories

S.6	FOUR
Bird Survey Skylark Linnet and Lapwing	TITLE
as shown	SCALE
SEE 1438_48	DWG NO.

Pre-Development bat survey carried out by EPR



- Pipistrelle bat roost
- Brown Long-eared roost
- 45Pip Common Pipistrelle
- 55Pip Soprano Pipistrelle
- S Serotine
- N Noctule
- MY(w/b) Whiskered/Brandt's
- LE Long-eared
- ↔ Foraging movement
- ▨ Area of trees with bat potential

8.7 FIGURE
Bat Survey TITLE I
 DTS SCALE
 BRS.1438_49-1a DWG. NO.

Bat surveys 2022 carried out by volunteers

Bat Survey Recording Form

Name: Elizabeth Pratt, Jennifer Adams, Richard Pratt

Date: 29 May 2021

Transect number and start location: Point C

Start time: 21:20 End time: 22:21

Lighting (Full moon/street lighting): not seen

Sunset time: 21:06

Cloud cover: 1/8 2/8 3/8 4/8 5/8 (6/8) 7/8 8/8

Wind Speed (Beaufort scale): 0

Temperature: 17°C

(e.g. A 21:00)	Point counts			Transect Sections	
	C	D	E	C-D	D-E
Species	21:20 - 21:26	21:50 - 21:55	22:15 - 22:20	21:20 - 21:50	21:50 - 22:15
Common Pip		1	1	10	9
Soprano Pip	1	1	1	3	7
Daubenton's					
Noctule					
Serotine					
Bat sp.					

Point counts are 5 minutes
E Level crossing
D Top end of meadow
C Railway tunnel south of Botley Road

Bat Survey Recording Form

Name: Elizabeth Pratt, Jennifer Adams, Richard Pratt

Date: 6 July 2021

Transect number and start location: Ramsey Bats: C

Start time: 21:38 End time: 22:36

Lighting (Full moon/street lighting):

Sunset time: 21:21

Cloud cover: 1/8 2/8 (3/8) 4/8 5/8 6/8 7/8 8/8

Wind Speed (Beaufort scale): 2

Temperature: 16

(e.g. A 21:00)	Point counts			Transect Sections	
	C	D	E	C-D	D-E
Species	21:38 - 21:43	22:02 - 22:10	22:29 - 22:35		
Common Pip	1		1	2	7
Soprano Pip	1	1	1		2
Daubenton's					
Noctule					
Serotine			1		
Bat sp.					

Point counts are 5 minutes
E Level crossing
D Top end of meadow
C Railway tunnel south of Botley Road

Bat Survey Recording Form

Name: Elizabeth Pratt, Jennifer Adams, Richard Pratt

Date: 10 August 2021

Transect number and start location:

Start time: 20:50 End time: 21:48

Lighting (Full moon/street lighting):

Sunset time: 20:37

Cloud cover: (1/8) 2/8 3/8 4/8 5/8 6/8 7/8 8/8

Wind Speed (Beaufort scale): |

Temperature: 19

(e.g. A 21:00)	Point counts			Transect Sections	
	C	D	E	C-D	D-E
Species	20:50- 20:55	21:15- 21:25	21:42- 21:47		
Common Pip	1		1	5	4
Soprano Pip	1	1	1	2	
Daubenton's					
Noctule					
Serotine		1			
Bat sp.					

Point counts are 5 minutes
 E Level crossing
 D Top end of meadow
 C Railway tunnel south of Botley Road

Point D: Probable Serotine
 circling round and round, mostly
 high over meadow, for at least
 15 minutes.

Bat Survey Recording Form

Name: Elizabeth Pratt, Jennifer Adams, Richard Pratt, Nick Hutson

Date: 18 September 2021

Transect number and start location:

Start time: 19:25 End time: 20:36

Lighting (Full moon/street lighting): almost full moon.

Sunset time: 19:15

Cloud cover: 1/8 2/8 3/8 4/8 5/8 (6/8) 7/8 8/8

Wind Speed (Beaufort scale): |

Temperature: 19°C

(e.g. A 21:00)	Point counts			Transect Sections	
	C	D	E	C-D	D-E
Species	19:25- 19:30	19:58- 20:05	20:28- 20:35	19:30- 19:58	20:05- 20:28
Common Pip		1	1	6	3
Soprano Pip			1	2	2
Daubenton's					
Noctule					
Serotine					
Bat sp.					

