

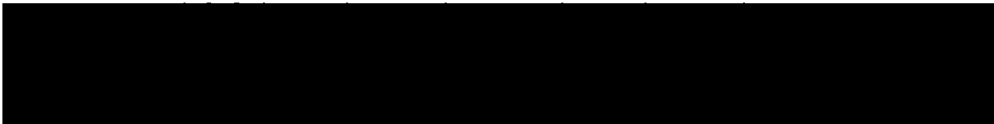
Aluco Ecology Ltd

**LAND AT BONHAMS,
YAPTON**

ECOLOGICAL ASSESSMENT

NOVEMBER 2016

Aluco Ecology Ltd Registered in England No. 5598341



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LAND AT BONHAMS, YAPTON

ECOLOGICAL ASSESSMENT

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1.0 INTRODUCTION

1.1 Background

1.1.1 Aluco Ecology Ltd was commissioned to carry out an Ecological Assessment of land at Bonhams, Yapton in West Sussex.

1.1.2 The aim of the Ecological Assessment is to survey and document baseline ecology data on the site and study area, and then evaluate and assess the impacts of the proposals for Outline Planning Permission against this baseline. The assessment therefore:

- highlights any features of particular ecological value;
- identifies potential impacts to ecology as a result of the proposed works;
- identifies any ecological issues that may have legal or planning implications such as the presence of protected species; and
- recommends potential for mitigation and/or compensation that can be undertaken to avoid, reduce or offset the potential for impacts.

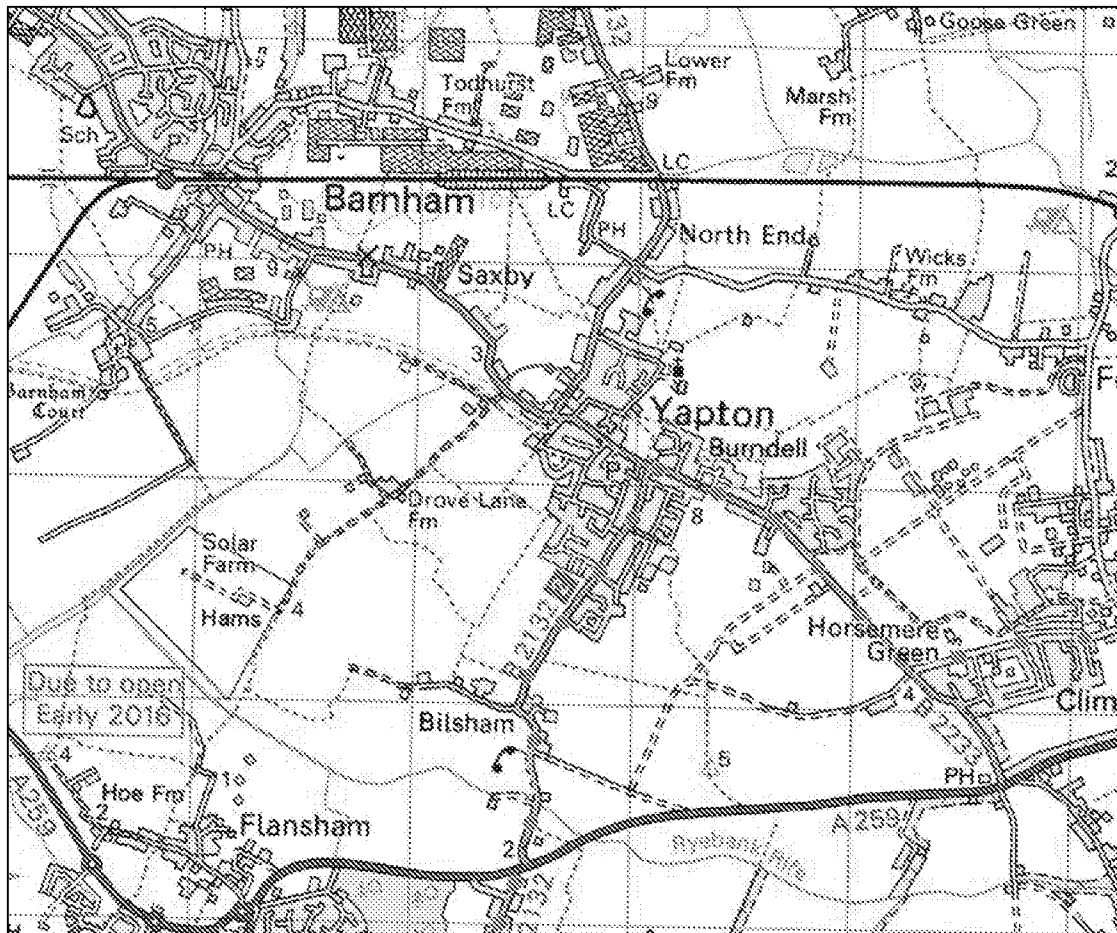
1.1.3 The results of the assessment are provided below to inform the Outline Planning Application for development on the site.

1.1.4 The Government sets out its objectives for conserving and enhancing biodiversity in the National Planning Policy Framework. The Government's objectives for planning and biodiversity are that '...the planning system should seek not just to protect, but where possible to enhance biodiversity – making sure we don't just have isolated pockets of wildlife, but rich and connected green spaces for all kinds of species to thrive.'

1.1.5 The Framework goes on to state that at the heart of the planning system is a presumption in favour of sustainable development. Planning Practice Guidance on the Natural Environment provides information on taking biodiversity into account in planning (see Para. 007- onwards)

1.2 Outline of the Scheme and Site Location

- 1.2.1 The site is located on the western edge of Yapton. The location is shown at **Figure 1** below. It comprises two agricultural fields.



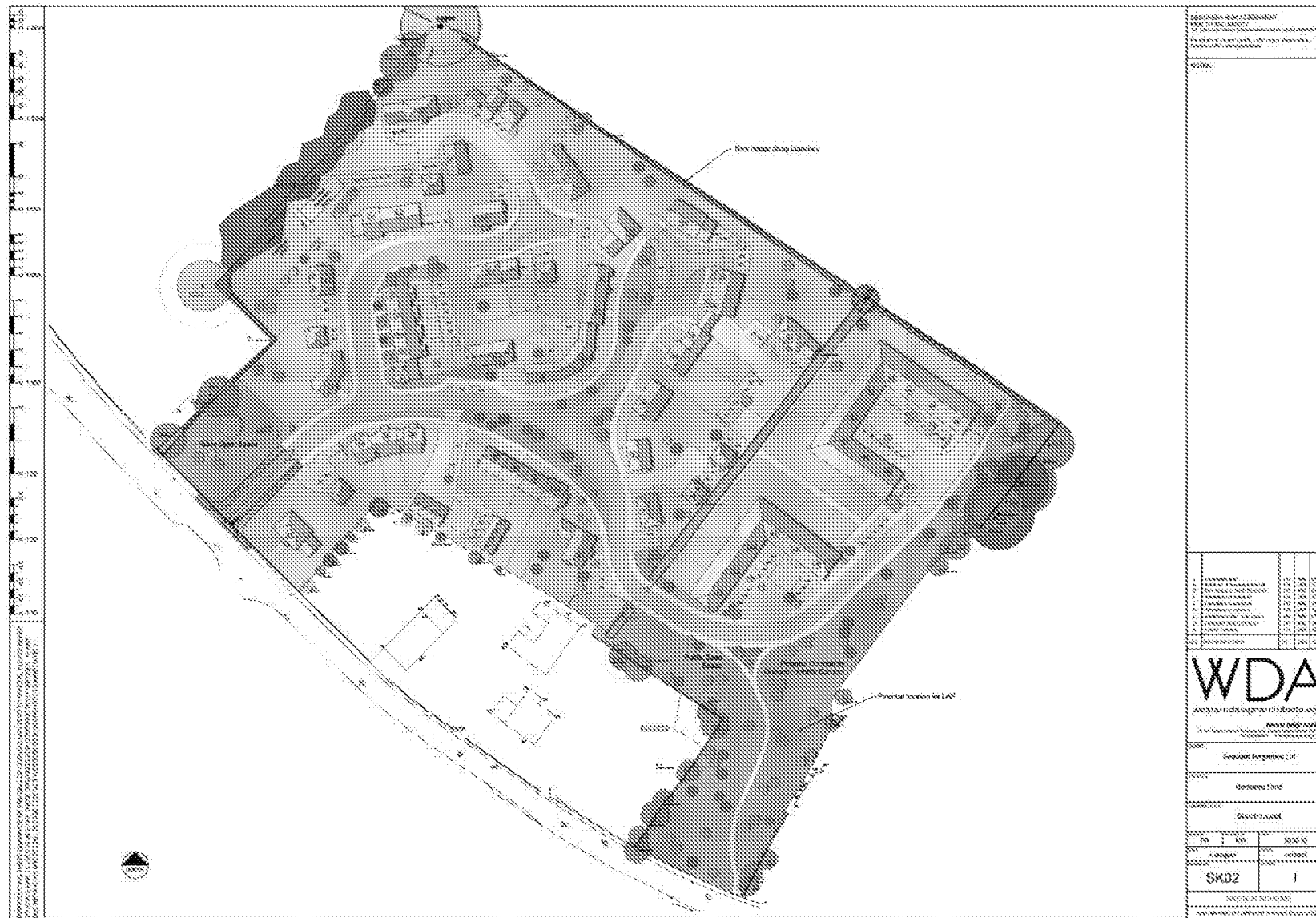
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Figure 1: Location of the site

- 1.2.2 The scheme is described as a sustainable development of Seaward Home homes sensitively integrated through open landscaping into the existing environment. The application is for 56 units ranging from 1bed – 4 bed units. The units will generally be 2 storeys, with the exception of plots 42 – 56 which are 1 storey barn style to compliment the conservation area and nearby listed buildings.
- 1.2.3 **Figure 2** below shows the site and boundaries.

1.3 Relevant Legislation and Policy

- 1.3.1 The outcomes of this Ecological Appraisal will be tested against relevant legislation and policy; namely the Conservation of Habitats & Species Regulations 2010 in relation to the protection of European sites (Special Protection Areas SPA, and Special Areas of Conservation SAC) and European protected species (eg bats, dormouse, great crested newts) (**Technical Appendix 1**) and the Wildlife & Countryside Act 1981 (as amended) and Countryside & Rights of Way Act (CROW) 2000 for protected species and the designation and protection of SSSIs (**Technical Appendix 2**). The Protection of Badgers Act 1992 gives protection to Badgers *Meles meles*.
- 1.3.2 In addition to the National Planning Policy Framework and the legislation outlined above, the strategic and local planning policies are also considered; the Arun District Council Local Development Framework contains policies relating to ecology, these are outlined at **Technical Appendix 3**. The Yapton Neighbourhood Plan (Yapton Parish Council, 2014) provides policies relevant to biodiversity (see **Technical Appendix 3**).
- 1.3.3 Under the Governments duty to conserve Biodiversity, a number of Biodiversity Action Plans have been prepared for habitats and species of conservation concern, including national BAPs and a Biodiversity Action Plan for West Sussex, and this is considered in the general ecological site appraisal. The site is not within the biodiversity opportunity areas set out in the Local Plan.



2.0 ASSESSMENT METHODOLOGY

2.1 Introduction

- 2.1.1 The methodology for this Assessment has regard to the Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom published by the Chartered Institute of Ecology and Environmental Management (IEEM, 2006 & 2016), and on the guidelines for ecological appraisal (IEEM, 2012), and report writing guidelines (CIEEM, 2015).

2.2 Site Survey Methodology

Ecology Appraisal

- 2.2.1 The first stage is a desk study of the site and associated Zone of Influence. This provides background information on the site and local environment in order to effectively target field survey and further desk research. The aims of the field survey are to record land-use and broad vegetation types present on the site and in the surrounding areas, and to evaluate the habitats and vegetation communities' potential ecological value along with their potential to support protected species, species of principal importance, and any other notable species. Further details of the methodology used can be found in **Technical Appendix 4**.

3.0 BIOPHYSICAL CHANGES AND THE ZONE OF INFLUENCE

3.1 Introduction

- 3.1.1 In order to be able to target relevant ecological survey and assess the impacts of a proposed development, it is necessary to identify the activities that may result in biophysical changes from the development and the area these cover (i.e. the zone of influence). There are three stages of this development scheme that include activities that may have an impact on features of ecological value; namely site preparation, construction and operation / use.

- 3.1.2 **Figure 2** shows the extent of the site and proposed development area.

3.2 Biophysical Changes associated with the Development Scheme – Determination of the Zone of Influence

- 3.2.1 It is anticipated that change of use of the site would result in the physical structure of the present site being altered. The potential zone of influence of the proposal is determined from the predicted biophysical changes brought about by activities associated with construction and post-construction phases. Therefore the zone is predicted to extend across the development footprint and locally along the edge of the site, and immediately adjacent to the site. Consequently, survey has been carried out within this zone.

3.3 Site Preparation / Construction Activities and Biophysical Changes

- 3.3.1 During the construction phase, it is predicted that site preparation activities will include some earthworks and earth stripping associated with the building and road footprints. This phase may affect habitat suitable for wildlife. Without appropriate mitigation, site clearance work may result in death or injury to protected species (if they are present), or damage to other features of ecological value. Construction could result in the loss of features of ecological value and/or the loss of habitat of protected species resulting in a net decrease in biodiversity.
- 3.3.2 The construction of the site has the potential to affect adjacent habitats, where present, through noise, air and run off pollution.

3.4 Predicted Operational Activities during Use Phase and Biophysical Changes

- 3.4.1 The operational phase will need to consider how protected species and species of conservation concern may use the site and zone of influence, and what effect the proposals may have on their conservation status locally.

4.0 BASELINE CONDITIONS WITHIN THE ZONE OF INFLUENCE

4.1 Introduction

- 4.1.1 The ecological baseline describes the site in the context of the characteristic habitats of the area, and includes descriptions of designated sites and ecological features present within the potential zone of influence of any proposed development.

4.2 Designated Sites

Statutory Designated Sites

- 4.2.1 There are no Sites of Special Scientific Interest (SSSI) designated of regional to national importance present within 2km of the site. The closest is Climping Beach SSSI, which at its closest point is about 4.4km from the site, and is designated for coastal bird populations and flora and fauna.
- 4.2.2 No European designated site (Special Area of Conservation (SAC), Special Protection Area (SPA) or Ramsar Site) is present within 7km of the site. Pagham Harbour European sites are 9.8km away at their closest point.
- 4.2.3 There are no Local Nature Reserves within 2km of the site.

Non Statutory Designated Sites

- 4.2.3 There are no Local Wildlife Sites present within 2km of the site. Further details of local priority habitats and natural features are provided in **Technical Appendix 5**. None are shown on site.

4.3 Habitats and Vegetation

Introduction

- 4.3.1 The following description is based on survey visits between June and September 2016. The site consists of two fields that are currently used for pasture and hay production, and are bounded by hedges, tree lines, fences and walls. Broad habitat types are illustrated on **Figure 3** below.

Grasslands

- 4.3.2 The grasslands on site are agriculturally improved and both fields are similar in composition. They are managed as part of an agricultural unit (Bonhams Farm) with grazing and hay/silage production. During the survey, the fields appeared to be used for hay production, with a hay cut taken in early July. The grasslands on the whole over all four fields are dominated by Yorkshire Fog *Holcus lanatus* with locally abundant Meadow Foxtail *Alopecurus pratensis*, with other grass species including, Common Bent *Agrostis capillaris*, Cock's Foot *Dactylis glomerata*, Common Couch *Elymus repens*, Rye Grass *Lolium perenne*, and Timothy *Phleum*

pratense also noted within the main sward. False Oat Grass *Arrhenatherum elatius* is frequent to the edge of the fields and Wall Barley *Hordeum murinum* is occasional on some boundaries. Herb density and diversity is low. Species recorded included Creeping & Meadow Buttercup *Ranunculus repens* & *R. acris*, Common Mouse-ear *Cerastium fontanum*, Field Bindweed *Convolvulus arvensis*, Smooth Hawksbeard *Crepis capillaris*, Common Cat's-ear *Hypochaeris radicata*, Cut-leaved Cranesbill *Geranium dissectum*, Creeping Thistle *Cirsium arvense*, and Broad-leaved Dock *Rumex obtusifolius*. Around some field edges are patches of Nettles *Urtica dioica*, Cleavers *Galium aparine*, and some Cow Parsley *Anthriscus sylvestris* and Hogweed *Heracleum sphondylium*.

4.3.3 The grasslands are shown at **Photos 1-4** below.



Photo 1: Western Field looking north east



Photo 2: Western Field from boundary 5 looking west



Photo 3: Eastern field from boundary 8 looking west



Photo 4: Eastern field looking south from northern boundary 10

Boundaries

- 4.3.4 The boundaries are all fenced with stock and/or garden fencing, or have brick or cobbled flint walls. The boundaries are labelled on **Figure 3** and detailed below.

Boundary 1a – South west boundary of Western field

- 4.3.5 This boundary is a fenced boundary with no woody vegetation. Small landscaped and ornamental young planted trees (including Birch *Betula sp.*, Oaks *Quercus sp.*, Beech *Fagus sp.*, Hornbeam *Carpinus sp.*) are present off site in the adjacent garden of the dwelling to the south. The boundary is shown at **Photo 5** below.

Boundary 1b – South west boundary of Western field

- 4.3.6 This is a brick wall and stock fence onto the B2233, which is lower than the site. It contains no woody vegetation. It is shown at **Photo 6** below.



Photo 5: Boundary 1a



Photo 6: Boundary 1b

Boundary 2 – North West Boundary – Adjacent to Property

- 4.3.7 This boundary is a tall managed hedge dominated by Hawthorn *Crataegus monogyna* but with some Elder *Sambucus nigra*, Blackthorn *Prunus spinose*, Holly *Ilex aquifolium* and garden species including Wilson's Honeysuckle *Lonicera nitida*. Bramble *Rubus fruticosus* and Ivy

Hedera helix are also present and extensive at the eastern end. A single large mature Oak is present on the corner with boundary 3. The ground flora is species poor with False Oat Grass, Nettles, Cleavers *Galium aparine* and Hogweed. The boundary is shown at **Photos 7** below.



