

Ecological Scoping Survey

Caldyne Park, Rowfant

Scoping Report to:
Caldyne Ltd

L. D. Brady
2nd May 2014



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1. Summary

Background

- 1.1 Land at Caldyne Park has been identified as the location of a new car park project.
- 1.2 Calumma Ecological Services was commissioned by Caldyne Ltd to undertake an ecological scoping survey of the site and advise on the need for additional survey work and mitigation.

Flora

- 1.3 The development area has already been cleared so has no remaining botanical interest. The surrounding woodland is classed as ancient and supports a rich variety of trees and shrubs. Non-native rhododendron has invaded the woodland.
- 1.4 A botanical survey of remaining areas of ancient woodland is recommended. The results of the survey can then help to inform production of a woodland management plan.

Birds

- 1.5 Trees and shrubs within the surrounding woodland will support nesting birds. Consideration should be given to installation of bird nesting boxes. The number, type and location of boxes should be detailed in the recommended woodland management plan.

Bats

- 1.6 Bats are likely to use the open car park area as a flight path between trees in the surrounding woodland.
- 1.7 Trees in the surrounding woodland are likely to support roosting bats.
- 1.8 Additional survey work for bats is recommended. Consideration should be given to installation of bat roosting boxes. The number, type and location of boxes should be detailed in the recommended woodland management plan.

Reptiles

- 1.9 Land within the site no longer offers any habitat suitable for reptiles.
- 1.10 A stand of heather close to the boundary of the car park is likely to support reptiles.
- 1.11 Reptile survey work is recommended. The results of the survey can then help to inform production of a woodland management plan.

Amphibians

- 1.12 Ground truthing and literature review undertaken by Calumma Ecological Services indicates that one large pond is located within 500 m of the site boundary. Other small woodland ponds may also occur in the local area.
- 1.13 This permanent waterbody is considered likely to support fish. Ponds that support fish typically offer *poor* potential for great crested newt.
- 1.14 Based on available information, additional survey work for great crested newt is not considered necessary.

Badgers

- 1.15 No badger setts are present within the proposed development site. Badgers may have setts within the surrounding ancient woodland and are likely to forage close the the site boundary.

Dormouse

- 1.16 Available habitat around the boundary of the proposed construction footprint is considered suitable for dormouse.
- 1.17 Additional survey work for dormouse is recommended. The results of the survey can help to inform production of a woodland management plan.

Water Vole

- 1.18 No waterbodies are located within the site boundary.
- 1.19 Development work at the site is unlikely to have had any significant impacts on populations of water vole that may occur in the locality and additional survey work is not considered necessary.

Invertebrates

- 1.20 Available habitat within the surrounding ancient woodland is considered to offer good opportunities for invertebrates that specialise in dead wood.
- 1.21 Although additional survey work for invertebrates is not considered necessary, management of dead wood should be included in the proposed woodland habitat management plan.

Other Considerations

- 1.22 The applicant is advised that hedgehogs, deer and other notable species are likely to occur in the local area and may shelter in suitable locations within the surrounding ancient woodland.
- 1.23 Production of a woodland management plan is strongly recommended. Additional species surveys will need to be undertaken. The results of the surveys should then inform the management plan. Some specific issues that the management plan should address are