Point counts are 5 minutes
 E Level crossing
 D Top end of meadow
 C Railway tunnel south of Botley Road

Pre-development reptile survey carried out by EPR



2004 records:

- ▲ 1 Grass Snake
- ▲ 2 Grass Snake
- ▲ 1 Slow-worm
- ▲ 2 Slow-worm
- ▲ 3 Slow-worm

2007 records:

- GCN
- Grass snake
- ▲ Slow-worm

8.8	FIGURE
Reptile Survey	TITLE
1:3 500	SCALE
BRS.1438_50	DWG. NO.]

Table of results for reptiles on site by HIWARG

Species	2017	2018	2019	2020	2021	2022
Grass snake (<i>Natrix helvetica</i>)	0	0	0	5	22	1
Slow worm (<i>Anguis fragilis</i>)	1	2	0	3	24	2
Common toad (<i>Bufo bufo</i>)	0	0	0	0	2	0
Great crested newt (<i>Triturus cristatus</i>)	0	0	0	0	1	2

Great Crested Newt Data

Results from EPR during planning and building of the housing estate:

Location	Peak count						
	2008	2011	2012	2013	2014	2015	2016
Main breeding pond	60	49	13	26	29	4	4
Mitigation pond 1			1	13	30	32	28
Mitigation pond 2		7	6	37	62	14	60
Mitigation pond 3		6	15	22	59	26	45
Mitigation pond 4			6	1	0	0	5
Southern pond					0	1	0

Attenuation basin 1						0	0
Attenuation basin 2					5	1	4
Attenuation basin 3					5	3	3
Attenuation basin 4					15	15	15
Total site count:	60	62	41	99	205	96	164

TVBC results 2019

Date	Temp/Time	Species	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 8	Pond 9	Total
20/03/2019	10/19:30	GCN Male	12	44	23	25	13	6	0	14	194
		GCN Female	3	10	5	21	5	1	6	11	
		GCN Juv.									
		Smooth	6	5	3	7	6	22	2	4	55
		Palmate						7			7
		Other									
17/04/2019	11/21:00	GCN Male	3	8	16	14	6	4	0	1	106
		GCN Female	4	5	15	19	8	3	0	0	
		GCN Juv.									
		Smooth	2	5	4	19	3	21	14	46	114
		Palmate									
		Other									
24/04/2019	11/21:00	GCN Male	3	2	4	13	8	3	0	1	77
		GCN Female	2	12	8	11	7	2	1	0	
		GCN Juv.									
		Smooth	2	6	6	9	2	44	30	62	161
		Palmate									
		Other									

TVBC results 2020*

Date	Temp/Time	Species	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 8	Pond 9	Total
29/01/2020	7/17:30	GCN Male	1	10	18	19	3	1			57
		GCN Female	1			1	1				
		GCN Juv.						1	1		
		Smooth	1	3			1	4			9
		Palmate									
		Other									
26/02/2020	6/18:00	GCN Male		40	8	13	5		1		111
		GCN Female		9	5	14	2				
		GCN unidentified		5	3			1			
		GCN Juv.		3		2					
		Smooth		7		2	1	4	2		16
		Palmate									
		Other									

*number of surveys low due to Covid-19 restrictions

TVBC results 2021*

Date	Temp/Time	Species	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 8	Pond 9	Total
18/03/2021	12/18:00	GCN Male	9	35	25	36	10	3		1	156
		GCN Female	2	5	5	10	5	8		1	
		GCN unidentified									
		GCN Juv.								1	
		Smooth	10	5		8	11	9	1		44
		Palmate				1					1
		Other									

***number of surveys low due to Covid-19 restrictions**

TVBC results 2022

Date	Temp/Time	Species	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 8	Pond 9	Total	
18/01/2022	6/17:00	GCN Male	0	3	3	1	4	N/A	N/A	N/A	18	
		GCN Femal		3		2	1					
		GCN Juv.				1						
		Smooth										
		Palmate		1								1
		Other										
03/02/2022	9/18:00	GCN Male		8	6	23	7				63	
		GCN Female	2	2	1	7	1					
		GCN Juv.		1			4	1				
		Smooth				1	4				5	
		Palmate	3			1		1			5	
		Other										
28/02/2022												
07/03/2022	6/18:30	GCN Male	2	21	11	14	4				76	
		GCN Female	1	3	4	11	5					
		GCN Juv.										
		Smooth	1	2		2					5	
		Palmate										
		Other										
23/03/2022	9/19:20	GCN Male	3	34	12	28	18				126	
		GCN Female				12	7					
		GCN Juv.		1		3	8					
		Smooth	2	20	1	7	1				31	
		Palmate				3	3				6	
		Other										
04/04/2022	12/20:20	GCN Male	7	29	29	22	22	7			163	
		GCN Female	10	11	9	9	6	0				
		GCN Juv.	1		1	0	0	0				
		smooth	6	9	5	4	5	3			32	
		palmate	2	3	1	0	0	2			8	
		other										
25/04/2022	11/21:00	GCN Male	13	21	11	12	4				97	
		GCN Female	6	6	11	8	4					
		GCN Juv.					1					
		smooth	1	14	5	7					27	
		palmate										
		other										