Photo 7 Boundary 2.



Photo 8: Boundary 3

Boundary 3 – North Western Boundary

- 4.3.8 This is an unmanaged and outgrown hedge becoming a tree line, with Hawthorn Elder and Blackthorn. White Bryony *Bryonia alba*, Ivy and Bramble are also present. The hedgerow has been supplemented with a number of ornamental non-native but mature trees including different Planes *Acer sp.* (including *Acer platanoides*, a purple variant *platanoides* and *Acer negundo*), a single Walnut *Juglans sp.* and some Rowan *Sorbus sp.* The ground flora is species poor with Nettles, Cleavers Ivy and Bramble. There is a ditch and bank under the hedge, the ditch dry during the survey. A stock fence is present on the site side of the ditch edge. The boundary is shown at **Photo 8**.

Boundary 4 – North Eastern Boundary of Western Field

- 4.3.9 This boundary has a tall managed Hawthorn and Elder hedge along the western half and is a stock fenced boundary along the remainder. The boundary is shown at **Photo 9**.



Photo 9: Boundary 4.

Boundary 5 – Internal Boundary

- 4.3.10 This is another Hawthorn dominated managed hedge with some Elder. It contains some Bramble and White Bryony. The understorey has False Oat Grass, Common Couch, Nettles, Cleavers and Ivy. The boundary is shown at **Photo 10**.



Photo 10: Internal boundary with dominant Hawthorn

Boundary 6 – South west boundary of eastern field

- 4.3.11 This boundary is a tall traditional style cobble stone flint wall separating a dwelling with mature gardens to the south. The boundary has Nettles, Hogweed, Cleavers, Lemon Balm *Melissa officinalis* and False Oat Grass along the base of the wall. Some garden trees are hanging over including Conifers, Holly and Yew *Taxus baccata*. The wall contains a number of rock loving plants including Wall Rue *Asplenium ruta-muraria*, Maidenhair Spleenwort *Asplenium trichomanes*, Wall Pennywort *Umbilicus rupestris*, Pellitory-of-the-wall *Parietaria officinalis*, as well as Smooth Hawksbeard, Smooth Sow-thistle *Sonchus oleraceus*, Wall Speedwell *Veronica arvensis*, Wild Lettuce *Lactuca virosa*, Barren Brome *Bromus sterilis* and Cocks-foot. The boundary is shown at **Photo 11** below.

Boundary 7 – South West Boundary of Eastern Field with B2233

- 4.3.12 This is a fence line with False Oat Grass, Nettles and Hogweed. This boundary is shown at **Photo 12** below.



Photo 11: Wall at Boundary 6



Photo 12: Boundary 7

Boundary 8 – South East Boundary with Private Dwellings to the East

- 4.3.13 This boundary contains a number of different rear garden boundaries including a brick wall, wooden garden fencing and maintained garden shrubs. Some Hawthorn is present, garden species and on the site Nettles and Cow Parsley with False Oat Grass. A dead tree is present just off site half way along the boundary. The boundary is shown at **Photo 13** below.

Boundary 9 – South East Boundary Northern End

- 4.3.14 This comprises a low cobble stone flint wall boundary with a row of mature Maple and Sycamore *Acer pseudoplatanus* along the wall but off site. On site the boundary is part shaded by the trees and dominated by Nettles. This boundary is shown at **Photo 14** below.

Boundary 10 – North East Boundary of Eastern Field

- 4.3.15 This is also a brick and cobble wall at its western end and a modern cobble stone wall and flint tile roof barn at the eastern end. A small amount of Annual Pearlwort *Sagina apetala* ssp. *erecta* was noted on the wall. This boundary is shown at **Photo 15** below.



Photo 13: Boundary 8



Photo 14: Boundary 9

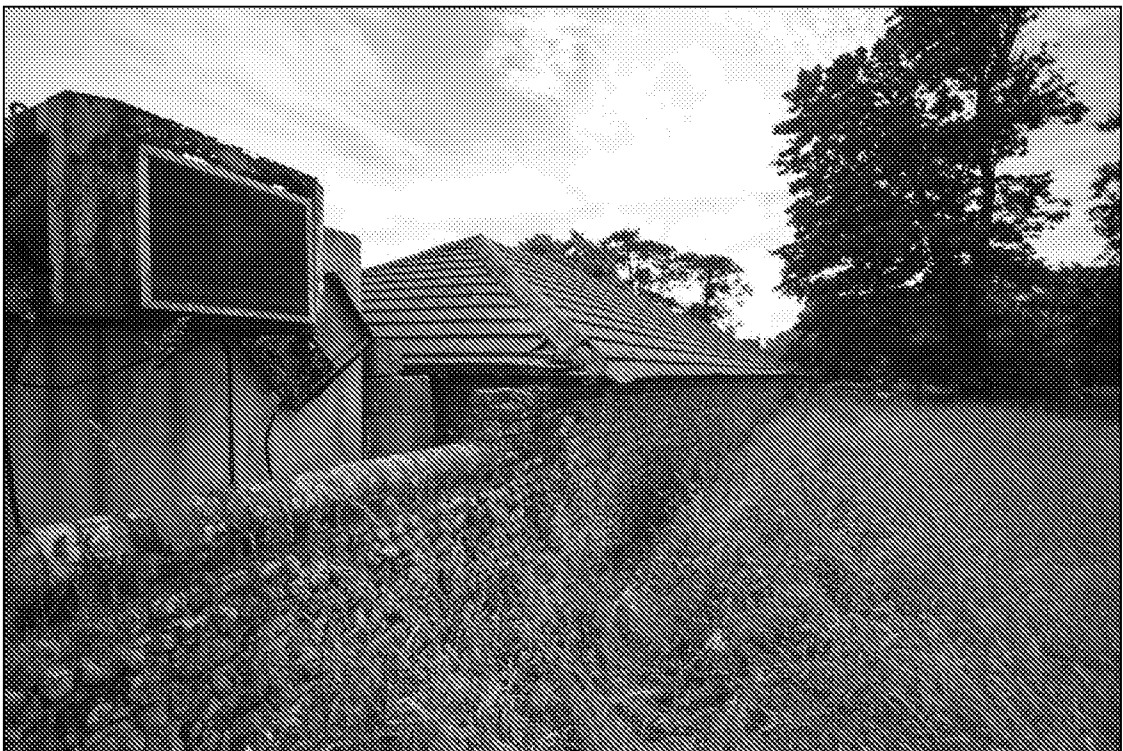


Photo 15: Boundary 10 with Stakers Farmyard to the north.

Flora

- 4.3.16 No rare or legally protected species were recorded during the survey. A single Oak on Boundary 2 has intrinsic value as a specimen of an older mature tree.

Evaluation

- 4.3.17 Grasslands on site are generally fairly species poor, with a low diversity and density of herbs, which suggests agricultural improvement, with use of herbicides likely in the past. They are considered to be semi-improved and are of **value within the zone of influence**. The site boundaries which have no or little woody vegetation and are fenced are considered to be of **negligible value** (boundaries 1 & 7, 8). Boundaries 2, 4, & 5 contain woody features but are generally species poor, with a heavily nitrified understorey dominated mostly by Nettles. The boundaries are considered to be of **value within the zone of influence** and are of more recent origin. Boundary 3 contains a ditch/bank, and mature trees, although these are planted non-native species. It is considered to be of **value within the zone of influence to local value**, being a larger mature boundary hedge. The walls at boundaries 6, 9 and 10 are of **local value** as an unusual feature that has potential to provide a niche to 'rock' loving species as noted above. The mature Oak on boundary 2 is considered to be of **local value**. Current management of the site includes flailing of the boundaries (hedge and base).

4.4 Protected Species and Species of Conservation Concern**Birds**

- 4.4.1 Nesting birds are protected under the Wildlife & Countryside Act, with certain species given additional protection (see **Technical Appendix 1 & 2**). Given the habitats present and location a number of commoner suburban/woodland edge species are likely present around the site and will use some of the habitats on the site. During the survey work a number of widespread and frequent species of conservation concern were noted on or around site, including the Red Listed: Song Thrush *Turdus philomelos*, House Sparrow *Passer domesticus*, Starling *Sternus vulgaris*; as well as the Amber listed: Kestrel *Falco tinnunculus* (associating with the farm buildings and Maples to the north east of the site boundary and likely to have bred here), Tawny Owl *Strix Aluco*, Dunnock *Prunella modularis* and Swift *Apus apus* & House Martin *Delichon urbicum*. The amber listed Stock Dove *Columba cenas* was also recorded around Stockers Farm north of the site. These are Red listed for a greater than 50% decline in populations and/or range in 25 years and Amber listed as a result of national population declines of 25-50% (see Eaton *et al*, 2015). Great Spotted Woodpecker *Dendrocopos major*, Green Woodpecker *Picus viridis* and Blackcap *Sylvia atricapilla* were recorded on the site boundaries. A list of species recorded during survey work on site is provided at **Technical Appendix 6**.
- 4.4.2 With the exception of Stock Dove, no declining farmland bird species were noted during the survey effort, but habitat exists for commoner/widespread species that are likely to be present in the wider local area. Swallows *Hirundo rustica* were recorded from the farm buildings north of the site. House Sparrow, Starling, Kestrel, Tawny Owl, Swift and House Martin, are likely to nest off site in the local area.

- 4.4.3 The data search has returned records of a number of species (see **Technical Appendix 5**). There are records of the Schedule 1 species Barn Owl *Tyto alba* from the wider landscape, and there is only a small amount of suitable foraging habitat on site for Barn Owl. Records are present for Stakers Farm north of the site, most recently between 2009 and 2012. No Barn Owls were recorded on bat survey work in 2016 on site, although if they are present at the farm north (as appears to be the case, at least in some years) the site is likely to be used as part of a foraging resource within the wider landscape. Corn Bunting *Emberiza calandra*, Grey Partridge *Perdix perdix* and Quail *Cotunix cotunix* have been recorded around Yapton Parish, but these species mostly associate with arable farmland. Lapwing *Vanellus vanellus* has also been recorded at Yapton Marsh Farm north east of Yapton village. No records were made of these species during survey work on site (June – Sept, 2016).
- 4.4.4 The site is considered to be **value within the zone of influence to local value** for bird populations. The mature hedgerow boundaries are of **local value**, and the species poor pasture is generally of lower value.

Bats

- 4.4.5 Bats are protected under the Wildlife & Countryside Act and the Habitat Regulations (see **Technical Appendices 1 & 2**). Bat survey work has been undertaken to the methods outlined in **Technical Appendix 7**. This survey considered potential roosting structures within the study area, and also the potential foraging resource for populations of bats within the zone of influence and commuting through the study area. The survey work comprised dusk and dawn surveying with a number of survey points around the site. The site was surveyed between July and September, with longer term monitoring using remote detectors along identified areas of foraging and commuting. Recordings were made of bat passes using Anabat and SM2 recorders. The results of the bat surveys are provided in **Tables 1 & 2** below and at **Figure 4**.
- 4.4.6 The data search and desk top review provides records for eight species of bats within 2km of the site, Common, Soprano & Nathusius's Pipistrelle *Pipistrellus pipistrellus*, *P. pygmaeus* & *P. nathusii*, Serotine *Eptesicus serotinus*, Myotis Bats *Myotis nattereri*, Noctule Bat *Nyctalus noctula*, Brown Long-eared Bat *Plecotus auritus* and Barbastelle *Barbastella barbastellus*. The nationally rare Barbastelle has been regularly radio tracked from the Lidsey Rife valley north of Flansham and south of Barnham/Walberton, and is likely to be regularly using the Rife valley for foraging. A single record of Nathusius's Pipistrelle has been recorded in Barnham west of the site.
- 4.4.7 The site boundaries contains a number of mature trees that provide features including woodpecker holes, split limbs, flaking bark, rot holes and extensive Ivy that provide some potential for roosting bats. This includes the mature Oak on boundary 2, the mostly dead Pine on boundary 3, and the dead tree on boundary 8. The Maples/Sycamores on boundary 9 are tall but mostly in good condition with few potential roost features.
- 4.4.8 No buildings are present on site. A number of dwellings are present along the edge of boundaries 1a, 2, 6, 8 and 10. These buildings contain potential roost features such as hanging tiles, old roofing with slipped tiles, wooden beam joints and cavities for small numbers of

bats. The survey results didn't indicate any roosts on the site boundary, with bat activity on site low and usually 20-30 minutes after dusk or before dawn.

- 4.4.9 The site provides suitable foraging and commuting habitats, which are of highest value around the site boundaries, especially the woodier boundaries where mature trees are present. The results of emergence, transect and monitoring surveys are provided in **Tables 1 & 2** and show that the western and eastern boundary provides the most activity for bats on the site, although all boundaries have low or very low activity during transect/remote survey work. The site as a whole is of low use by bats, with individual Pipistrelles foraging around the boundaries on occasion, and low use by Serotine, Noctule and Myotis bats. A single Nathusius's Pipistrelle pass was recorded on the final remote survey effort in September, along the eastern site boundary.
- 4.4.10 The woody boundary habitats on site are considered to be of **local value** as a habitat for bat populations, particularly the western and eastern site boundaries. The habitats around the remainder of the site are considered to be **value within the zone of influence**.

Table 1: Emergence Survey and Remote Monitoring Data

Date	Survey	Weather	Results Summary												
11-15/07/2016	Remote Monitoring Boundary 2	Dry during survey temp lows to 11c		Total	Species										
			Date	Passes	PP	PS	PN	My	ES	PA	NN	1st	Lst	Notes	
			11/07/2016	25	25	0						23:08	03:36		
			12/07/2016	53	53	0						21:41	00:39		
			13/07/2016	24	24	0						21:47	03:59		
			14/07/2016	105	104	1						21:40	04:06	most early morning activity 02-03	
AVG	52	52	0												
17/07/2016	Evening Emergence, Trees on Boundary 2	Cloud 0 Wind 0 Temp 22-21 Precip 0	Nil emergence. First bat PP from east along boundary 3 late at 21:50. Limited PP foraging along boundary 2 after this. Transect also recorded PS and ES.												
26/07/2016	Evening Emergence of Farmyard area and eastern boundary	Cloud 100 Wind 2-3SW Temp 21-19 Precip 0	Nil emergence. Low bat activity through survey. At the southern end 1xPP at 21:29 commuting from eastern boundary west across site. At NE corner PP & PS foraging intermittently during survey. First bat 21:19 (25 mins after sunset).												
08-11/08/2016	Remote Monitoring Boundary 5	Dry and warm through survey		Date	Passes	PP	PS	PN	My	ES	PA	NN	1st	Lst	Notes
			08/08/2016	22	21					0		1	21:04	04:37	NN 21:53
			09/08/2016	21	20					1		0	21:31	04:41	
			10/08/2016	19	19					0		0	20:54	04:51	
			AVG	21	20					0		0			
11/08/2016	Dawn Re-entry eastern boundary/field	Cloud 100 Wind 1S Temp 14c Precip 0	Nil re-entry. Last bat activity was a single foraging PP from 05:04 - 05:11 along eastern/south eastern boundary. Last seen heading south off site by Bonhams House. Limited foraging on transect of PP & PS only.												
25/08/2016	Evening Emergence, Trees on Boundary 2	Cloud 5 Wind 0 Temp 19 Precip 0	Nil emergence. First bat PP from north east at 20:26, and at 20:30. 2xES at 20:38 for c1m foraging around Oak on B2. NN at 21:41. PS also recorded later in survey.												
06-09/09/2016	Remote Monitoring Boundary 8	Dry and warm through survey		Date	Passes	PP	PS	PN	My	ES	PA	NN	1st	Lst	Notes
			06/09/2016	21	15	3	1		1		1	20:05	04:36		
			07/09/2016	75	51	14	0		10		0	20:05	05:05		
			08/09/2016	6	5	1	0		0		0	20:05	01:22		
			AVG	34	24	6	0		4		0				
09/09/2016	Evening Emergence, Trees on Boundary 2	Cloud 40 Wind S2 Temp 21-20 Precip 0	Nil emergence. First bat on B3 at 19:56 from south east. PP then foraging along boundary and at junction of B3-B4 for much of emergence survey. Limited other activity. Transect recorded NN and My.												
22/09/2016	Evening Emergence of Farmyard area and eastern boundary	Cloud 30 Wind SW2 Temp 18.5-18 Precip 0	Nil emergence. Very low bat activity during good conditions. Just 2 PS passes at 19:46												

Table 2: Transect Survey Data

Transect	Date	PP	PS	NN	ES	My	Total
1	17/07/2016						0
	11/08/2016						0
	09/09/2016						0
	Total						0
	Average						
2	17/07/2016						0
	11/08/2016	4					4
	09/09/2016	3					3
	Total	7					7
	Average	2.33					
3	17/07/2016						0
	11/08/2016						0
	09/09/2016						0
	Total						0
	Average						0
4	17/07/2016	1					1
	11/08/2016						0
	09/09/2016	18					18
	Total	19					
	Average	6.33					
5	17/07/2016						0
	11/08/2016	2	1				3
	09/09/2016	3					3
	Total	5	1				6
	Average	1.67	0.33				
6	17/07/2016	2					2
	11/08/2016						0
	09/09/2016						0
	Total	2					2
	Average	0.67					
7	17/07/2016	1					1
	11/08/2016	1					1
	09/09/2016						0
	Total	2					2
	Average	0.67					
8	17/07/2016						0
	11/08/2016						0
	09/09/2016						0
	Total						0
	Average						0

9	17/07/2016				2		2
	11/08/2016						0
	09/09/2016						0
	Total				2		2
	Average				0.67		
10	17/07/2016	10	13		2		25
	11/08/2016						0
	09/09/2016			1		1	2
	Total	10	13	1	2	1	27
	Average	3.33	4.33	0.33	0.67	0.33	
11	17/07/2016	2					2
	11/08/2016	7					7
	09/09/2016						0
	Total	9					9
	Average	3					
12	17/07/2016						0
	11/08/2016	5					5
	09/09/2016						0
	Total	5					5
	Average	1.67					
13	17/07/2016						0
	11/08/2016						0
	09/09/2016						0
	Total						0
	Average						0
14	17/07/2016	1					1
	11/08/2016						0
	09/09/2016					7	7
	Total	1				7	8
	Average	0.33				2.33	
15	17/07/2016						0
	11/08/2016						0
	09/09/2016						0
	Total						0
	Average						0

Badgers

- 4.4.11 Badgers *Meles meles* are protected under the Protection of Badgers Act 1992. Signs of use of the site by Badger were searched for during the site visit. No evidence of Badgers Setts was noted on site. Three holes at boundary 3 where it joins boundary 4 are in active use as a Fox *Vulpes vulpes* earth. Activity is also present around the junction of boundary 2 and 3.