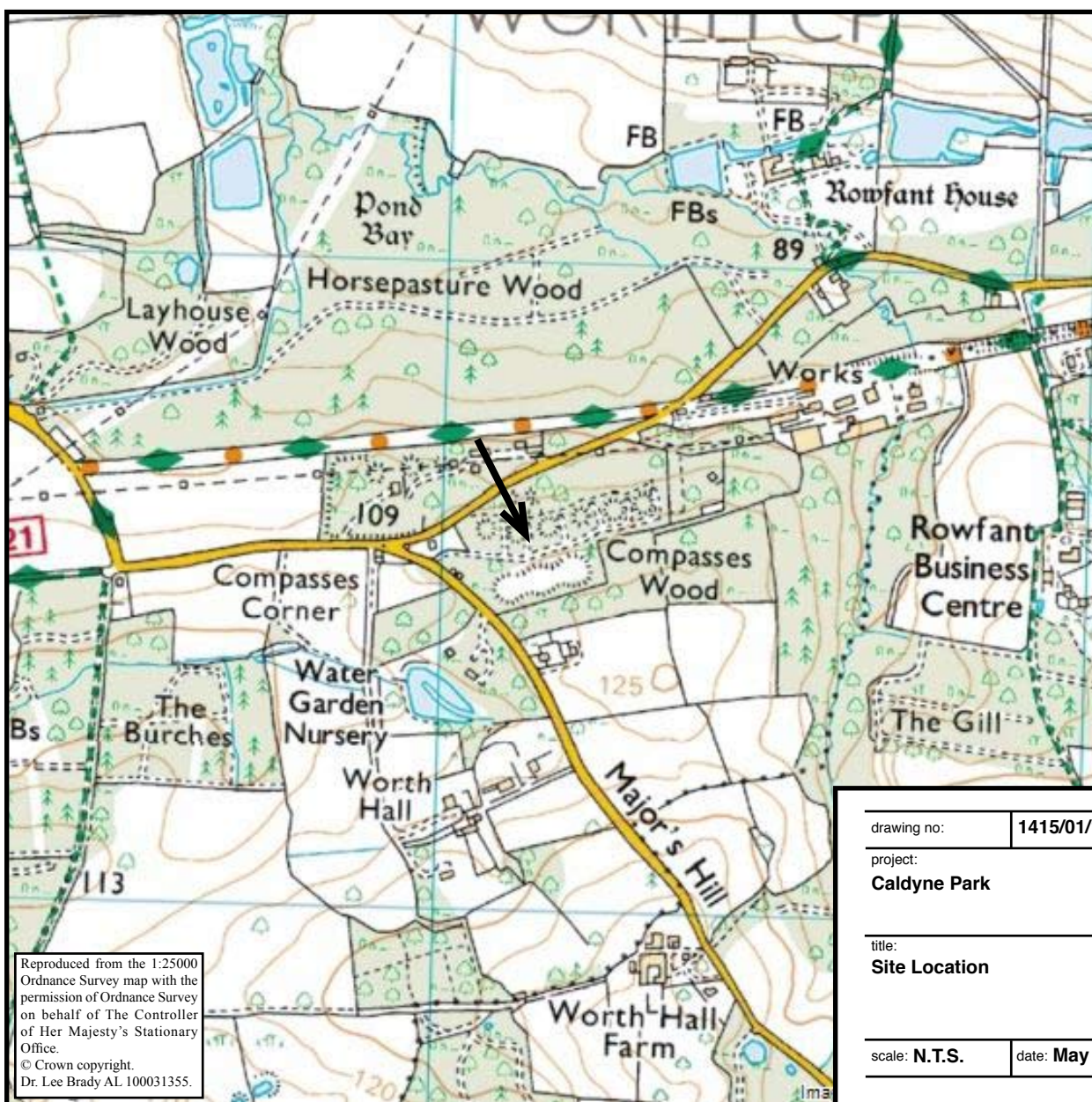
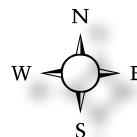
control of rhododendron, positive management of dead wood, positive management of heather for reptiles.

2. Site Location and Assessment

Site Name:	Land at Caldyne Park - <i>the site</i> ; Fig. 2.1
Grid Reference:	TQ 321 365
County:	Sussex
Planning Authority:	Crawley Borough Council
Natural Area:	High Weald
Client:	Caldyne Ltd
Proposed Disturbance:	Recently constructed car parking area
Survey Request:	Ecological scoping survey
Surveyor:	Lee Brady PhD, BSc (Hons), MCIEEM <i>For and on behalf of Calumma Ecological Services</i>
Assessment Period:	15 th April 2014
Limitations:	This assessment did not include detailed surveys of protected species. Scoping surveys assess likely presence of species on a site and recommend follow-up survey work, management and mitigation as appropriate.

**Fig. 2.1 Land at Caldyne Park
(TQ 321 365)**

Location of study site.



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3. Legal Protection

The legal protection of animals and plants in the United Kingdom is governed by several different regulations and conventions. Principally, these include:

- The Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 and
- The Habitats and Species Directive (92/43/EC) enacted through the Conservation of Habitats and Species Regulations 2010. Development works affecting listed species are subject to a licence granted by an appropriate authority. This authority is currently Natural England.

3.1 Flora

A number of plant species are protected under Section 13 of the amended 1998 Wildlife and Countryside Act of 1981. It is an offence to intentionally pick, uproot or destroy any wild plant listed in Schedule 8 of the Act. The list includes both higher plants including several of the rarer orchids and lower plants including several mosses and lichens.