Other Protected Mammals

- 4.4.12 No other legally protected mammal species are likely to occur on site. There are records locally for Hedgehog *Erinaceus europaeus* and Harvest Mouse *Micromys minutus*, and there is some limited habitat on site for these species around the site boundaries. Brown Hare *Lepus europaeus* has been recorded locally, and some habitat occurs on site for this species. Water Vole *Arvicola terrestris* have also been recorded within 2km of the site. No suitable habitats are present on site for this species, with the only ditch present on the western boundary, being dry and shaded and not connected as a watercourse to the wider landscape.
- 4.4.13 The legally protected Dormouse *Muscardinus avellanarius* has not been recorded in the immediate local area (with no records from within 2km of the site and nearest records around 2.25km north of the site), and the hedgerow habitats on site are generally too gappy, species poor and isolated in the landscape for this species, especially given the lack of populations in the wider local area and connections to larger areas of potentially suitable habitat.

Reptiles

- 4.4.14 Commoner reptile species are protected from harm under the Wildlife & Countryside Act (see **Technical Appendices 1 & 2**). Small amount of suitable habitat for reptiles exists along the woody boundaries of the site. The open grassland is not suitable for reptiles as there is insufficient structure in the grassland. A dedicated reptile survey was undertaken to determine the likely level of use of the study area by reptiles. This involved survey to the methodology outlined in **Technical Appendix 8**, by laying down reptile refugia in suitable locations around the study area. A total of c50 refugia were placed around the study area margins and most suitable potential reptile habitat. The results of the survey are provided in **Table 3** below.
- 4.4.15 The data search and desktop review has returned records of Grass Snake *Natrix natrix*, Slow Worm *Anguis fragilis* and Common Lizard *Zootoca vivipara* from within 2km of the site, and two records of Adder *Viper berus* from Barnham and Walberton villages north and east of the site.
- 4.4.16 The survey on site recorded low numbers of Slow Worm, principally around the southern boundaries of the site. The location of records is shown at **Figure 5**.
- 4.4.17 The boundary habitats on site are considered likely to be of **local value** for reptile populations.

Table 3: Reptile Survey

Date	Time	results
15/07/2016	am	Reptile Set Up
26/07/2016	am	
11/08/2016	am	AF = 1sub
17/08/2016	am	AF = 1sub, 1F
06/09/2016	pm	AF = 1F
09/09/2016	pm	AF = 1F, 2sub
10/09/2016	am	AF = 1F
20/09/2016	am	0*

Key: AF = Slow Worm, sub = sub adult, F = Female

* Data from final visit may have been affected by c50% of felts damaged or removed for hedge maintenance activity on site prior to completion of survey

Amphibians

- 4.4.18 No waterbodies suitable for the legally protected Great Crested Newt *Triturus cristatus* to breed exist on site. The data search has returned a single record of Great Crested Newt from east of the site in 2002 (adult and eggs). The location of the record is c120m from the site, around a property called Berri Court.
- 4.4.19 Ordnance Survey mapping and aerial photography has been consulted to determine whether there are any potentially suitable waterbodies for Great Crested Newt within 500m of the site. Two ponds and a ditch are shown on mapping within 500m of the site. None of these features are present on the ground or aerial photography (a pond c20m east of the site at Stakers Farm is not present, and one in an arable field 315m north of the site is also not present. The ditch between dwellings c155m east of the site appeared to have re-profiling work undertaken in 2009 (from aerial photography and is likely to be mostly dry). The former canal south of the site was completely dry during the survey period, and contained no marginal or damp vegetation so is unlikely to be suitable.
- 4.4.20 A single pond is noted within Bonhams farmhouse south of the site, within c10m of the site. This pond was examined and a Habitat Suitability Index undertaken for potential for Great Crested Newt presence (see **Technical Appendix 9**). It is a concrete lined ornamental Koi Carp pond with fish present and limited aquatic or marginal vegetation. It also contains a water filtration system. The HSI score was 'below average' as a result of these features, and it is considered unlikely to be a breeding location for Great Crested Newt. A photo of the pond is shown at **Photo 16** below.
- 4.4.21 The former record of Great Crested Newt from 2002 was investigated and attempts were made to contact the landowners/occupiers at Berri Court. A land registry search was undertaken but no contact was made via phone or letter (see **Technical Appendix 9**), and on site the property is gated and locked with no signs of residence. Mapping and aerial photography does not show presence of any pond within the grounds of this property and no pond can be seen from the boundaries of the property, although there is substantial boundary and garden woody

vegetation/trees. Connectivity of this location to the site is fragmented by North End Road, which is a busy local road.

- 4.4.22 The habitats on site provide some amphibian terrestrial habitat suitability. The main habitats are around the site boundaries, and the open hay meadow and grazed fields are of lower value, and likely to be mostly only used to pass through.



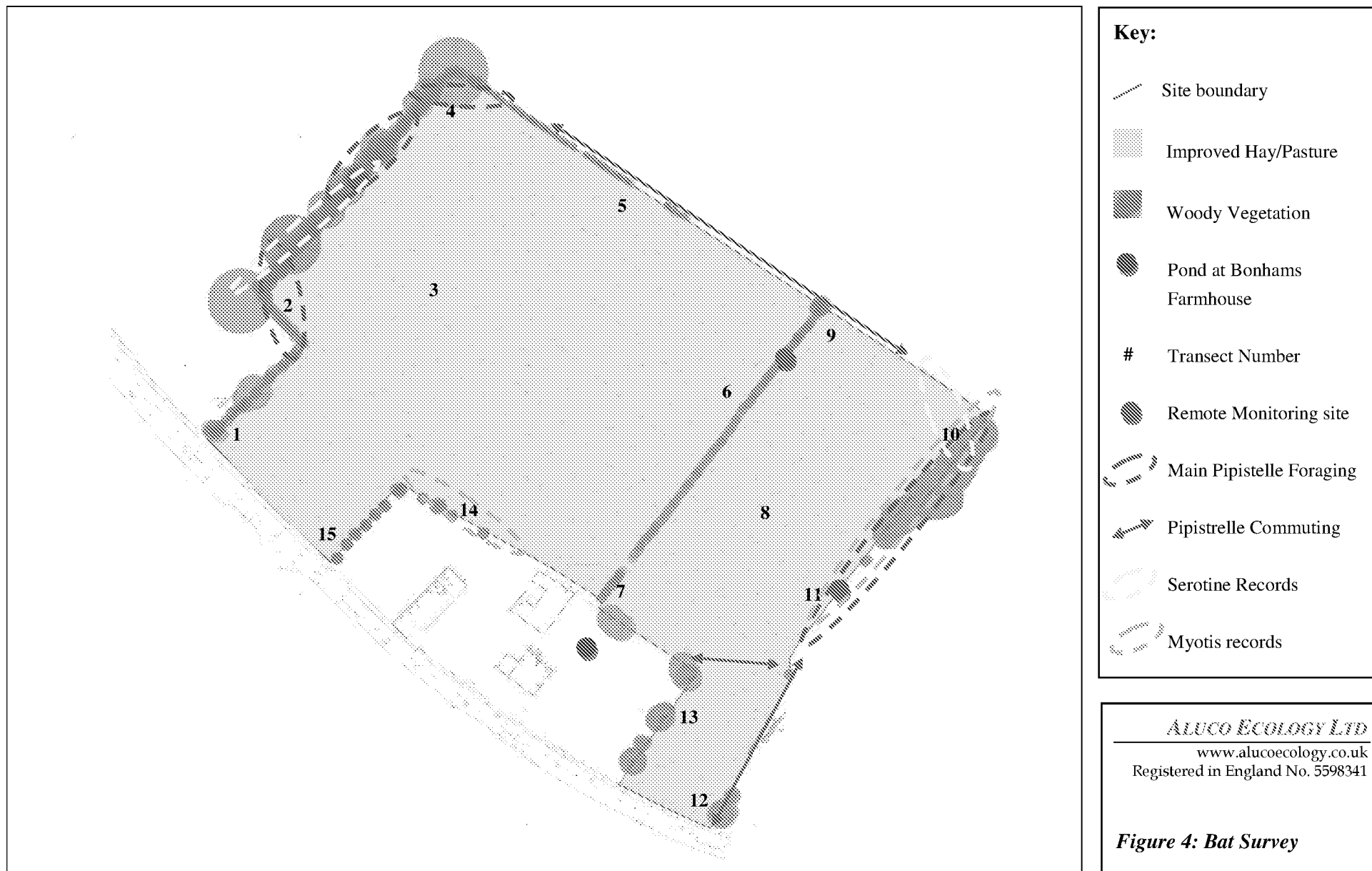
Photo 16: Pond at Bonhams Farmhouse south of the site

- 4.4.23 The site is considered to be of **value in the zone of influence** for Amphibians. Terrestrial habitat is present on site, but the only moderate quality habitat is mostly restricted to the site boundaries. An older local record for Great Crested Newt was investigated, but no access to the area of the record could be obtained. This record is c120m away from the site and there is fragmentation by North End Road. Other waterbodies within 500m shown on mapping are not present on the ground. A Koi Carp pond adjacent to the site is of low potential for Great Crested Newt.

Invertebrates

- 4.4.24 The grassland habitats on site are considered of **value in the zone of influence** for invertebrates being species poor and lacking in structural diversity. The boundary habitats, with more structurally diverse woody boundaries are considered to be of **value in the zone of influence** for invertebrate species of conservation concern on account of the habitats being generally fairly species poor but containing some mature woody features and ditches, banks and springs. Dead wood habitat, which may provide habitat for the legally protected Stag Beetle *Lucanus cervus*, known from the wider local area, is limited on site to occasional boundary features. Meadow Grasshopper *Chorthippus parallelus* and Large Skipper *Ochlodes Sylvanus* were recorded on the edge of boundary 2 during the survey, and other common orthoptera and lepidoptera species are likely to be present.







5.0 ASSESSMENT OF LIKELY IMPACTS WITHOUT MITIGATION

5.1 Introduction

- 5.1.1 In view of the predicted activities and the resultant biophysical changes associated with the proposal, as described in Section 3, this section identifies the main potential ecological impacts within the predicted zone of influence, those considered potentially likely to arise in the absence of mitigation. This exercise provides focus for recommendations for scheme design and mitigation, following this mitigation options are discussed, with recommendations provided in the following Section.

5.2 Protected Sites

Potential Impacts on Designated Sites

- 5.2.1 Given the distance to the designated sites, there is no potential for significant adverse impacts on the features of the designated sites outlined in Section 4.

5.3 Habitats & Species on Site

Potential Impacts on Habitats and Vegetation

- 5.3.1 The grassland habitats are of low nature conservation value being agriculturally improved with low species diversity. The boundaries contain woody features that are of value within the zone of influence to local value, and older walls of local value. These features should be retained in situ.
- 5.3.2 There is no loss of boundary hedgerows and trees. The development will take place around retained vegetation and habitats that are of local value. There is potential for adverse impacts on these retained features without mitigation. Careful consideration has been given to providing continued linkage and wildlife corridors throughout the scheme.

Birds

- 5.3.3 If vegetation is removed during the breeding season there is potential to destroy bird nests unless assessed prior to works, which would be contrary to Section 1 of the Wildlife and Countryside Act 1981 (as amended). Mitigation measures for birds include carrying out works on any vegetation at an appropriate time of year, usually considered to be between September to February. Small amounts of vegetation can be removed at other times of year, if checked that no nesting birds are present by a suitably qualified ecologist beforehand.
- 5.3.4 There is likely to be a loss of some foraging habitat for Barn Owls that are known from the wider local area. There is also potential without mitigation, for disturbance of Barn Owls, should they nest in Stakers Farm buildings north of the site during construction. No activity over the site was recorded in 2016.

Bats

- 5.3.5 The potential for tree roosting bats has been assessed and no bat roosts have been recorded. There is potential for indirect effects including disturbance, lighting, health and safety tree works, and habitat management (or non-management) on retained foraging and commuting habitat.
- 5.3.6 The development masterplan has considered bat commuting and foraging data and green corridors have been built into the development proposals so that bats are able to access the wider countryside and continue to forage in retained habitat around the site. The provision of suitable flight lines includes retention of the mature vegetation along the eastern, central, Northern and western boundaries. Barbastelle were recorded in the Lidsey Rife floodplain to the west of the site, from extensive radio tracking surveys. Given relatively isolated field boundaries with low connectivity and lower quality habitats on for foraging and connectivity on site, it is unlikely that this species would find the site of particular value as part of its network of habitats in the wider environment. Given the retention of the mature vegetation along the boundaries and through the site, no impacts are anticipated.
- 5.3.7 The development scheme will require lighting. Without mitigation there is potential for lighting of the site to have an adverse impact on bat roosts, flight lines and foraging habitat.

Other Mammals

- 5.3.8 Fox are present along the western boundary with an earth that straddles the boundary. Development that comes within 20m of this boundary has the potential to affect a Fox earth.
- 5.3.9 Hedgehog have been recorded, and the development will see a reduction in foraging habitat from loss of grasslands. The site boundaries and adjacent gardens and paddock areas are retained and this will retain suitable habitat for this species, as will the site on completion. Without mitigation there is potential however for direct low impact to Hedgehogs through site clearance measures.

Reptiles

- 5.3.10 A low population of Slow Worm has been recorded on the site boundaries. Without mitigation the development has the potential to harm individual reptiles during construction. The operation will provide substantial open space, but without suitable mitigation for habitat management there is the potential for adverse impacts.

Great Crested Newt

- 5.3.11 An old Great Crested Newt record from 2002 exists from c120m east of the site. Access has been attempted but not been obtained to the location of the record, no evidence of an existing pond at that location is known. The site is poorly connected and fragmented from record location by the busy North End Road with general poor connectivity. On site terrestrial habitats for Amphibians are restricted mostly to the boundaries, with the open field poor for commuting. A pond south of the site at Bonhams Farmhouse is very artificial and highly managed clear water with limited aquatic vegetation (lily), filtered and with Koi Carp so would be unsuitable breeding site for Great Crested Newt. With no current evidence of Great Crested Newt presence in the local area, given the retention of boundary habitats and hedgerows, improved potential habitat on site (intensive haylage cut and grazed grassland to low intensity community orchard, open space and gardens), increased connectivity and wildlife corridors by landscape planting, the development is not considered likely to have an impact other than positive should Great Crested Newts be present in the area.

Invertebrates

- 5.3.12 Invertebrate habitats are limited on site and impacts to the agriculturally improved grasslands are not considered significant. New habitats for invertebrates will be provided within the open spaces and enhancing existing woody boundary habitats.

6.0 ECOLOGICAL MITIGATION & ENHANCEMENT

6.1 Introduction

- 6.1.1 The potential for impacts without mitigation was considered in Section 5, and mitigation recommendations are provided for consideration for a future development proposal. Recommendations are also made for further survey work on site and in the Zone of Influence.

6.2 Mitigation and Opportunities for Ecological Gain for Protected Habitats, Species and Species of Concern

Vegetation & Habitats

- 6.2.1 The retained trees and woody vegetation should be protected to relevant British Standards for tree protection on construction sites. This should include a buffer at the base of the hedge where 2m of rough grassland edge is to be retained and fenced outside of the construction zone.
- 6.2.2 All boundary features, hedgerows and trees retained and enhanced by the proposals. New landscaping will include native species hedgerows and trees with all boundary features, enhanced by the proposals. Further new hedgerows, native tree and orchard and grassland planting will significantly improve the site, its wildlife corridors and connectivity within the landscape.

Nesting Birds

- 6.2.3 Any woody habitat that could contain a bird nest should be removed outside of the nesting bird season, which is usually from end February to end August. It may be possible to check certain woody vegetation does not contain a bird nest during this period, but this should only be done by a suitably qualified ecologist.
- 6.2.4 Barn Owl is recorded from Stakers Farm to the north, and is listed on Schedule 1 of the Wildlife & Countryside Act. No nests have been recorded on the site. If a nest is recorded and active during the construction period directly adjacent to the site a suitable strategy should be put in place to ensure disturbance is minimised at the nest. This may require a temporary buffer zone around the nest whilst it is active to reduce any disturbance.
- 6.2.5 Nest boxes should also be installed on retained woody vegetation and within new dwellings. Retention, buffering and enhancement of the boundary features will provide habitats for bird species on site. A total of 6 nest boxes for trees and 6 House Martin / house Sparrow terrace boxes are recommended to be installed in suitable locations on site by an ecologist.

Bats

- 6.2.6 Any scheme lighting and security lighting should aim to ensure that the boundaries are not within the lit curtilage and remain a dark zone, through the use of downward facing

directional lighting. Where possible the landscape planting on boundaries should avoid being lit. This will allow natural corridors to develop through the site

- 6.2.7 Retention, buffering and enhancement of the boundary features will provide habitats for bat species on site. The proposed planting will increase connectivity, potential flight lines and foraging across the site. Bat roost units boxes should also be installed on retained woody vegetation and on new dwellings. A total of 12 roost units are recommended to be installed in suitable locations on site by an ecologist.

Other Mammals

- 6.2.8 Fox earths within the landowners control and within 20m of development will be closed and the animals encouraged to move to retained nearby earths via the following strategy:
- Dens/earths will be checked regularly for signs of use;
 - If required holes will be soft blocked and monitored for a period of up to two weeks;
 - Where monitoring and discouragement of use is applied successfully and no evidence of further use is made, the holes will be destructively searched;
 - Where continued use is made, the installation of one way gates will be necessary with a further period of monitoring;
 - Exclusion of Foxes from holes will only take place outside the breeding period (ie during mid-June – Jan).
- 6.2.9 The removal of any ruderal/woody vegetation, rubbish piles and debris should be undertaken with sensitivity using hand tools where necessary. Any construction rubbish piles should be dismantled prior to the hibernation period or left until spring if there is potential for hibernating Hedgehogs. This will ensure no impact on Hedgehogs and other mammals.

Reptiles

- 6.2.10 In order to ensure that reptiles are not harmed as a result of the scheme construction the following mitigation measures should be put in place, and a detailed mitigation method statement for reptiles produced at the reserved matters Application stage. This should include a translocation of any reptiles from the construction zone to retained habitats at the edges of the site fenced out of the construction zone. This translocation will require the following measures:
- The areas of reptile habitat within the construction zone of the site will be sensitively trimmed to c10cm using hand tools, careful not to harm reptiles potentially present; Where trees and bushes are also to be removed, due regard will be given to the mitigation strategy for nesting birds. The areas of affected habitat include very restricted and localised areas in relation to the access road;
 - Reptile protective fencing may be needed along retained boundary areas. This fencing will be to standard guidelines;

- Refugia will be placed along the construction works area and a relocation of reptiles will be made based on the strategy outlined in **Technical Appendix 10** to the retained habitat that has been fenced from the construction zone;
- Following 3-5 negative visits in suitable conditions a destructive search will be undertaken of the works area by a suitably qualified ecologist. The construction area will be phased to allow for progressive destructive searches through the site to tie in with construction area phases;
- The fencing will continue to provide protection of the retained habitat from construction intrusion;
- Following construction, the area on the retained side of the fencing will be reconnected with the new open space areas along the buffers and reptile populations will be allowed to colonise the new habitats over time;
- Long term management proposals of retained habitat are provided in a management plan;
- A mitigation method statement is to be drawn up for detailed scheme design and agreed with the Local Authority;
- the reptile strategy will be undertaken during the period March-October. Where potential reptile habitat is contained within the works area outside this period, no construction works will be undertaken in this habitat during this period.

Amphibians

- 6.2.11 Enhancements are proposed in terms of ensuring that rough grassland edge habitat, suitably maintained, is retained within the scheme to provide increased connectivity and wildlife corridors by landscape planting through the scheme. Although no Great Crested newt were recorded during the survey, it is recommended that, subject to planning permission, work should proceed with care. If any evidence of Great Crested newt is found prior to or during development (**Appendix 1**) it is a legal requirement that Natural England is contacted for further advice.

Invertebrates

- 6.2.12 Habitat enhancements will include a variety of habitats from open ground to woodland, orchard, dead wood habitat and wetlands.

Habitat Creation & Open Space Design

- 6.2.13 The landscaping scheme has been designed to retain and enhance existing features of interest to enable the scheme to fit more seamlessly within the landscape. The landscaping includes new native species hedgerow to mirror those existing on the site along with wildflower grasslands and Orchard. Additional information on habitat management will be provided in a detailed landscape & ecology management plan for the site.

7.0 CONCLUSIONS

- 7.1 An ecological assessment of the site was undertaken in order to provide an indication of the potential for habitats and species of conservation concern to be present on site. A number of ecological features have been recorded during the Assessment. Detailed protected species survey work has recorded presence of grassland and woody vegetation of local value, nesting bird species, foraging and commuting bats on site and a small population of Slow Worm. Recommendations for integration of ecological features into a development scheme are provided. Where these measures are taken into account the development proposals will not have any significant residual effects on the ecology of the site.

7.0 REFERENCES

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Technical Appendix 1

Habitats Regulations and Schedule 2 Species

General

The Conservation (Natural Habitats & c.) Regulations SI 1994/2716 partially implements the Habitats Directive. This has recently been replaced by the Conservation of Habitats and Species Regulations 2010 (the Habitat Regulations). The Regulations contain provisions relating to the protection of European sites and European protected species. European Sites are defined within the Regulations as Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) whether proposed, candidate or classified. European Protected Species are those species listed in Annex IV of the Directive that occur in the UK, and these have been listed in Schedule 2 of the Regulations. Species listed in Annex II of the Directive are of need of further protection through the SAC network and sites are designated for these species.

Species listed under Schedule 2 of the Habitat Regulations were formally afforded protection by Regulation 39 (1994), this is now found under Regulation 41/42 (2010). European protected species include the great crested newt, dormice and all species of bats.

(1) The Habitats Regulations makes it an offence;

(a)deliberately to capture or kill a wild animal of a European protected species;

(b)deliberately to disturb any such animal;

(c)deliberately to take or destroy the eggs of such an animal; or

(d)to damage or destroy a breeding site or resting place of such an animal.

(2)It is an offence to keep, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal of a European protected species, or any part of, or anything derived from, such an animal.

(3)Paragraphs (1) and (2) apply to all stages of the life of the animals to which they apply.

(4)A person shall not be guilty of an offence under paragraph (2) if he shows-

(a)that the animal had not been taken or killed, or had been lawfully taken or killed, or

(b)that the animal or other thing in question had been lawfully sold (whether to him or any other person).

For this purpose "lawfully" means without any contravention of these Regulations or Part I of the Wildlife and Countryside Act 1981.

(5)In any proceedings for an offence under this regulation, the animal in question shall be presumed to have been a wild animal unless the contrary is shown.

(6)A person guilty of an offence under this regulation is liable on summary conviction to a fine not exceeding level 5 on the standard scale.

The Regulations go on to state exemptions and defences that apply to acts that may contravene the Regulation. Such exemptions include those listed in Regulation 40 (1994) now found at Regulation 42 of the 2010 Regulations

The granting of a licence under Regulation 44 (1994 Regulations) now Regulation 53-55 (of 2010 Regulations).

In order to carry out a lawful operation (e.g. development work which has full planning permission) that may result in any of the offences above, it is necessary to obtain a licence from Natural England to allow the operation to proceed.

However, in accordance with the requirements of the Habitats Regulations 2010, a licence can only be issued after the following conditions have been satisfied:

- *that there is no satisfactory alternative, and*
- *that the action authorized will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.*
- *that the action is required in preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment;*

Full planning permission is required to apply for a Natural England licence (where such a consent is necessary for the work to be carried out). In addition, a method statement which details the survey results, methodology of work to be undertaken, mitigation and compensation measures, must be submitted to Natural England with the licence application.

Plans and Projects & Designated Sites

The Regulations provide procedure whereby designated SAC or SPA and other European Protected Sites are afforded protection from plans and projects that may be likely to have a significant effect on the Features for which these sites are designated. Where a significant effect is considered likely in combination with other projects an appropriate assessment is required to be undertaken. Details of this procedure can be found at Part 6 of the Act onwards, see link below.

For Full details of the 2010 Habitat Regulations see:

<http://www.legislation.gov.uk/uksi/2010/490/made>

Technical Appendix 2

Wildlife & Countryside Act 1981 & Countryside & Rights of Way Act 2000 (CRoW)

The Wildlife and Countryside Act 1981 (as amended) (WCA) is the principle legislation in Britain for the protection and conservation of our wildlife and its habitats of national importance. The legislation adopts a habitat and species based approach to nature conservation. Habitats and some species are protected in designated Sites of Special Scientific Interest (SSSI). Other species are afforded some protection from harm or disturbance by way of inclusion in either Article 1 (birds), Schedule 1 (specially protected birds), Schedule 5 (specially protected animals) or Schedule 8 (specially protected plants).

(ii) Protection Afforded to SSSIs

The presence of an SSSI on or near to a development is a material consideration, and this is discussed further in policy (see PPS9)

(iii) Law Relating to Protected Species

The WCA provides protection to such species via Section 1 (birds) and Section 9 (animals). These sections provide protection from intentionally:

- killing, injuring or taking any wild bird or taking, damaging or destroying the nest or eggs of a wild bird
- disturbing any wild bird in Schedule 1 whilst building, on or near a nest, or disturbing dependant young of such birds
- damaging, destroying or obstructing access to any structure or place of shelter or protection of a schedule 5 animal, or disturbs any such animal whilst it is occupying a structure or place it uses for that purpose
- killing, injuring or taking any animal listed in Schedule 5
- Having in possession or control any live or dead wild bird or egg, or any wild animal in Schedule 5, or trading in any animal under Schedule 5.

As with European Protected species, there are exemptions from this legislation, and licences for development can be obtained in certain circumstances. Protected species are also a material consideration in planning applications.

Countryside & Rights of Way Act 2000 (CRoW) and Wildlife and Countryside Act 1981

(i) Protected Species & SSSIs

The Countryside and Rights of Way Act 2000 (CRoW Act 2000) adds to protected species legislation in the WCA. The lesser test of ‘Recklessness’ is added to the protection from disturbance in three circumstances. These are:

- disturbance to Schedule 1 birds and their nests, eggs and dependant young,

- disturbance to Schedule 5 animals in their place of shelter/protection, and
- disturbance to the places of shelter/protection of Schedule 5 animals.

This addition means that any person who deliberately takes an unacceptable risk or fails to notice an obvious risk is falls under the Section irrespective of intention. The CRoW Act also provides greater protection to SSSIs from operations (and non operations) of owners, occupiers and third party users of the SSSI.

Local Plan 2031 (Nov. 2014)

Biodiversity Policy

Policy ENV SP1

Natural environment

Arun District Council will encourage and promote the conservation and enhancement of biodiversity and the natural environment through the development process and particularly through policies for the protection of both designated and non-designated sites. Where possible it shall also promote the creation of new areas for habitats and species. In relation to designated sites, development will be permitted where it protects sites listed in Tables 17.1-17.6 that are recognised for the species and habitats contained within them.

Name	New Site Code ⁽⁷⁵⁾
Pagham Harbour	UK 11052

Table 17.1 Ramsar sites

Name	Site Code
Pagham Harbour	UK 9012041
Arun Valley	UK 9020281

Table 17.2 Special Protection Areas

Name	Site Code
Pagham Harbour	1000243
Bognor Reef	1000219
Felpham	1000357
Climping Beach	1000225

Table 17.3 Sites of Special Scientific Interest

Name	Site Code
Pagham Harbour	1009061
West Beach	1009233
Bersted Brooks	

Table 17.4 Local Nature Reserves

Name	Site Code
Ferring Rife & Meadows	Ar12
Littlehampton Golf Course and Atherington Beach, Littlehampton	Ar06
Elmer Rocks	Ar18
Fontwell Park Race Course	Ar01
Middleton Shingle	Ar19

Table 17.5 Sites of Nature Conservation Importance

Name	Site Code
Felpham Foreshore, Bognor Regis	1475602
Climping Sand Dune System	1475611
Bognor Foreshore	1475600
Pagham Harbour	1475608

Table 17.6 Regionally important geological & geomorphological sites

Designated sites of biodiversity or geological importance

1. Proposed development likely to have an adverse effect on land within or adjoining a Site of Biodiversity or Geological Importance as listed in Tables 17.1 - 17.6 (either individually or in combination with other developments), will not normally be permitted. Exceptions will only be made where the following can be demonstrated:
 - a. There is no alternative solution (which shall be adequately demonstrated by the developer) and
 - b. There are reasons of public health or public safety or
 - c. There are benefits of primary importance to the environment or
 - d. There are imperative reasons of overriding public interest.

Notwithstanding the above however, the presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined.

2. In determining any planning application affecting Sites of Biodiversity or Geological Importance the Council will ensure that the intrinsic natural features of particular interest are safeguarded or enhanced having regard to:
 - a. The European, National or Local status and designation of the site;
 - b. The nature and quality of the site's features, including its rarity value;
 - c. The extent of any adverse impacts on the notified features of interest;
 - d. The need for compensatory measures in order to re-create remaining features of habitats on or off the site.
3. Where appropriate the Council will ensure the effective management of designated sites through the imposition of planning conditions or Section 106 agreements as appropriate.
4. Developments shall also be consistent with all other Local Plan policies.

Policy ENV DM2

Pagham Harbour

- a. Within Zone A (<400m) as identified on the Policies Maps, development will only be permitted in exceptional circumstances where the developer is able to demonstrate there will be no detrimental effects on Pagham Harbour, including non-native species and the water environment. Regard shall also be had to tests 1-4 as set out in Policy DM31 (Designated Sites of Biodiversity or Geological Importance).
- b. Within Zone B (400m-5km) for all new residential development and development which is likely to have an impact on Pagham Harbour will be required to:
 - i. undertake access management measures. These measures shall include wardening, access management and site protection, habitat improvements and monitoring of wildlife and visitor numbers.
 - ii. create easily accessible new green spaces for recreation within or adjacent to the development site, or to make developer contributions towards the provision of such green spaces to serve the area. These shall be capable of accommodating the predicted increases in demand for local walking, including dog walking. Good pedestrian links shall be provided between housing areas and new and existing green space in order to discourage car use.
- c. Large scale developments taking place outside Zone B and close to its boundary will be considered on a case by case basis to determine any potential effects on Pagham Harbour, and the need for any avoidance or mitigation measures.

Developments shall also be consistent with all other Local Plan policies.

Policy ENV DM3

Non designated sites

Within Biodiversity Opportunity Areas (BOAs) (see Policies Map), development shall:

- a. Retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones
- b. Be designed in order to minimise disturbance to habitats

Where development proposals are likely to have an impact on species or habitats within the BOAs, any application for planning permission shall include a properly conducted survey of the presence of that species and habitat and any impact that development may have on the BOA. Development proposals that do not reasonably address opportunities for enhancing BOAs through their design, layout and landscaping or access/management shall not be permitted. Where a development scheme would result in a habitat loss, mitigation measures shall be proposed as part of the proposed scheme and such measures agreed with the Planning Authority prior to the determination of any planning application.

Developments shall also be consistent with all other Local Plan policies.

Policy ENV DM4

Protection of trees

Development will be permitted where it can be demonstrated that trees protected by a Tree Preservation Order(s), (TPO) identified as Ancient Woodland, in a Conservation Area or contributing to local amenity, will not be damaged or destroyed now and as they reach maturity, unless:

- a. Would result in the removal of one or more trees in the interests of good arboricultural practice. This shall be demonstrated by the developer following the advice of a suitably qualified person which shall be guided by BS 5837 (2012). Details of any advice received having regard to BS 5837 (2012) shall be submitted, in writing, as part of a planning application; or
- b. Would enhance the survival and growth prospects of other protected trees;
- c. The benefits of the proposed development in a particular location outweigh the loss of trees or woodland, especially ancient woodland.

Where planning permission is granted in any of the above instances, conditions shall be used to ensure that, for any trees which are removed as part of a development, at least an equivalent number of a similar species and age (where practical) are planted on the proposed development site. Sufficient space for replacement trees to mature without causing future nuisance or damage shall be provided. The planting of new trees shall form an integral part of the design of any development scheme.

Proper provision must be made for the protection and management of trees or areas of woodland on-site when undertaking development. A management plan shall be provided as part of a planning application in accordance with BS 5837 (2012) in order to ensure that trees are adequately protected during development and appropriately maintained in the future. Conditions for the continued protection of trees on sites shall be included in any planning consent given.

Where there are existing trees on or adjacent to a development site, developers shall be required to provide:

- d. Land and tree surveys
- e. A tree constraints plan
- f. An arboricultural impact assessment to include a tree protection plan and arboricultural method statement

These will ensure that development is planned to take a comprehensive view of tree issues at an early stage in the design process and that development works do not have a negative impact on existing trees.

Developments shall also be consistent with all other Local Plan policies.

Policy ENV DM5

Development and biodiversity

Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement.

Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person.

All developments shall have regard to Natural England's standing advice for protected species.

Developments shall also be consistent with all other Local Plan policies.

Yapton Neighbourhood Development Plan 2014-2029

Policy E3: Protection of natural habitats

Development proposals that would result in either the loss of or unacceptable harm to an existing area of natural habitat will not be permitted unless:

- proposed mitigation measures would result in an effective solution to ensure that the integrity of the habitat continues after the implementation of the development; or
- the development concerned identifies appropriate measures for the relocation of the existing habitat to an appropriate area within 500 metres of the existing habitat and secures appropriate management arrangements both for the relocation and subsequent monitoring and aftercare.

Policy E5: Retention and enhancement of biodiversity

In order to retain and encourage biodiversity, flood attenuation ponds should, where possible, be included in the design of development proposals and these should incorporate links and corridors for wildlife. If this is not possible, then other forms of Sustainable Urban Drainage Systems (SUDS) should be provided.

On smaller developments, domestic rainwater management systems may be included instead of SUDS or flood attenuation ponds.

Provision of such features shall be designed to have adequate safety arrangements in order to prevent risk of accidents to children.

Policy E6: Green infrastructure and development

Proposals that seek to improve the connectivity between wildlife areas and green spaces will be encouraged in order to enhance the green infrastructure of the parish.

Ecological Appraisal Method

Introduction

The methodology for this appraisal is based on the Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom published by the Institute of Ecology and Environmental Management (IEEM June 2006). Regardless of whether a statutory Environmental Impact Assessment is required, these guidelines provide a robust framework for ecological assessment at any scale.

Desk Study

The first stage of the appraisal is a desk study of the proposed development site and associated Zone of Influence. This provides background information on the site and local environment so as to more effectively target field survey and further desk research.