3.2 Birds

All wild birds (birds in a wild state resident in or visiting Great Britain) and their nests and eggs are protected under the Wildlife & Countryside Act 1981. Particular emphasis is given to the protection of breeding birds. With certain exceptions, it is an offence to intentionally kill, injure or take wild birds, take, damage or destroy the nest of wild birds while in use or being built, take or destroy the eggs of wild birds, disturb wild birds listed in Schedule 1 when nest building or at a nest containing eggs or young, or disturb dependent young of wild birds.

3.3 Bats

All species of bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone to intentionally kill, injure or handle a bat, to possess a bat (whether live or dead), deliberately disturb a roosting bat, or sell or offer a bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

3.4 Reptiles

All native reptiles are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (WCA 1981). It is an offence for anyone to intentionally kill or injure a 'widespread' reptile species (viviparous lizard, slow-worm, grass snake or adder), or sell or offer for sale without a licence.

The sand lizard and smooth snake, their breeding sites or resting places (any structure that may offer refuge) are protected under Regulation 41 of The Conservation of Habitats and

Species Regulations 2010. It is an offence for anyone intentionally to kill, injure or handle either of these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by sand lizards and smooth snakes for shelter, whether they are present or not.

3.5 Amphibians

All native amphibians are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (WCA 1981). It is an offence for anyone to sell or offer for sale any native amphibian species without a licence.

The great crested newt and natterjack toad, their breeding sites (typically ponds) or resting places (typically a terrestrial habitat that offers refuge) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010. It is an offence for anyone to intentionally kill, injure or handle either of these two species, to possess an animal (whether live or dead), deliberately disturb a sheltering animal, or sell or offer an animal for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by natterjack toads or great crested newts for shelter, whether they are present or not.

3.6 Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992, which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. The term 'badger sett' is normally understood to mean the system of tunnels and chambers, in which badgers live, and their entrances and immediate surrounds. The 1992 Act specifically defines a sett as "any structure or place which displays signs indicating current use by a badger".

3.7 Hazel Dormouse

Individual animals, their breeding sites or resting places (nests) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone intentionally to kill, injure or handle a dormouse, to possess a dormouse (whether live or dead), deliberately disturb a dormouse, or sell or offer a dormouse for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by dormice for shelter, whether they are present or not.

3.8 Water Vole

Until the 6th April 2008 water voles received partial protection under the Wildlife & Countryside Act 1981 (as amended). This included protection from killing or taking by certain prohibited methods. Breeding and resting places (burrows) were fully protected from destruction or obstruction; it was also an offence to disturb them in these places. From April 2008 water voles and their resting places are fully protected in England. It is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It continues to be an offence to disturb them in their breeding or resting places.

3.9 Invertebrates

A small number of invertebrates including beetles, crickets, butterflies and moths are protected under Section 9, Schedule 5 of the amended 1998 WCA 1981 against deliberate killing, injuring and taking. Other species receive partial protection under the same act. For example, it is an offence for anyone to sell or offer for sale a stag beetle without a licence. The stag beetle is also listed as a Priority Species on the UK BAP.

4. Literature Review

4.1 Site Designations

4.1.1 Habitat Designations

Information available through Sussex Biodiversity Records Centre (ESD/14/198) indicates that habitat at the Caldyne Park survey site has been designated as ancient woodland.

Ancient woodland is defined by Natural England as a site that has had a continuous woodland cover since at least 1600 AD. It is an irreplaceable, wildlife-rich habitat, and often includes important archaeological features.

Sussex is one of the most wooded parts of lowland Britain with ancient woodland covering approximately 39,000ha (10%) of the county. Bluebell woods associated with coppicing, open wood pasture associated with deer parks and the small Wealden woods in ghyll valleys are a key part of Sussex's distinctive and varied landscape.

4.1.2 Designated Areas

The Caldyne Park survey site has no specific land designations associated with it.

4.2 Records Searches

Available records for protected species have been obtained from Sussex Biodiversity Records Centre (ESD/14/198).

Note that the availability of records is directly related to survey effort. A lack of records does not necessarily indicate the absence of protected species.

4.2.1 Flora

Coralroot (*Cardamine bulbifera*) is a rare woodland plant with a stronghold in NE Sussex. Coralroot has been recorded from woodland habitat in the local area.

A number of non-native invasive plants have also been reported locally. Of particular note is *Rhododendron ponticum* that appears to be particularly widespread.

4.2.2 Invertebrates

A number of rare invertebrates have been recorded in the local area including *Graptodytes granularis* (water beetle), *Dolichovespula (Dolichovespula) media* (bug), *Apatura iris* (purple emperor butterfly) and *Cordulia aenea* (downy emerald dragonfly).

4.2.3 Mammals

European water vole has been recorded from a large waterbody located ~800 m to the northeast of the car parking area. A number of bat species have also been recorded. These include brown-long-eared (*Plecotus auritus*) and other unidentified species. Although not protected, west European hedgehog (*Erinaceus europaeus*) is listed as a biodiversity action plan species and known to occur locally.

4.2.4 Notable Bird Species

Several notable bird species are known to occur in the local area. These include European turtle dove (*Streptopelia turtur*), kingfisher (*Alcedo atthis*), willow tit (*Poecile montanus*), wood warbler (*Phylloscopus sibilatrix*) and lesser spotted woodpecker (*Dendrocopos minor*).

5. Summary Site Description

5.1 Site Location

Caldyne Park is located in a rural location within the High Weald Natural Area (English Nature, 1998). The site is accessed from Wallage Lane.

5.2 Aquatic Habitat

No waterbodies exist within the site boundary. A large pond is located in a water garden nursery ~ 300 m to the southwest (Fig. 5.1).

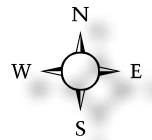
5.3 Terrestrial Habitat

There is very little remaining terrestrial habitat within the newly created car park area. Caldyne Park is situated within Compasses Wood. Although this habitat has been designated as ancient woodland, the cleared area that is now used for car parking was previously used by MOD for unspecified purposes. However, it is apparent that MOD use of the site had ceased before habitat was cleared to create the car parking area (Fig. 5.2).

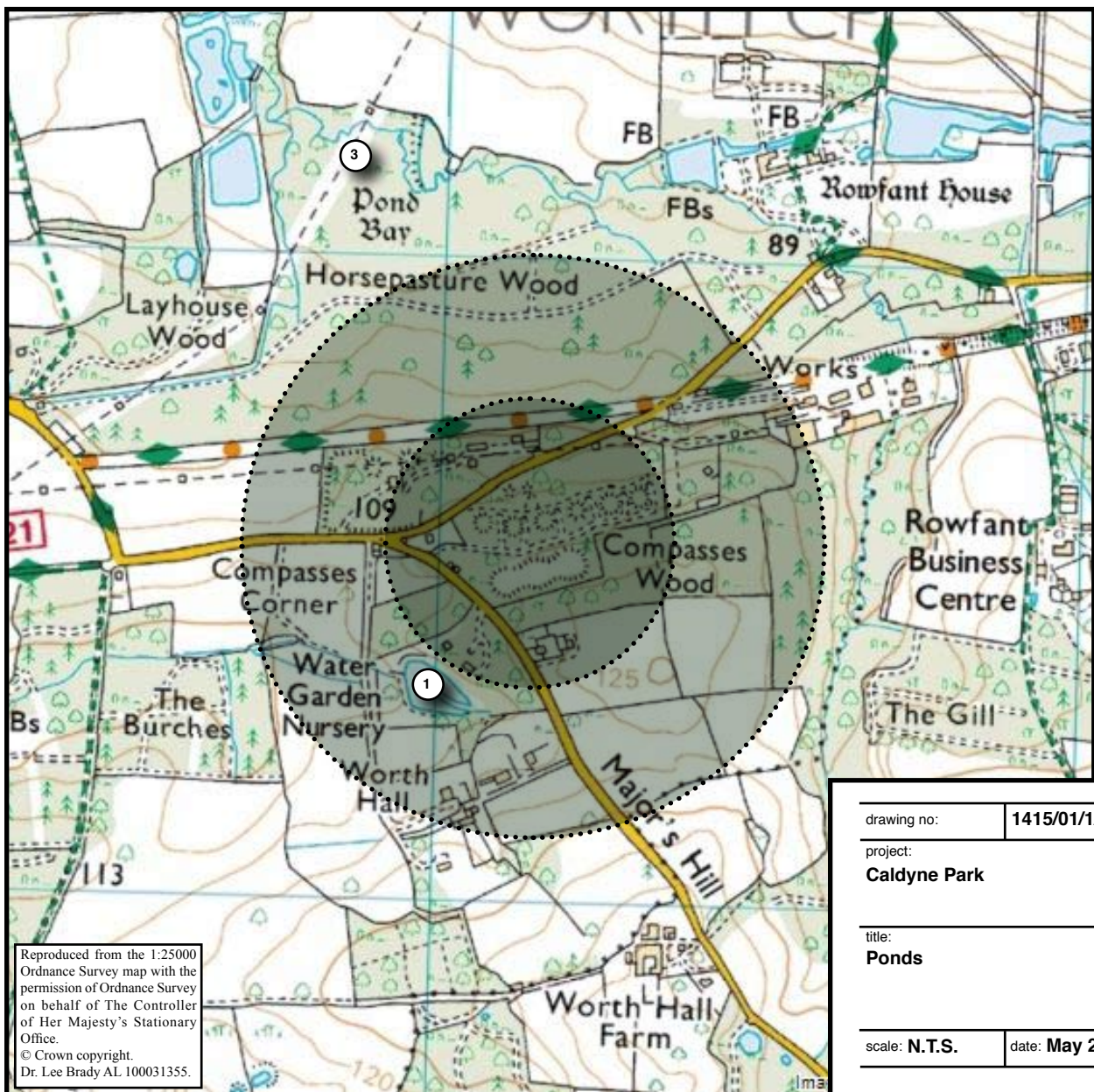
Habitat available within the proposed development area at the time of the survey assessment is illustrated in Fig. 5.3.