The Multi Agency Geographical Information for the Countryside (MAGIC) database and Natural England's 'Nature on the Map' are interrogated for information regarding nationally or internationally designated sites within 1km or 5km of the site respectively.

The National Biodiversity Network (NBN) data base is interrogated primarily for any relevant local protected species records within the area. The NBN provides access to a substantial volume of biodiversity data for the UK. Although rarely site specific, it does provide valuable information on the local occurrence of protected species.

Where appropriate, the local environmental Record Centre is approached to provide information regarding locally identified sites and records of protected and/or notable species within and around 1km of the site and European Protected species within 5km of the site. Results are

Site Survey Methodology

The aims of the survey are to record land-use and broad vegetation types present on the site and in the surrounding areas, and to evaluate the habitats and vegetation communities ecological value along with the potential to support protected species, species of principal importance, and any other notable species.

Where relevant, habitat immediately adjacent to the site is also assessed as this can have a bearing on the possible presence of protected species on the site and the ecology of adjacent areas can be affected by development nearby.

Habitats and Vegetation

Habitats and vegetation communities are recorded on a broad scale by visually noting contrasting land uses, vegetation zones and landscape features, such as hedgerows and trees. Dominant plant species are recorded in each of the areas identified, as are any notable plant species, such as protected species and habitats or notifiable weeds.

Protected Species

Many plant and animal species are legally protected in the UK. Some, such as bats, badger, water vole and great crested-newt are commonly encountered on development sites. Protected species law is a serious consideration for developers and land owners, as failure to confirm their presence during initial project conception can later lead to serious programming delays and their associated costs and to prevent any infringement of the law.

Case law has established (Regina vs. The Cornwall County Council ex parte Hardy 2001) that “It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted.

For the most regularly encountered protected species, a brief summary of methods follows:

Protected Mammals

Bats

Bats use buildings and trees for roosting and breeding, and so the potential for any of these features on site to support bats was considered, as was the sites potential for providing bat foraging habitat.

External inspections of the trees and buildings on site were undertaken. The survey looked for the presence of bats as well as signs of their presence such as:

Bat droppings, e.g. within cavities and buildings;
Staining at potential roost access points;

Lack of bat evidence cannot be taken to mean the lack of use by bats and an assessment of potential roost sites was therefore also undertaken:

- Signs of bats can be easily washed off by wind or rain;
- Droppings are hard to see where rubble and other floor debris may obscure them;
- Low numbers of droppings can easily be missed especially where they may become damp and deteriorate;
- Evidence of bats may not be apparent where bats roost out of view, such as in tree cavities etc.

Badgers

The site and its boundaries were systematically searched for the presence of Badgers *Meles meles*, in particular badger setts, on or near (30-40m) of the site. The area was also assessed for the presence of badger foraging activity and territorial behaviour. Such signs include foraging trails, foraging scrapes in short grass, which are commonly known as 'snuffle holes' (shallow scrapes in soft ground or even turf rolling created by foraging for ground-dwelling invertebrates such as worms and grubs), footprints, hairs caught under fences, sett entrances, and latrine sites.

Dormice

The presence of Dormouse on or near the site was considered during the survey, principally through habitat suitability, combined with data on occurrence within the area. Where suitable habitat occurs, further survey for feeding signs on hazel nuts and honey suckle where it occurs along with searches for arboreal nests. If a site is considered suitable, further survey is usually required.

Other Mammals

Consideration is also given to the potential for habitats to support other legally protected mammals and those of nature conservation importance. Where any water bodies occur on or near to the site species including Water Vole *Arvicola terrestris* and Otter *Lutra lutra* are considered. Depending upon the geographic location consideration is also given to species such as Red Squirrel .

Breeding Birds

Any notable bird species seen during the survey are recorded. The type and quality of breeding, foraging and roosting habitats available for birds is also considered and interpreted with particular reference to protected or more notable bird species.

Consideration is given to any features which could support nesting birds, (Buildings and other structures, and areas of vegetation) that will be cleared or disturbed as a result of the development.

Reptiles

Any areas of habitat considered suitable for supporting reptiles were noted (for example, areas of rough grassland and scrub, banks, burrows, and rubble piles, compost heaps).

Great Crested Newt

Due to declines in numbers predominantly due to habitat loss and restricted European range, Great Crested Newts *Triturus cristatus* are protected under Section 9 of the Wildlife and Countryside Act, 1981 (as amended) and Regulation 39 of the Conservation (Natural Habitats &c) Regulations 1994, which protects Great Crested Newts from harm, injury and deliberate capture, killing, disturbance, damage and destruction of eggs, breeding site or resting place. This includes deliberate or reckless damage or disturbance.

Survey was by habitat suitability (the occurrence of suitable ponds and terrestrial habitat) combined with knowledge on their distribution from biological records for the area. If a site is considered suitable, further survey is usually required if an impact is considered likely.

Invertebrates

A very small proportion of invertebrates are afforded legal protection under the Wildlife and Countryside Act 1981 (as amended), although a relatively high number of invertebrates are included within the UK and local BAPs, and many more species are identified as being Nationally Scarce. Most invertebrates require specialist knowledge in order to identify them, although some groups, including butterflies and dragonflies, can be readily identified by generalists. Therefore, apart from recording any species of these readily identifiable groups, the survey concentrated on recording the presence of any key habitats of nature conservation importance considered suitable for supporting more scarce and restricted invertebrates, for example bare ground, dead wood and botanically rich habitats.

Survey Constraints and Limitations

The walkover survey was carried out during a brief window of time. And therefore, the survey has provided only a snapshot of the range of plants and animals that might be present. However,

professional judgement has been used to interpret the habitat features recorded, and their likely value for supporting protected and notable species, including species of principal importance. Survey was restricted through land access as it is unusual to have a landowner owning land surrounding that which is being surveyed.

Assessment Guidelines

Introduction

The IEEM guidelines (2006) and updated in 2016 (CIEEM, 2016) provide three principal reasons for an ecological feature being valued and therefore included within the EcIA: biodiversity value, social/community value, and economic value.

The evaluation and assessment undertaken assigns one of a number of value labels based on a geographic scale as follows:

- International
- National
- Regional
- County
- District
- Local (Parish)
- Within the zone of influence

Value is determined with reference to the following factors:

- level of designation (sites) or biodiversity-based protection (legal and policy);
- biodiversity value (e.g. inclusion in Biodiversity Action Plans, rarity, position in ecosystem, assemblages and communities, size and diversity);
- social and economic value;
- legal issues (eg protected sites).

All impacts of the scheme on features of local importance or greater are assessed in the impact assessment stage

Assessment of Likely Impacts

The ecological impact assessment methodology used is based on the following considerations.

Characterisation of Likely Impacts

The potential impacts identified as a result of the proposals are characterised according to the following parameters:

- Positive or negative
- Magnitude (and extent if not synonymous)
- Duration
- Reversibility
- Timing and frequency

Significance of Impact

A significant impact on a valued ecological feature (whether negative or positive) is defined in IEEM's guidelines as an impact on the integrity of a defined site or ecosystem, and/or the conservation status of habitats or species within a given geographical area. These terms are defined below.

Integrity

Integrity is defined as follows. *'The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.'* A site or ecosystem that achieves this is considered to be at favourable conservation status.

Conservation Status

For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, which may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area.

For species, conservation status is determined by the sum of the influences acting on the species, which may affect the long-term distribution and abundance of its populations within a given geographical area.

Impact Prediction

For guidance as to whether an impact is likely to result in an adverse effect on the integrity or conservation status of a feature, reference has been made to the conservation objectives for that feature where they are available, for example in habitat and species action plans. Otherwise professional judgement has been made based on available information.

The confidence in the prediction that an activity will give rise to a significant adverse impact on a valued ecological feature is given based on a four point scale:

- Certain (or near-certain);
- Probable;
- Unlikely; and
- Extremely unlikely

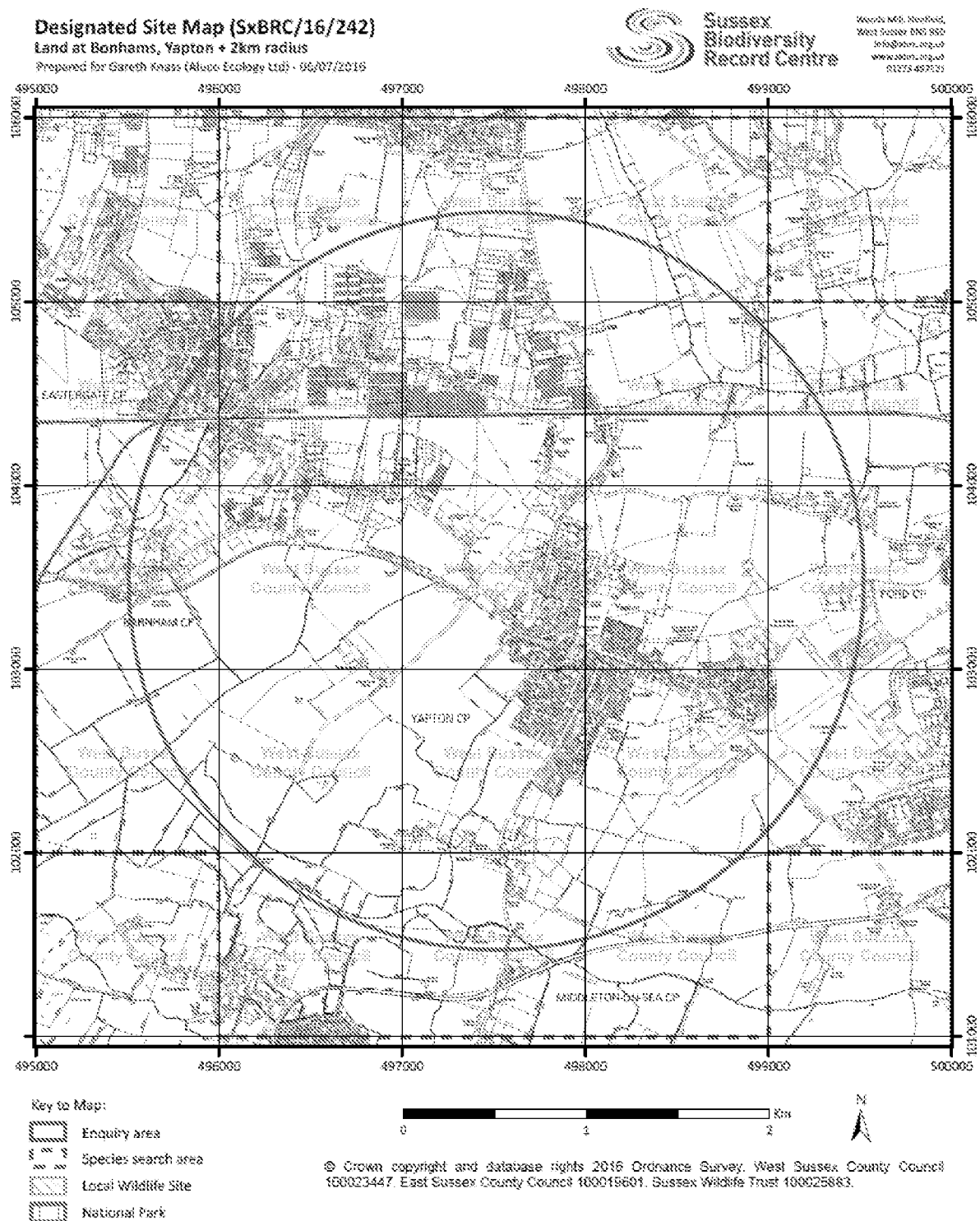
Drawing Assessment Together

The above factors – value, integrity and conservations status of the feature, prediction and characterisation of the impact and overall significance of the impact is brought together in the final assessment. This is done without additional mitigation measures that may be proposed. An impact is then summarised as significant or not.

Mitigation, Compensation and Enhancement

Where impacts are characterised as significant mitigation or compensation may be offered to prevent, reduce or offset such impacts. In addition enhancement measures may be built into a scheme to ensure that the scheme is compliant with the proactive measures outlined in the latest Government policy on nature conservation (PPS 9).

Including data from the Sussex Biological Records Centre



PAWS05, Special Area of Conservation (SAC), Special Protection Area (SPA), National Park, Area of Outstanding Natural Beauty (AONB), National Nature Reserve (NNR), Site of Special Scientific Interest (SSSI), Local Nature Reserve (LNR) and Geopark Park data reproduced with permission of Natural England. Site of Nature Conservation Importance (SNCI) data provided by East and West Sussex County Councils, and Brighton & Hove City Council. National Bird Nest data supplied by East and West Sussex County Councils. Local Geoparks Site (LGS) data received by SNCR in partnership with Sussex Geoparks Initiative. © Nature Conservancy 2016. All rights reserved 2016.

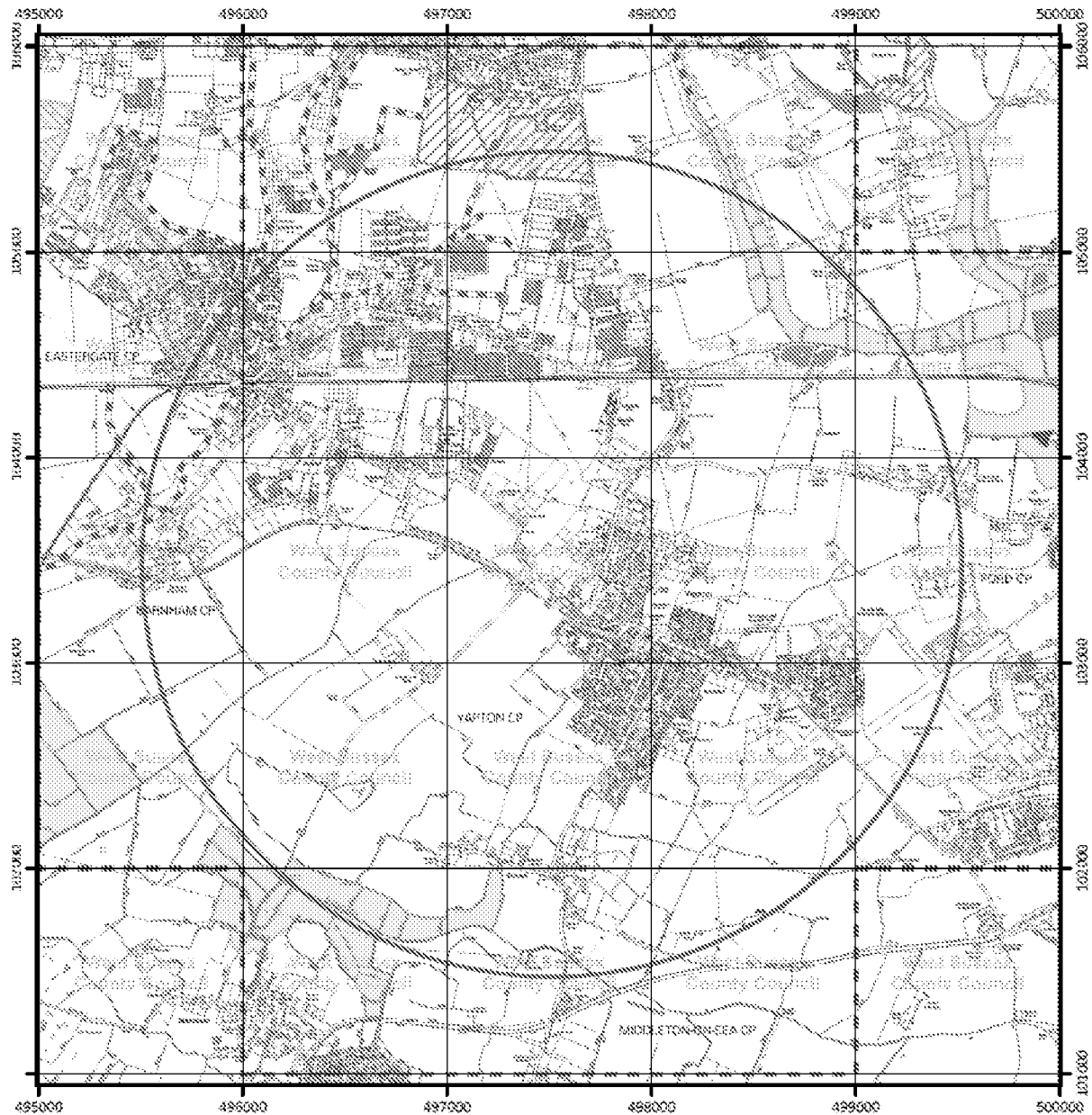
Habitat & Natural Features Map (SxBRC/16/242)

Land at Bonhams, Yapton + 2km radius

Prepared for Gareth Knapp (Aluco Ecology Ltd) - 06/07/2016

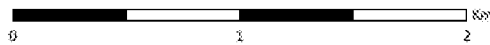


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Key to Map:

- Enquiry area
- Species search area
- Ancient/veteran tree
- Chalk stream
- Reedbed
- Open Water
- Traditional orchard
- Wood-pasture & parkland
- Ancient woodland
- Coastal & floodplain grazing marsh



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Ancient woodland, traditional orchards, woodpasture and parkland, vegetated dingle and native sedge data reproduced with permission of Natural England. Reputed ancient and woodland grazing marsh data remains provisional and is also reproduced with permission of Natural England. Chalk grassland data supplied by Natural England, and Sussex Downs Conservation Board. Black-Poller data supplied by Sussex Wildlife Trust. Ancient woodland data supplied by the Sussex Biodiversity Record Centre and maintained by NPS. Woodland data funded by West Sussex County Council, RPS and High Weald RCHG Unit. Ancient woodland tree data derived from results of the Ancient Tree Hunt Project and the Tree Register of the British Isles (TRBI). South East Coastal Habitat Mapping data reproduced with permission of Environment Agency. © Crown Copyright. All rights reserved 2016.

Sussex Biodiversity Record Centre (SxBRC) are created in-house or obtained from a variety of dataset providers. SxBRC continuously strive to further improve and update these data wherever possible. However, this map should be treated as indicative rather than definitive: data may be generated from a range of field survey and/or predictive methods, each of which may have its own inherent limitations. In some situations a recent ground survey may be required to establish definitively the current status of a particular habitat at a specific location.

SUSSEX BIRD INVENTORY REPORT SUMMARY

N.B. This summary report gives details of a ALL bird records. Details of notable bird records appear after this summary

Land at Bonhams, Yapton + 2km radius

08 July 2018 SxBR/18/242 Search Area: SU9951 to SU9951, SU9952 to SU9954, SU9955 to SU9955

Prepared for Gareth Knass (Aluco Ecology Ltd)

Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Canada Goose	<i>Branta canadensis</i>	19/02/1997	15/03/2014	55	619	199
Barracle Goose	<i>Branta leucopsis</i>	11/11/1997	-	1	11	11
Bent Goose	<i>Branta bernicla</i>	13/12/1991	23/12/1993	4	3588	1993
Goldeneye	<i>Bucephala clangula</i>	27/11/1999	08/03/2011	3	4	2
Mute Swan	<i>Cygnus olor</i>	08/10/1990	20/12/2014	153	1628	71
Bewick's Swan	<i>Cygnus columbianus</i>	27/01/2011	30/01/2011	4	4	1
Bewick's Swan	<i>Cygnus columbianus</i> subsp. <i>bewickii</i>	15/12/2014	-	1	4	4
Whooper Swan	<i>Cygnus cygnus</i>	11/01/2011	31/12/2014	26	101	5
Black Swan	<i>Cygnus atralis</i>	27/01/2011	30/01/2011	3	3	1
White-fronted Goose	<i>Anser albifrons</i>	17/11/2013	03/12/2013	2	6	3
Greylag Goose	<i>Anser anser</i>	12/02/2015	-	1	33	33
Egyptian Goose	<i>Alopochen aegyptiaca</i>	03/01/2014	-	1	1	1
Common Shelduck	<i>Tadorna tadorna</i>	30/05/1994	20/07/2015	19	44	6
Mandarin Duck	<i>Aix galericulata</i>	24/04/2011	05/10/2011	2	3	2
Wigeon	<i>Anas platyrhynchos</i>	31/12/1995	12/12/2014	30	799	132
Sadwall	<i>Anas strepera</i>	11/02/2000	12/12/2014	55	599	73
Teal	<i>Anas crecca</i>	06/02/1991	12/12/2014	51	1149	168
Mallard	<i>Anas platyrhynchos</i>	01/08/1992	12/12/2014	181	5833	413
Pintail	<i>Anas acuta</i>	17/01/2010	12/03/2013	3	29	29
Shoveler	<i>Anas platyrhynchos</i>	13/01/2002	01/05/2014	7	68	48
Pochard	<i>Aythya ferina</i>	20/01/1995	12/12/2014	49	311	34
Tufted Duck	<i>Aythya fuligula</i>	31/12/1995	12/12/2014	65	499	110
Lesser Scaup	<i>Aythya affinis</i>	24/01/2013	-	1	5	5

Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Little Egret	<i>Egretta garzetta</i>	20/01/1997	14/04/2015	52	108	9
Great White Egret	<i>Ardea alba</i>	14/01/2014	18/06/2014	2	2	1
Grey Heron	<i>Ardea cinerea</i>	01/04/1997	28/05/2015	159	732	28
Bittern	<i>Icthyophaga stelleri</i>	21/01/1997	10/02/2003	2	2	1
White Stork	<i>Ciconia ciconia</i>	15/09/2002	18/10/2010	2	2	1
Glossy Ibis	<i>Plegadis falcinellus</i>	11/02/2012	01/05/2014	6	11	2
Red-legged Partridge	<i>Alectoris rufa</i>	28/11/1994	11/03/2014	12	42	3
Grey Partridge	<i>Perdix perdix</i>	21/12/1994	01/12/2014	55	327	16
Quail	<i>Coturnix coturnix</i>	28/08/1997	28/05/1997	9	17	3
Pheasant	<i>Phasianus colchicus</i>	30/08/1994	12/12/2014	81	218	15
Golden Pheasant	<i>Chrysolophus pictus</i>	31/12/2009	-	1	0	0
Little Grebe	<i>Tachysticus ruficollis</i>	26/03/1993	08/08/2014	79	119	4
Great Crested Grebe	<i>Podiceps cristatus</i>	21/03/1999	12/12/2014	20	24	2
Cormorant	<i>Phalacrocorax carbo</i>	27/01/1995	08/11/2013	88	199	9
Honey-buzzard	<i>Pernis ptilorhynchus</i>	01/08/1993	-	1	1	1
Marsh Harrier	<i>Circus aeruginosus</i>	16/05/2003	18/11/2014	9	9	1
Hen Harrier	<i>Circus cyaneus</i>	24/02/2003	18/12/2013	7	7	1
Sparrowhawk	<i>Accipiter nisus</i>	27/01/1999	18/03/2013	52	57	3
Buzzard	<i>Buteo buteo</i>	27/08/1995	25/05/2015	105	157	8
Osprey	<i>Pandion haliaetus</i>	28/08/2011	-	2	2	1
Kestrel	<i>Falco tinnunculus</i>	10/01/1999	08/03/2015	122	157	3
Merlin	<i>Falco columbarius</i>	04/02/1998	02/01/2014	11	11	1
Hobby	<i>Falco subbuteo</i>	30/09/2003	-	1	1	1
Peregrine	<i>Falco peregrinus</i>	27/11/2004	14/09/2014	12	15	2
Moorhen	<i>Gallinula chloropus</i>	01/08/1992	12/12/2014	179	655	19
Water Rail	<i>Rallus aquaticus</i>	29/12/1999	30/12/2013	13	19	2
Cormorant	<i>Grus grus</i>	10/10/1994	-	1	1	1
Coot	<i>Fulica atra</i>	16/08/1992	28/07/2015	149	775	112
Crane	<i>Grus grus</i>	23/04/2014	30/04/2014	3	3	1
Little Ringed Plover	<i>Charadrius dubius</i>	27/05/2014	-	1	1	1
Ringed Plover	<i>Charadrius hiaticula</i>	30/05/1995	27/05/2014	4	17	2
Golden Plover	<i>Plovialis aprinaria</i>	25/11/1999	01/10/2013	31	369	46
Grey Plover	<i>Ploveris squatarola</i>	01/10/2013	-	1	3	3
Lagwing	<i>Vanelus vanellus</i>	25/11/1990	13/06/2014	80	941	309
Black-winged Stilt	<i>Himantopus himantopus</i>	08/08/2014	-	1	1	1
Common Sandpiper	<i>Actitis hypoleucos</i>	16/04/1993	01/05/2014	5	5	4
Snipe	<i>Gallinago gallinago</i>	08/02/1992	24/12/2014	50	425	35
Jack Snipe	<i>Lymnophanes minimus</i>	03/02/2012	-	1	2	2
Wentletrap	<i>Numenius phaeopus</i>	27/04/1992	07/05/2013	4	133	65

Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Curlew	<i>Numenius arquata</i>	08/04/1991	28/03/2014	12	212	97
Woodcock	<i>Scolopax rusticola</i>	17/01/1985	10/01/2015	8	9	2
Dunlin	<i>Calidris alpina</i>	27/03/2013	01/05/2014	2	32	30
Black-tailed Godwit	<i>Limosa limosa</i>	08/03/2010	27/05/2014	9	87	45
Spotted Redshank	<i>Tringa erythropus</i>	11/10/1999	-	2	2	1
Redshank	<i>Tringa totanus</i>	30/08/1994	01/05/2014	9	8	1
Greenshank	<i>Tringa nebularia</i>	18/05/2001	27/05/2014	4	5	2
Green Sandpiper	<i>Tringa ochropus</i>	07/10/1989	24/05/2014	5	5	1
Wood Sandpiper	<i>Tringa glareola</i>	13/05/1995	09/06/2014	3	3	1
Little Gull	<i>Hydrocoloeus minutus</i>	18/02/2014	-	2	24	12
Mediterranean Gull	<i>Larus melanocephalus</i>	23/03/2012	21/04/2014	3	7	4
Common Gull	<i>Larus canus</i>	28/01/2004	30/07/2011	4	14	6
Lesser Black-backed Gull	<i>Larus fuscus</i>	18/12/2003	14/07/2007	2	4	2
Herring Gull	<i>Larus argentatus</i>	07/05/2004	15/12/2014	57	280	54
Great Black-backed Gull	<i>Larus marinus</i>	07/05/2012	-	1	30	30
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	22/10/1991	12/12/2014	114	9373	782
Common Tern	<i>Sterna hirundo</i>	27/05/2002	15/08/2011	6	8	2
Rock Dove	<i>Columba livia</i>	15/10/1993	12/12/2014	52	2590	220
Stock Dove	<i>Columba oenas</i>	01/06/1992	05/07/2013	24	145	30
Woodpigeon	<i>Columba palumbus</i>	14/03/1991	28/12/2014	181	15086	4000
Collared Dove	<i>Streptopelia decaocto</i>	25/10/1989	12/12/2014	102	2248	280
Turtle Dove	<i>Streptopelia turtur</i>	01/08/1992	04/05/2012	4	7	3
Cuckoo	<i>Cuculus canorus</i>	01/05/1992	28/05/2015	28	29	2
Barn Owl	<i>Tyto alba</i>	01/11/1980	12/12/2015	24	27	3
Little Owl	<i>Athene noctua</i>	03/10/1985	13/06/2014	28	35	2
Tawny Owl	<i>Sturn aluco</i>	15/04/1993	18/05/2012	8	9	2
Long-eared Owl	<i>Asio otus</i>	02/10/1986	-	1	1	1
Short-eared Owl	<i>Asio flammeus</i>	23/10/1992	01/12/2014	65	140	8
Nightjar	<i>Caprimulgus europaeus</i>	02/06/2000	-	1	1	1
Swift	<i>Apus apus</i>	20/06/1994	14/07/2014	30	412	100
Kingfisher	<i>Alcedo atthis</i>	03/04/1983	01/10/2015	16	18	2
Hoopoe	<i>Upupa epops</i>	30/04/1997	-	1	1	1
Wrenneck	<i>Jynx torquilla</i>	12/02/1995	-	1	1	1
Green Woodpecker	<i>Picus viridis</i>	01/05/1994	12/12/2014	119	156	4
Great Spotted Woodpecker	<i>Dendrocopos major</i>	10/04/1986	08/08/2014	68	83	4
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	14/04/1993	15/05/1993	3	3	1
Geige Warbler	<i>Acrocephalus schoenobaenus</i>	01/05/1992	31/05/2014	84	175	12
Reed Warbler	<i>Acrocephalus scirpaceus</i>	01/06/1992	20/07/2015	89	627	48
Cetti's Warbler	<i>Cettia cetti</i>	01/09/2002	10/11/2014	30	30	2
Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Grasshopper Warbler	<i>Luscinia svecica</i>	30/06/1998	22/04/1998	3	3	1
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	27/10/2003	-	1	1	1
Chiffchaff	<i>Phylloscopus collybita</i>	01/08/1992	28/05/2015	75	124	6
Willow Warbler	<i>Phylloscopus trochilus</i>	30/08/1995	01/04/2014	12	15	3
Woodlark	<i>Luscinia arborea</i>	15/09/1999	23/01/2013	3	13	2
Siskin	<i>Alauda arvensis</i>	01/09/1992	10/11/2014	128	419	40
Song Martin	<i>Epitaxia riparia</i>	03/04/2010	01/09/2012	3	11	10
Swallow	<i>Hirundo rustica</i>	01/09/1992	09/04/2015	79	547	50
House Martin	<i>Delichon urbicum</i>	18/08/2002	04/05/2012	15	279	72
Meadow Pipit	<i>Anthus pratensis</i>	27/10/1994	08/03/2015	40	233	44
Yellow Wagtail	<i>Motacilla flava</i>	20/06/2012	13/09/2014	10	85	30
Grey Wagtail	<i>Motacilla cinerea</i>	01/12/1989	08/12/2013	18	22	2
Pied Wagtail	<i>Motacilla alba</i>	22/10/1991	12/12/2014	84	829	250
Pied Wagtail	<i>Motacilla alba subsp. yamellii</i>	10/10/2007	26/05/2015	8	10	2
Wren	<i>Troglodytes troglodytes</i>	01/08/1992	08/04/2015	151	1179	50
Duncock	<i>Prunella modularis</i>	01/09/1992	25/05/2015	142	940	27
Robin	<i>Erithacus rubecula</i>	01/08/1992	08/04/2015	143	1411	35
Nightingale	<i>Luscinia megarhynchos</i>	07/05/1993	04/09/2014	4	4	1
Black Redstart	<i>Phoenicurus phoenicurus</i>	12/04/1995	18/12/2012	4	4	1
Redstart	<i>Phoenicurus phoenicurus</i>	15/10/1994	03/09/2014	18	18	3
Whinchat	<i>Saxicola rubetra</i>	29/04/1993	22/04/2014	24	88	8
Stonechat	<i>Saxicola rubicola</i>	25/11/1990	15/12/2014	59	112	5
Wheatear	<i>Oenanthe oenanthe</i>	21/03/1993	23/09/2014	30	125	25
Ring Ouzel	<i>Turdus torquatus</i>	14/10/2012	-	1	2	2
Blackbird	<i>Turdus merula</i>	01/09/1992	09/04/2015	174	2819	76
Fieldfare	<i>Turdus pilaris</i>	08/10/1990	20/12/2014	78	7152	1200
Song Thrush	<i>Turdus philomelos</i>	01/09/1992	13/08/2014	93	183	15
Redwing	<i>Turdus iliacus</i>	20/11/1993	15/12/2014	81	2754	480
Mistle Thrush	<i>Turdus viscivorus</i>	01/09/1992	12/12/2014	25	43	4
Spotted Flycatcher	<i>Muscicapa striata</i>	23/07/2001	18/09/2014	13	28	6
Blackcap	<i>Sylvia atricapilla</i>	01/09/1992	14/07/2014	45	122	7
Garden Warbler	<i>Sylvia borin</i>	01/09/1992	01/09/2001	3	3	1
Lesser Whitethroat	<i>Sylvia curruca</i>	01/09/1992	30/04/2014	14	19	3
Whitethroat	<i>Sylvia communis</i>	01/09/1992	08/05/2014	50	151	10
Goldcrest	<i>Regulus regulus</i>	14/02/1991	10/11/2014	37	70	7
Firecrest	<i>Regulus ignicapilla</i>	12/12/2004	24/11/2012	3	3	1
Long-tailed Tit	<i>Aegithalos caedatus</i>	10/11/1991	12/12/2014	54	414	28
Blue Tit	<i>Cyanistes caeruleus</i>	01/09/1992	12/12/2014	139	939	28
Great Tit	<i>Parus major</i>	01/09/1992	12/12/2014	112	597	18

Common Name	Latin Name	First Date	Last Date	No. of Rec's	Total Abundance	Max. Abundance
Coal Tit	<i>Parus ater</i>	21/12/1994	08/01/2012	12	12	1
Marsh Tit	<i>Parus palustris</i>	14/01/1999	18/11/2003	3	3	1
Nuthatch	<i>Sitta europaea</i>	03/08/2004	14/09/2012	9	9	1
Treecreeper	<i>Certhia familiaris</i>	15/10/1994	28/02/2013	8	11	2
Jay	<i>Gemulus glandarius</i>	03/08/1994	12/12/2014	54	93	4
Maggie	<i>Fica pica</i>	01/08/1992	12/12/2014	142	617	28
Jackdaw	<i>Corvus monedula</i>	28/10/1993	12/12/2014	73	763	250
Rock	<i>Corvus frugilegus</i>	02/05/1998	10/11/2014	148	8597	330
Coron Crow	<i>Corvus corone</i>	01/08/1992	25/06/2015	165	783	45
Raven	<i>Corvus corax</i>	12/10/2012	15/10/2013	3	4	2
Starling	<i>Sturnus vulgaris</i>	01/08/1992	12/12/2014	113	5632	500
House Sparrow	<i>Passer domesticus</i>	23/01/1991	20/12/2014	112	1351	181
Tree Sparrow	<i>Passer montanus</i>	05/12/1999	11/03/1995	3	5	2
Lesser Redpoll	<i>Acanthis cabaret</i>	10/11/2013	-	1	1	1
Greenfinch	<i>Chloris chloris</i>	19/04/2009	13/07/2009	3	8	2
Linnet	<i>Linaria parva</i>	01/08/1992	19/12/2013	31	527	100
Siskin	<i>Spinus spinus</i>	14/11/2010	05/03/2015	5	35	25
Chaffinch	<i>Fringilla coelestis</i>	01/08/1992	08/04/2015	138	2719	139
Greenfinch	<i>Carduelis chloris</i>	01/08/1992	13/12/2014	123	748	82
Goldfinch	<i>Carduelis carduelis</i>	01/08/1992	14/04/2015	104	1245	470
Common Crossbill	<i>Loxia cornirostris</i>	29/10/2001	-	1	5	5
Bullfinch	<i>Pyrrhula pyrrhula</i>	01/08/1992	10/11/2014	45	113	55
Haunting	<i>Coccothraustes coccothraustes</i>	23/05/1998	-	1	1	1
Yellowhammer	<i>Emberiza citrinella</i>	05/11/1990	03/07/2015	151	821	102
Reed Bunting	<i>Emberiza schoenioides</i>	25/11/1990	08/08/2014	122	469	87
Corn Bunting	<i>Emberiza ostrinaria</i>	19/05/1975	01/06/2014	82	382	73

SUSSEX BAT INVENTORY REPORT SUMMARY

Please note that all species of bat and their roosts are protected by UK and European law, under the Wildlife and Countryside Act 1981 (WCA) in the UK and the Habitats Directive in the EU. Bats and their roosts may also be protected by site designations, for example if their roost site or feeding grounds are notified as Special Area of Conservation (SAC) or a Site of Special Scientific Interest (SSSI).