Fig. 5.1 Ponds

Figure illustrates ponds known to occur within English Nature (2001) recommended area of search for great crested newt.



For ponds located more than 250 m from a proposed development, Natural England recommend that survey work is most appropriate when (a) the pond has the potential to support a large population, (b) the development includes particularly favourable habitat, (c) the development will have a significant impact on available habitat, (d) there is an absence of dispersal barriers.



Key to Symbols

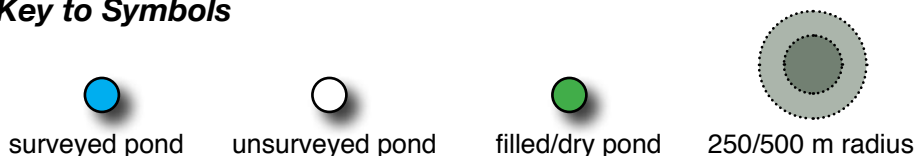
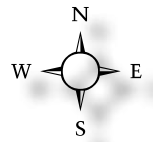


Fig. 5.2 Remaining Habitat

Figure illustrates recent changes in remaining habitat within survey area. Habitat present during the 2014 survey assessment is illustrated in Fig. 5.3.



May 2007



September 2012



June 2013

drawing no: 1415/01/1/5.2

project:
Caldyne Park

title:
Remaining Habitat

scale: **N.T.S.** date: **May 2014**

All Images Google Earth



Some areas of cleared ground around the boundary of the car park have been formed into bunds. The bunds act as an interface between the woodland and hard core.

Fig. 5.3 Site Photographs
Figure illustrates habitat features located within the study area.

An area of ground within the woodland has been cleared and covered with hard core to provide a car parking area.



Woodland areas support a wide variety of birds and mammals (including fallow deer). Dormice are frequently found in this type of habitat. Mature trees within the woodland could also support roosting bats.

Areas of heathland still persist within the woodland and may indicate the form of terrestrial habitat that existed before the site was cleared. Heather covered heathland provides good quality habitat for reptiles.

drawing no:	1415/01/1/5.3
project:	Caldyne Park
title:	Terrestrial Habitat
scale: N.T.S.	date: May 2014



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6. Potential Ecology Interests and Recommendations

6.1 Flora

Available vegetation within the newly created car parking area is very limited. The few plants that survive are typical of disturbed ground and restricted to the boundary of the car park on a newly created bund. Although botanical interest within the car park is limited due to the presence of hard core, surrounding habitat includes ancient woodland. Species present in the woodland include birch, oak, sweet chestnut, sycamore, ash, hazel and Scots pine. Rare plants such as coralroot are known to occur within the local area. A stand of heather amongst young birch trees close to the boundary of the car park, suggests that the car park area may once have been characterised by open areas of heathland.

A full botanical survey is required to establish the presence of rare plant species within the surrounding ancient woodland. The extent of invasive species such as rhododendron should also be assessed. This information can then be used to develop a habitat management plan for remaining areas of woodland.