You could be committing a criminal offence if you :

1. Deliberately capture, injure or kill a bat. 2. Intentionally or recklessly disturb a bat in the roost or deliberately disturb a group of bats. 3. Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time). 4. Intentionally or recklessly obstruct access to a bat roost. 5. Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat.

Key to Indicators

M/S Mating/Swarming
H Hibernaculum
FR Feeding Roost
MR Maternity Roost
UR Unspecified Roost
D Droppings

Land at Bonhams, Yapton + 2km radius

08 July 2016

SxBR/16/242

Search Area: SU9801 to SU9801, SU9802 to SU9804, SU9805 to SU9805

Prepared for Gareth Knass (Alicon Ecology Ltd)

Common Name	Latin Name	No of Records	M/S	H	FR	MR	UR	D
Bat sp.	<i>Chiroptera</i>	8	☐	☐	☐	☒	☒	☒
Brown Long-eared Bat	<i>Plecotus auritus</i>	1	☐	☐	☐	☐	☒	☒
Common Pipistrelle (45 kHz)	<i>Pipistrellus pipistrellus</i>	2	☐	☐	☒	☐	☐	☐
Long-eared sp.	<i>Plecotus</i>	2	☐	☐	☐	☐	☒	☒
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	1	☐	☐	☐	☐	☐	☐
Natterer's Bat	<i>Myotis nattereri</i>	1	☐	☐	☐	☐	☐	☐
Noctule Bat	<i>Nyctalus noctula</i>	2	☐	☐	☐	☐	☐	☐
Pipistrelle sp.	<i>Pipistrellus</i>	8	☐	☐	☐	☐	☒	☐
Serotine	<i>Eptesicus serotinus</i>	2	☐	☐	☐	☐	☒	☒
Soprano Pipistrelle (55 kHz)	<i>Pipistrellus pygmaeus</i>	1	☐	☐	☐	☐	☐	☐
Unidentified Bat	<i>Myotis</i>	1	☐	☐	☐	☐	☒	☒
Western Barbastelle	<i>Barbastella barbastellus</i>	8	☐	☐	☐	☐	☐	☐

Triturus cristatus

Great Crested Newt

N

Amphibian

The largest British newt. It is black or dark brown and the males have a crest along the back and an orange underside spotted with black. Frequently confused with male smooth newts, which also have a crest. The great crested newt prefers larger, open ponds that are free of fish and waterfowl and has declined substantially in Britain and across Europe, mainly due to habitat loss. The species is fully legally protected and Britain has special responsibility for its conservation as some of the best European populations occur here. Scattered across East and Central Sussex but scarce in the west.

Designations

Bern Convention Appendix 2, European Protected Species, Habitats Directive Annex 2 - non-priority species, Habitats Directive Annex 4, Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec. Sussex Biodiversity Action Plan, Sussex Protected Species Register, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 2.4b), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 2.5b), Wildlife and Countryside Act 1981 (Schedule 5)

Grid Reference	Recorder	Date	Locality
SU983046	Anon @ Lizard Landscape Design	14/05/2012	Eric Wall Nursery, Barnham
SU974054	Kate Ryland/Barry Kemp	22/04/2005	Lazy W pond, Walberton, Walberton CP
SU977033	Anon District Countr Officer	04/05/2002	North End Rd, Yapton, Yapton

Bufo bufo

Common Toad

N

Amphibian

Still a widespread species in Sussex but declining due to loss of habitat and other factors. Toads tend to have large populations centred on particular breeding sites and they may become locally extinct if these are damaged or destroyed. Common toads are legally protected against sale.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (see, Sussex Biodiversity Action Plan, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b))

Grid Reference	Recorder	Date	Locality
SU95504	SARG Sussex Amphibian & Reptile Grp	01/01/1992	81 Barnham Road, Barnham, West Sussex (VC13)
SU963046	Anon @ Lizard Landscape Design	14/05/2012	Eric Wall Nursery, Barnham
SU9705	SARG 2002 Leaflet	2002	1 Orchard Terrace, Walberton, Arundel, West Sussex (VC13)
SU971059	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU973058	SARG 2002 Leaflet	2002	2 Henty Close, Walberton, Arundel, West Sussex (VC13)
SU983028	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU984031	Nick Sturt	2000 - 2010	Burndell Copse

Anguis fragilis

Slow-worm

N

Reptile

A legally protected legless lizard resembling a small snake. Slow-worms are widespread in southern England and found in open habitats such as rough grassland, heath and on road and railway embankments. They are often common in urban and suburban areas. Like most reptiles and amphibians they have declined considerably and need protection wherever they occur.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (see, Sussex Biodiversity Action Plan, Sussex Protected Species Register, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring)), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b))

Grid Reference	Recorder	Date	Locality
SU95504	SARG Sussex Amphibian & Reptile Grp	01/01/1995	Elm Grove South, Barnham, West Sussex (VC13)
SU952049	Sophie Miller	23/06/2010 - 30/06/2010	Brooks Nursery, Barnham, West Sussex (VC13)
SU953047	Anon @ RAUK website	22/07/2009	Elm Grove, Barnham
SU953048	Elaine Sturgess	2009	Hook Lane area, Aldingbourne, West Sussex (VC13)
SU955048	SARG recorder	14/05/2001	Elm Grove South, Barnham, Barnham
SU960043	Libby Crew	28/09/2005	Barnham Station, Barnham
SU963038	SARG Sussex Amphibian & Reptile Grp	01/01/1998	45 Hill Lane, Barnham, Nr. Bognor, West Sussex (VC13)
SU963044	Anon @ Lizard Landscape Design	12/04/2011	Barnham Rise, Barnham
SU963046	Anon @ Lizard Landscape Design	14/05/2012	Eric Wall Nursery, Barnham
SU965046	Anon Ecological Services	2015	Barnham
SU967045	Recorder @ The Ash Partnership	April 2007	Eric Wall Nursery, Lake Lane, Barnham
SU971059	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU973058	SARG 2002 Leaflet	2002	2 Henty Close, Walberton, Arundel, West Sussex (VC13)
SU978024	John Feltwell	April 2007 - May 2007	Bitsham Road, Yapton Bitsham
SU978043	Sophie Miller	30/08/2010 - 17/09/2010	Lake Dell, Yapton, West Sussex (VC13)
SU983028	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU983051	Joanna Meachem	02/09/2002	The White House, Westergate Street, Westergate, West Sussex (VC13)
SU984031	Nick Sturt	2000 - 2010	Burndell Copse

Zootoca vivipara**Common Lizard****Reptile**

The most abundant British lizard and widespread in Sussex in the Weald and along the coast. Probably under-recorded and increasingly confined to small areas of open sunny habitat. A legally protected species due to concern about its overall decline.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (see, Sussex Biodiversity Action Plan, Sussex Protected Species Register, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring)), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)

Grid Reference	Recorder	Date	Locality
SU952049	Sophie Miller	23/09/2010 - 30/09/2010	Brooks Nursery, Barnham, West Sussex (VC13)
SU960043	Libby Crew	28/09/2005	Barnham Station, Barnham
SU963044	Anon @ Lizard Landscape Design	12/04/2011	Barnham Rise, Barnham
SU963046	Anon @ Lizard Landscape Design	14/05/2012	Eric Wall Nursery, Barnham
SU965046	Anon Ecological Services	2015	Barnham
SU971059	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU984031	Nick Sturt	2000 - 2010	Burdell Copse

Natrix natrix**Grass Snake****Reptile**

A widespread, but legally protected, snake with a normally olive body flecked with black and a distinctive yellow collar. Frequent in Sussex near places where its food, largely frogs, is readily available. Like most reptiles and amphibians, grass snakes have declined considerably and need protection wherever they occur.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (see, Sussex Biodiversity Action Plan, Sussex Protected Species Register, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring)), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)

Grid Reference	Recorder	Date	Locality
SU9504	SARG Sussex Amphibian & Reptile Grp; Dennis Day	25/05/1998	17, Elm Grove South, Barnham, West Sussex (VC13)
SU952049	Sophie Miller	24/09/2010 - 24/09/2010	Brooks Nursery, Barnham, West Sussex (VC13)
SU953048	Elaine Sturgess	2009	Hook Lane area, Aldingbourne, West Sussex (VC13)
SU955046	SARG recorder	14/05/2001	Elm Grove South, Barnham, Barnham
SU960043	Libby Crew	14/09/2005	Barnham Station, Barnham
SU963038	SARG Sussex Amphibian & Reptile Grp	01/01/1998	45 Hill Lane, Barnham, Nr. Bognor, West Sussex (VC13)
SU963044	Anon @ Lizard Landscape Design	11/04/2011	Barnham Rise, Barnham
SU964052	SARG recorder	01/08/2001	1a Downview Rd, Barnham, Bognor, Bognor Regis
SU965046	Anon Ecological Services	2015	Barnham
SU96580235	Barry Kemp	27/05/2008	Bilsham Lane, Bilsham
SU967022	Paul Whitby	May 2011	Bilsham Farm, Yapton CP
SU9702	SARG Sussex Amphibian & Reptile Grp; Dennis Day	15/07/1998	Shamrock, Bisham Road, Yapton, West Sussex (VC13)
SU9705	SARG 2002 Leaflet	2002	1 Henty Close, Walberton, West Sussex (VC13)
SU973058	SARG 2002 Leaflet	2002	2 Henty Close, Walberton, Arundel, West Sussex (VC13)
SU974054	Kate Ryland; Barry Kemp	08/04/2005	Lazy W pond, Walberton, Walberton CP
SU975059	SARG 2002 Leaflet	2002	West Sussex, West Sussex (VC13)
SU984031	Nick Sturt	2000 - 2010	Burdell Copse

Vipera berus

Adder

N

Reptile

Britain's only venomous snake, though incidences of snakebite involving man or domestic animals are relatively uncommon. Adders have a distinctive zig zag pattern of black or brown and white. They occur in open areas on downs, heaths and in heathy woods. Grass snakes and slow-worms are often misidentified as adders. Though widespread in Britain and found in suitable areas across Sussex, the adder, like all our native reptiles has declined substantially through habitat loss and other factors. The adder is a protected species and it is illegal intentionally to kill or injure them.

Designations

Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (see, Sussex Biodiversity Action Plan, Sussex Protected Species Register, UK Biodiversity Action Plan priority species, Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring)), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a), Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)

Grid Reference	Recorder	Date	Locality
SU963038	SARG Sussex Amphibian & Reptile Grp	01/01/1998	45 Hill Lane, Barnham, Nr. Bognor, West Sussex (VC13)
SU973058	SARG 2002 Leaflet	2002	2 Henty Close, Walberton, Arundel, West Sussex (VC13)

Technical Appendix 6

Birds Recorded From the Site

Species (BOU vernacular name - IOC International name - scientific name - category)	Site List	Sch1	BAP	Red	Amber	Green
Sparrowhawk Eurasian Sparrowhawk Accipiter nisus A	1					1
Buzzard Common Buzzard Buteo buteo AE*	1*					1
Herring Gull European Herring Gull Larus argentatus A	1*		1	1		
Stock Dove Columba oenas A	1				1	
Woodpigeon Common Wood Pigeon Columba palumbus A	1					1
Collared Dove Eurasian Collared Dove Streptopelia decaocto A	1					1
Tawny Owl Strix aluco A	1				1	
Swift Common Swift Apus apus A	1*				1	
Green Woodpecker European Green Woodpecker Picus viridis A	1					1
Great Spotted Woodpecker Dendrocopos major A	1					1
Kestrel Common Kestrel Falco tinnunculus A	1				1	
Magpie Eurasian Magpie Pica pica A	1					1
Jackdaw Western Jackdaw Corvus monedula A	1					1
Rook Corvus frugilegus A	1					1
Carrion Crow Corvus corone A	1					1
Goldcrest Regulus regulus A	1					1
Blue Tit Eurasian Blue Tit Cyanistes caeruleus A	1					1
Great Tit Parus major A	1					1
Coal Tit Periparus ater A	1					1
Swallow Barn Swallow Hirundo rustica AE	1*					1
House Martin Common House Martin Delichon urbicum A	1*				1	
Long-tailed Tit ‡ Aegithalos caudatus A	1					1
Chiffchaff Common Chiffchaff Phylloscopus collybita A	1					1
Blackcap Eurasian Blackcap Sylvia atricapilla A	1					1
Wren Eurasian Wren Troglodytes troglodytes A	1					1
Starling Common Starling Sturnus vulgaris A	1		1	1		
Blackbird Common Blackbird Turdus merula A	1					1
Song Thrush Turdus philomelos A	1		1	1		
Robin European Robin Erithacus rubecula A	1					1
Dunnock Prunella modularis A	1		1		1	
House Sparrow Passer domesticus A	1		1	1		
Chaffinch Common Chaffinch Fringilla coelebs AE	1					1
Greenfinch European Greenfinch Chloris chloris AE	1					1
Goldfinch European Goldfinch Carduelis carduelis A	1					1
Total =	34	0	6	4	6	24

* Overflying site only

Key

Species in **Category A** have been recorded in an apparently natural state at least once since 1 January 1950.

Species in **Category B** have been recorded in an apparently natural state at least once between 1 January 1800 and 31 December 1949, but have not been recorded subsequently.

Species in **Category C**, although introduced, now derive from the resulting self-sustaining populations.

- **C1** – Naturalized introduced species - species that have occurred only as a result of introduction, e.g. Egyptian Goose *Alopochen aegyptiacus*
- **C2** – Naturalized established species – species with established populations resulting from introduction by Man, but which also occur in an apparently natural state, e.g. Greylag Goose *Anser anser*
- **C3** – Naturalized re-established species – species with populations successfully re-established by Man in areas of former occurrence, e.g. Red Kite *Milvus milvus*.
- **C4** – Naturalized feral species – domesticated species with populations established in the wild, e.g. Rock Pigeon (Dove)/Feral Pigeon *Columba livia*.
- **C5** – Vagrant naturalized species – species from established naturalized populations abroad, e.g. possibly some Ruddy Shelducks *Tadorna ferruginea* occurring in Britain. There are currently no species in category C5.
- **C6** – Former naturalized species - species formerly placed in C1 whose naturalized populations are either no longer self-sustaining or are considered extinct, e.g. Lady Amherst's Pheasant *Chrysolophus amherstiae*.

Key to BoCC4 = Birds of Conservation Concern 4

Red-list criteria:

IUCN: Globally Threatened (CR = Critically Endangered, EN = Endangered, VU = Vulnerable). HD: historical decline in the breeding population. BDP1&2: severe breeding population decline over 25 years/longer term. WDP1&2: severe non-breeding population decline over 25 years/longer term. BDR1&2: severe breeding range decline over 25 years/longer term. WDR1: severe non-breeding range decline over 25 years.

Amber-list criteria:

ERLOB: Threatened in Europe (CR = Critically Endangered, EN = Endangered, VU = Vulnerable). HDrec: historical decline – recovery. BDMP1&2: moderate breeding population decline over 25 years/longer term. WDMP1&2: moderate non-breeding population decline over 25 years/longer term. BDMR1&2: moderate breeding range decline over 25 years/longer term. WDMr1: moderate non-breeding range decline over 25 years. BR/WR: breeding/non-breeding rarity. BL/WL: breeding/non-breeding localisation. BI/WI: breeding/non-breeding international importance.

Bat Tree Survey, Emergence and Activity Monitoring

1) Trees Survey Method

Introduction

All bat species and their roosts are fully protected in Britain under the Wildlife and Countryside Act 1981(as amended) and the Conservation (Natural Habitats &c.) Regulations 1994 (as amended).

Initial Survey

Tree survey methodology involves looking for any suitable holes, cracks, niches or crevices which could be used by bats for roosting. In addition, large or apparently unhealthy trees which have a dense covering of Ivy possibly covering holes or crevices also have some potential to support bats. These are all termed potential roost features.

A survey for signs of residence by bat species consists of a slow methodical search of all aspect of the tree for actual roosting bats and their signs. Droppings around holes, on the tree trunk or on the ground beneath can be used to identify species. Scratch marks and staining at roost entry and exit holes. The presence of spider webs at a potential roost can often indicate their absence at that time although does not mean that the hole is not used at all. Careful attention is given to any sounds indicating the presence of a breeding bat roost (i.e. audible social calls). The survey is completed using binoculars from ground level and high powered torch and endoscope to inspect cavities with ladder where safe access permits.

Detailed Tree survey

Where the value of an individual tree or woodland area is found to be high during a preliminary survey, a more comprehensive survey in order to fully assess the likely value of the potential bat feature is undertaken. The scope of additional work will vary depending on a range of environmental factors.

Survey techniques are likely to include:

- Emergence survey during early evening (i.e. prior to emergence and at emergence), with the aid of a bat detector for ultrasonic calls.
- Climb-and-inspect assessment of selected trees to check for cavities and inspection with an endoscope or mirrors if appropriate.
- Foraging and transect walks through habitat surrounding potential tree roosts to understand local bat use of the site.

Survey work is tailored to each individual case, and the degree of evening emergence and foraging work undertaken is based on the following factors:

- size of the site;
- number of trees to be affected;
- habitats on site (eg water features/woodland);
- habitats and protected sites in the wider countryside;
- knowledge of bat use in local area;
- geographical range of rare species;
- proximity to known or suspected roosts.

Limitations of Tree Survey

Bats may move regularly between different tree roosts, and if used infrequently, signs to indicate the use of such trees by bats are unlikely to be evident. In addition, any signs which are left on trees by bats as a result of their use of a roost site (e.g. droppings below a roost exit) may be washed off as a result of wind and rain. Consequently, it is often difficult to confirm the presence of a bat tree roost. Surveys are best described as a sampling tool to assess presence of different bat species using the site at that time and place and general use of the area by bats.