6.2 Birds

Within the local area there are areas of grassland, hedges and woodland. This rich variety of potentially suitable habitat is expected to support a diverse bird population within the locality. Habitat along the boundary of the car park area offers good potential for nesting birds. Birds observed/heard in or close to the car park area during the site assessment included: blue tit, great tit, blackbird, chaffinch and robin.

Although there is only limited information on potential nesting habitat that was present before site clearance took place, it is likely that trees and shrubs within the cleared area would have supported nesting birds. The applicant should consider installation of bird nesting boxes. The type, number and location of boxes should be addressed in the proposed woodland management plan.

6.3 Bats

The proposed development site is surrounded by ancient woodland. Invertebrates associated with dead wood and trees will provide prey to foraging bats. Other buildings and trees suitable for roosting bats are likely to be located in the general locality. It is anticipated that bats that roost elsewhere within the locality could visit the site to forage around trees.

6.3.1 Recommendations

The scoping assessment found trees that offer potential roosting habitat for bats in the surrounding ancient woodland. A follow-up survey by an experienced bat worker should be undertaken to more thoroughly determine usage of the site by bats. In particular, an emergence/activity survey using appropriate bat detectors should be undertaken. This will help to confirm usage of nearby trees by roosting bats and the use of the site as a foraging resource by bats.

- Emergence surveys should commence half an hour prior to sunset until 1.5 hours after sunset.
- Where activity surveys are also conducted, surveyors should continue to survey the site for an additional 2.5 hours (totally 4 hours survey).
- Dawn surveys should commence 1.5 hours prior to sunrise until half an hour after sunrise.

The applicant should consider installation of bat roosting boxes. The type, number and location of boxes should be addressed in the proposed woodland management plan.

The applicant should also be aware that some artificial lighting can be detrimental to roosting, foraging and commuting bats and as such the Bat Conservation Trust's *Bats and Lighting in the UK guidance* should be adhered to in the lighting design (Appendix I).

6.4 Reptiles

There is no remaining reptile habitat within the car parking area. Stands of heather close to the boundary of the car park are considered likely to support reptile species (e.g. viviparous lizard and slow-worm). Additional reptile survey work within these areas is recommended.

6.4.1 Reptile Survey Recommendations

- Survey all suitable terrestrial habitat within the proposed development area.
- Survey work should be undertaken by experienced personnel using two methods (preferably visual survey to find hatched eggs and artificial cover object survey to locate adults and juveniles).
- A minimum of 7 survey visits are required to reliably confirm presence/likely absence.
- Survey visits should be undertaken during suitable weather conditions from mid-March to mid-October.

The confirmed presence of reptiles should be used to help inform a habitat management plan for remaining areas of woodland.

6.5 Amphibians

Only one pond is known to be situated within 500 m of the car park (Fig. 5.1).

The likely presence of great crested newt is usually assessed by examination of aquatic variables such as presence of fish, waterfowl and water quality. For ponds, these data have been used to calculate a 'Habitat Suitability Index' (HSI; after Oldham *et. al.*, 2000). The HSI is represented by a number from 0 to 1, the higher the number the more likely each pond is to support breeding great crested newt. In order to facilitate interpretation of a waterbody's HSI, calculated scores are accompanied by a subjective description that reflects the likely presence of great crested newt. Data collected over several years by Calumma Ecological Services has confirmed that the HSI is a tool that can be used to accurately predict the likely presence of great crested newt.

WB1 is a large pond situated within a water garden nursery and believed to support a major population of fish. The presence of a major fish population means that this pond is considered likely to offer *poor* potential for great crested newt. The pond could support breeding common frog, common toad (biodiversity action plan species), smooth newt and palmate newt.

Based on available information, additional survey work for amphibians is not considered necessary.

6.6 Badgers

No sign of the presence of badgers was found within the car park area during the site assessment. There was no evidence of a badger sett close to the site boundary, either active or unused nor any sign that badgers are defecating within the area.

Additional survey work for badgers should focus on identifying the locations of setts within the surrounding ancient woodland. This information can then be used to help inform a habitat management plan.

6.7 Hazel Dormouse

Habitats typically suitable for dormouse include:

- Deciduous woodland, with a dense understory, species-rich shrub layer and thick ground cover.
- Hazel or sweet chestnut coppice.
- Continuous, thick, wide hedgerows over 4m high with connections to nearby suitable woodland.
- Thick continuous areas of scrub, particularly bramble, close to hedgerows or woodlands.

However, it should be noted that the hazel dormouse is regularly reported in less typical habitats including coniferous woodland, tall grassland and coastal scrub/heath.

Although remaining areas within the cleared car park no longer offer habitat suitable for dormouse, the site's location within an area of ancient woodland indicates that dormouse may previously have been present. Further survey work for dormouse should be undertaken in the surrounding ancient woodland to help inform a habitat management plan.

6.8 Water Vole

No watercourses are present within the proposed development footprint and available habitat is therefore not considered suitable for this species.

It is considered that creation of the car parking area is unlikely to have had any significant impact on populations of water vole that occur in the local area and additional survey work is not considered necessary.

6.9 Invertebrates

Available habitat within the surrounding ancient woodland is considered to offer opportunities for invertebrates that specialise in dead wood. Although additional survey work for invertebrates is not considered necessary, consideration should be given to management of dead wood within the recommended ancient woodland management plan.

6.10 Other Considerations

The applicant should also be aware that hedgehogs are likely to be present in the local area and may hibernate around the base of suitable structures. Tracks of deer (most likely fallow deer) were also observed in wet mud close to the site boundary.

7. References and Further Reading

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Appendix I: Bats and Lighting

Source:

Bat Conservation Trust and Institution of Lighting Engineers

Summary of Requirements

The two most important features of street and security lighting with respect to bats are:

1. The UV component. Low or zero UV installations are preferred to reduce attraction of insects to lighting and therefore to reduce the attraction of foraging bats to these areas.
2. Restriction of the area illuminated. Lighting must be shielded to maintain dark areas, particularly above lighting installations, and in many cases, land adjacent to the areas illuminated. The aim is to maintain dark commuting corridors for foraging and commuting bats. Bats avoid well lit areas, and these create barriers for flying bats between roosting and feeding areas.

UV characteristics:

Low

- Low pressure Sodium Lamps (SOX) emit a minimal UV component
- High pressure Sodium Lamps (SON) emit a small UV component
- White SON, though low in UV, emit more than regular SON

High

- Metal Halide lamps emit more UV than SON lamps, but less than Mercury lamps
- Mercury lamps (MBF) emit a high UV component.
- Tungsten Halogen, if unfiltered, emit a high UV component
- Compact Fluorescent (CFL), if unfiltered, emit a high UV component.

Variable

- Light Emitting Diodes (LEDs) have a range of UV outputs. Variants are available with low or minimal UV output.

Glass glazing and UV filtering lenses are recommended to reduce UV output.

Street lighting

Low-pressure sodium or high-pressure sodium must be used instead of mercury or metal halide lamps. LEDs must be specified as low UV. Tungsten halogen and CFL sources must have appropriate UV filtering to reduce UV to low levels.

Lighting must be directed to where it is needed and light spillage avoided. Hoods must be used on each lamp to direct light and contain spillage. Light leakage into hedgerows and trees must be avoided.

If possible, the times during which the lighting is on overnight must be limited to provide some dark periods. If the light is fitted with a timer this must be adjusted to reduce the amount of 'lit time' and provide dark periods.

Security and domestic external lighting

The above recommendations concerning UV output and direction apply. In addition:

- Lighting should illuminate only ground floor areas - light should not leak upwards to illuminate first floor and higher levels;
- Lamps of greater than 2000 lumens (150 W) must not be used;
- Movement or similar sensors must be used - they must be carefully installed and aimed, to reduce the amount of time a light is on each night;
- Light must illuminate only the immediate area required, by using as sharp a downward angle as possible;
- Light must not be directed at or close to bat roost access points or flight paths from the roost - a shield or hood can be used to control or restrict the area to be lit;
- Wide angle illumination must be avoided as this will be more disturbing to foraging and commuting bats as well as people and other wildlife;
- Lighting must not illuminate any bat bricks and boxes placed on buildings, trees or other nearby locations.



Calumma Ecological Services is an independent wildlife consultancy specialising in the applied conservation of amphibians and reptiles. *Calumma Ecological Services* offers a full range of specialist services to private companies, local authorities, government agencies, wildlife organisations and members of the public.

Calumma Ecological Services works towards the policy of 'best practice' advocated by ARG UK (formally known as Herpetofauna Groups of Britain and Ireland).

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