Evaluation of Potential Suitability of Proposed Development Sites for bats (including Buildings & Trees)

The latest bat survey guidelines has provided guidance on assessing and evaluating development sites and features for bat roost potential:

The potential for trees to support roosting or breeding bats is evaluated under the following protocol for the visual inspection of trees:

Suitability	Description Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions^a and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation^b). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.^c	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^a and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^a and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

^a For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

^b Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2015). This phenomenon requires some research in the UK but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in large buildings in highly urbanised environments.

^c This system of categorisation aligns with BS B598:2015 Surveying for bats in trees and woodland (BSI, 2015).

Table from (BCT 2016 at p35)

Best practice methods for Tree Work

Works to trees used by bats (even if the bats are not present at the time) may result in an offence being committed under this law. If bats or bat roosts are found to be present in a tree, a European Protected Species (EPS) license from Natural England is likely to be required to legally undertake works on that tree. Where a satisfactory survey has resulted in no evidence of bats being found, and bats are then incidentally discovered during work, it is a legal requirement that the activities are halted immediately and Natural England consulted.

To reduce the chance of disturbing a bat roost it is important to avoid the summer (breeding season) and winter (hibernation) months. Works to trees with potential for bats is best done in September when young bats are mobile and on the wing, female bats are unlikely to be pregnant and the hibernation season has not yet begun. March is also a suitable time, (although careful survey is required for nesting birds as these are legally protected during this period).

Bats may move regularly between different tree roosts, and if used infrequently, signs to indicate the use of such trees by bats are unlikely to be evident. In addition, any signs which are left on trees by bats as a result of their use of a roost site (e.g. droppings below a roost exit) may be washed off as a result of wind and rain.

Consequently, it is often difficult to confirm the presence of a bat tree roost, and as a result an assessment of the trees to identify those with potential to support a bat roost is usually undertaken with trees with bat potential categorised into three categories.

There are a number of procedures that can be used by tree surgeons to ensure that best practice is maintained when undertaking tree felling/pruning operations. These are detailed below. The application of these principals applies to trees with potential bat roost features. These methods should be used on these trees during the suitable tree felling periods (September and March).

- Keep tree work to a minimum retaining all potential roosts where possible.
- A precautionary inspection of the tree(s) by the tree surgeon looking for signs of bats should be carried out before starting work. This should include an inspection of all holes and niches using a torch and preferably an endoscope where qualified to do so. If bats or signs of bats are found no work should start and Natural England should be contacted for further advice.
- Where possible avoid cross cutting in proximity to cavities or hollows.
- Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites.

- Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape.
- Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, potentially trapping bats.
- Where ivy covers areas of a tree's trunk or branches, there may be hidden roosting potential behind it. Dealing with ivy covered trees depends on the amount of ivy. If there is a thick mass of ivy growth it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible left for 24 hours, before section cutting. If the tree is only partially covered, pruning or sectioning may be more appropriate. If the works are not urgent cutting the ivy at its base and completing the work when the ivy is dead, thus reducing the bat roosting potential should be considered. However where stems of ivy create a dense mass against the trunk there will always be roosting potential.

If bats or evidence of bats are found at any time, all works must stop immediately and Natural England contacted for further advice.

(2) Bat Activity Survey

Introduction

The value of a site to bats can be arrived at using activity surveys to understand how many bats use the site, the degree of use and what species are involved.

Timing

An activity survey is undertaken in conditions when bats are likely to be active. Evening surveys commenced from sunset, often beginning with monitoring certain potential bat roost trees or woodland areas where such trees exist, for any emerging bats.

Dawn survey work may also be undertaken, usually recording activity up to two hours before, and sometimes up to an hour after sunrise.

Activity surveys are undertaken during the period when bats are not hibernating, this is usually between the end of April to October.

Methods

Line transects are carried out by a surveyor carrying a bat detector/s (example used, Bat box Duet, Petterson D240x, Anabat SD1) who walks at a constant speed along a planned route and records sound for subsequent analysis, and/or bat passes or species. The data collected can be used to provide an index of bat activity along the transect route. Line transects are best suited to open habitats with linear features, such as hedgerows, field boundaries and woodland rides. Transect surveys, when repeated

should be undertaken in opposite directions and, if possible, started from different points along the route. The number of transects required to cover the main habitat features depend on the size and complexity of the site. Transects should be sampled within 2-3 hours after sunset. The transect methodology should consider, for example identifying listening points where a minimum of 3 minutes recording is undertaken along the route and or combined with activity monitoring with recording equipment left for longer periods recording all bat passes. (BCT, 2012)

Since different species of bats echolocate using different frequencies, there is a risk that certain species will be missed if the bat detector is not tuned to the frequency used by that species at the time. Therefore, during the majority of the survey period, a surveyor scans through different frequency ranges to ensure as many bats were recorded as possible. The main frequency ranges used were as follows:

- 32-55khz to detect the smaller species of bats, such as Pipistrelle spp, Myotis spp, etc.
- Around 22-30 khz to detect the larger bat species, including Noctule and Serotine bats.

In addition the Anabat SD1/Songmeter SM2 Automated recorders were used to allow greater survey intensity than with manual bat detector surveys. They can allow longer periods of time coverage than could be practically and economically covered by manual survey, providing more comparable results, or be used to provide a more flexible timetable for surveying. Automated systems are triggered by sound (via a detector) and these sounds are then recorded as event / bat passes.

Assessment of Landscape for Potentially Good Bat Foraging sites or Flight Lines

The habitats across the site are surveyed and assessed on their likely use by bats for foraging and for use in commuting across the landscape. This assessment is based upon the following main factors:

- Sheltered areas where insects are likely to gather;
- Presence of rough grassland or other habitats likely to result in higher insect numbers;
- Provision of linear links across otherwise open habitat to allow bats to following features within shadows (i.e. hidden from predators), while also providing foraging potential.

Data Collected

Time, flight direction and species of bat are recorded for each bat heard or seen and these were mapped on individual site maps. Time of sunset / sunrise and weather conditions are also recorded for each survey.

The following data is gathered for bat passes recorded:

- Location of observation (data highlighted on a map);
- Whether the bat was foraging or commuting (if commuting, in which direction was it travelling and whether the bat was following any landscape features);
- Species of bat observed (where possible).

(3) Bats in Buildings Survey Method

Introduction

Bats use buildings and trees for roosting and breeding, and so the potential for any of these features on site to support bats needs to be considered in an ecological assessment of a development site. Building survey methodology is provided below.

Methods

The survey for signs of residence by bat species consists of undertaking a slow methodical search both internally and externally for actual roosting bats and their signs which could indicate the presence of a bat roost including:

- Bat droppings – e.g. on floors, stored articles, walls, beams, tiles, windowsills entry / exit points etc. These can be used to aid species identification.
- Dark staining at well-used roost sites (e.g. ridge boards & timber joints, etc) or entry / exit points.
- Wear marks at bat roost sites and entry / exit points.(This can be a polishing and smoothing of rough wood surfaces and masonry or slight scuffing of very smooth wooden surfaces)
- Urine spots or streaking in the vicinity of bat roosts and entry / exit points.
- Similarly the presence of spider webs at a potential roost can often indicate their absence at that time, but requires careful interpretation combined with other evidence

All internal spaces of the buildings are searched, including gaps at the roof timber frame joints. External surfaces of the building are also examined for evidence of use of any potential bat access points. The surveyor uses a strong torch in dark internal areas and shaded outdoor areas, endoscope for inaccessible spaces, binoculars and, where appropriate, a ladder to examine the buildings externally.

The potential to support bat roosts either in the summer (nursery) or winter (hibernation) based previous experience of bat occupancy at other sites and upon the presence of suitable roost sites and access points is also considered. In particular, the potential for roost sites which are hidden from view is noted.

Survey Constraints and Limitations

Lack of bat evidence cannot always be taken to mean the lack of use by bats as signs of bats can be easily washed off by wind or rain. Droppings are hard to see where rubble and other floor debris may obscure them. Low numbers of droppings can easily be missed especially where they may become damp and deteriorate. Evidence of bats may not be apparent where bats roost out of view, such as in wall cavities etc.

Surveys are carried out during a brief window of time, and therefore, provide only a snapshot of the site use. As bats regularly move between different roost sites, particularly to satisfy their varying requirements at different times of the year, a bat survey often concentrates upon searching for signs to indicate the presence of roosting bats at any time of the year. Due to these survey limitations an assessment using professional judgement is also used to interpret the findings and the potential for

supporting bats and is used to guide any recommendations for precautionary approaches to carrying out the proposed work.

Reference

Bat Conservation Trust. (2012) Bat Surveys Good Practice Guidelines. 2nd Edition. Bat Conservation Trust. March 2012. ISBN-13: 9781872745985

Bat Conservation Trust (2016) Bat Surveys Good Practice Guidelines 3rd Edition. Bat Conservation Trust

Mitchell-Jones ed. (2006) “Bat Conservation Handbook” Third Edition, English Nature

Technical Appendix 8

Reptile Survey Methodology For Common Reptile Species

Introduction

All of the common reptile species (Grass Snake, Adder, Common Lizard and Slow-worm) native to Britain are protected by the 1981 Wildlife & Countryside Act 1981 (as amended) under Sections 9(1) and 9(5). This legislation makes it illegal to intentionally kill or injure a common reptile and also, to sell, barter, exchange or transport for sale these animals or parts of them. However, their habitat is not directly protected.

Survey Methods

Survey work involves the placing of cut up roofing felt or other flat materials such as corrugated iron sheeting, wood or plastic that reptiles hide under. The reptiles use these artificial refugia as they warm faster than the surrounding environment and are attractive to shelter beneath. In order to be effective, refugia need to be placed in the most suitable habitat and in the best locations within those habitats for reptiles. Survey refugia are placed at a minimum of 10/ha.

Reptiles can be surveyed using this technique between early spring and late autumn. The times of the year that provide optimum survey are April to late June, and late August to the end of September.

Survey work is undertaken during suitable weather conditions (i.e. between 9 and 18°C with little or no wind and no rain). High temperatures in late June to late August mean that suitable weather conditions occur the morning / late afternoon, after and even during rain in warm weather, and on overcast days.

Refugia survey is always complemented by visual searching for reptiles which are not utilising refugia.

Population Size Assessment

In order to assess the importance of a population the population size needs to be assessed. This uses standard numbers from the Herpetofauna Groups of the British Isles (HGBI, 1999) advisory notes for Amphibian and Reptile Groups (ARGs) **Table T1** below.

Table T1: Assessing Reptile Populations

Species	Population size (adult density)		
	High	Medium	Low
Slow-worm	(> 100 / ha)	(> 50 / ha)	(< 50 / ha)
Common lizard	(> 80 / ha)	(> 40 / ha)	(< 20 / ha)
Adder	(> 4 / ha)	(2 - 4 / ha)	(< 2 / ha)
Grass snake	(> 4 / ha)	(2 - 4 / ha)	(< 2 / ha)

References

Herpetofauna Groups of the British Isles (HGBI) Guidelines (1998) “Evaluating Local Mitigation/Translocation Programmes: Maintaining Best Practice and Lawful Standards.” HGBI Advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth, personal collection.

Froglife, 1999. Froglife Advice Sheet 10. Reptile Survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth, Suffolk.

Great Crested Newt Habitat Suitability Index

Introduction

Great Crested Newts and their habitat are protected under the Wildlife & Countryside Act 1981 (as amended) and under European Law through the Habitat Regulations 2010.

Habitat Suitability Index (HSI) scoring system has been developed to provide an indication of the likely value of a waterbody to Great Crested Newt. It was initially developed by Oldham et al (2000). The methodology has been adapted by the Amphibian and Reptile Groups of the UK (see ARG UK, 2010). The index is a measure of habitat suitability, but should not be used as a substitute for detailed newt survey work. Ponds with a high HSI score are more likely to support Great Crested Newt than those with a low score. HSI is therefore useful to (see ARG UK, 2010):

- Evaluate general suitability of a pond, or ponds for Great Crested Newt,
- Compare general suitability of ponds across different areas,
- Evaluating suitability of receptor ponds in a proposed mitigation scheme,
- Identifying habitat management priorities.

The HSI scoring system is graded in five steps from poor – below average – average – good – excellent.

HSI summary for Bonhams House Pond:

- (1) Geographic location = 1
- (2) Pond Area = $12 \times 2.5\text{m} = 30\text{m}^2 = 0.05$
- (3) Permanence = 0.9
- (4) Water quality (bad = 0.01) = 0.01
- (5) Shade = 20% = 1
- (6) Waterfowl = 1
- (7) Fish = 0.01
- (8) Pond count = 2 = 0.55
- (9) Terrestrial habitat = poor = 21% = 0.33
- (10) Macrophyte cover = 10% = 0.4

$5.25 / 10 = 0.525 = \text{Below Average}$

References

ARG UK (2010) Great Crested Newt Habitat Suitability Index ARG UK Advice Note 5

Frog Life (Langton, T., Beckett, C. & Foster, J.) (2001) Great Crested Newt Conservation Handbook. English Nature (2001). Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10(4), 143-155.

Letter to Berri Court:

Aluco Ecology Ltd

18 August 2016

To the Owners
Berri Court
Main Road,
Yapton
Arundel
BN18 0ED

Dear Sirs,

Wildlife Survey Work in Yapton

We are ecologists working for a neighbouring landowner to the west of your property, at land around Bonhams, Yapton.

As part of our survey work for this land we are looking at local ponds/waterbodies that are just off the site (up to around 500m away). This is in order to assess the value of the local resource for wildlife, but particularly for Newts. It has been flagged up to us that there may be a pond within the grounds of your property. If there is a pond, would you be willing to allow us access to have a look at it for our survey work?

Our contact details are set out below. Thanks for your time.

With regards
Yours sincerely,

Gareth Knass LLB (Hons) MSc CMIEEM
Tony Blunden MSc CEnv CMIEEM

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Reptile Translocation Methodology

Translocation of Reptiles

In summary, translocation is the movement of animals, usually deliberately, from one location to another (Gent *et al*, 1998). The receptor site is the site to which reptiles are moved, the donor site (or in this case development site) is where they are moved from.

The aim of the mitigation strategy is to ensure that an ‘equivalent population’ is maintained to that which existed before (Gent *et al*, 1998). Reptile mitigation strategies usually involve translocations and habitat management which is implemented between March and October once any reptiles on site have emerged from hibernation.

Receptor sites must be assessed prior to the translocation of any reptiles, against criteria provided as good practice guidance. This ascertains the existing population of reptiles on the receptor site and identifies any habitat management needs in order to provide the optimum habitat for translocated reptiles.

HGBI (1998) and Gent *et al* (1998) recommend that ‘reasonable effort’ should be undertaken to clear a site of reptiles prior to any works being carried out. Interpretation of what ‘reasonable effort’ translates as in minimum trapping days and capture methodologies is provided in **Table 1** below.

Table A1: Minimum Capture Effort for Common Reptiles

Species	Population size (adult density)	Tin density (tins/ha)	Minimum number of trapping days in good weather
Slow-worm	High (> 100 / ha)	100	All suitable days between March & September or a full year (min. 90 suitable days)
	Medium (> 50 / ha)	100	All suitable days between March & September or a full year (min. 70 suitable days)
	Low (< 50 / ha)	50	60 suitable days
Common lizard	High (> 80 / ha)	100	All suitable days between March & September or a full year (min. 90 suitable days)
	Medium (> 40 / ha)	100	All suitable days between March & September or a full year (min. 70 suitable days)
	Low (< 20 / ha)	50	60 suitable days
Grass snake	High (> 4 / ha)	100	All suitable days between March & September or for two years (min. 90 suitable days)
	Medium (2 - 4 / ha)	100	All suitable days between March & September or two years (min. 70 suitable days)
	Low (< 2 / ha)	50	60 suitable days

Monitoring is necessary in the medium and long term in order to assess the success or otherwise of the translocation programme.

Capture Areas Assessment

The areas of the site to be developed have either very low or no reptile populations over most parts, and a translocation has already occurred over the main area of the site.

Receptor Area Assessment

A receptor site for reptiles needs to meet certain criteria to ensure that the conservation status of the populations of reptiles on the capture site and any on the receptor site are maintained. In order that a receptor site is sustainable in the long term the following assessment criteria recommended by HGBI (1998) have been used to find a site:

- A receptor site should be local to the donor site, and as close as possible to it (at least within the same county or similar administrative area, with similar geology/habitat);
- Not currently supporting a viable breeding population of the species to be translocated, for known reasons, or be capable of supporting them given suitable habitat management and creation;
- Not be subject to planning or other threats in the foreseeable future;
- Subject to a written, agreed and funded pre- and post-translocation management agreement;
- Subject to a written, agreed and funded pre- and post-translocation monitoring programme.

There have been various translocation programmes which have assessed the populations and carrying capacities of a range of different reptile habitats particularly in relation to slow-worms. It is widely recognised that slow-worms can, in their ideal habitat, regularly occur at 1000+ per hectare but are usually present at lower densities. However it should always be carefully considered that few sites have large areas of continuous good slow-worm habitat capable of supporting such high populations although smaller, localised areas of a site may do so. When estimating the carrying capacity of a release site and considering the number of reptiles to be translocated, a precautionary approach will be used. The mitigation strategy will provide a larger area of suitable habitat at the receptor site than at the capture site.

The receptor site that is most fits the criteria above based on knowledge of populations on site, is the retained public open space woodland area on the site. The long term management of this area can be prescribed to cater for the small populations of reptiles, as well as other informal recreational activities and the other nature conservation interests.

Translocation Methodology

In order to fulfil a translocation of reptiles from the development site to the receptor sites, the animals must be caught, or in the case of a very low population discouraged from the areas of the site to be lost. The most effective method for capture involves the placing of cut up roofing felt or other materials such as corrugated iron sheeting, wood or plastic that snakes and lizards hide under. Refugia/Tins are best placed in locations which will be attractive to reptiles (e.g. 'sun-traps').

The most profitable time for capturing reptiles is generally between late April and late June, and again between late August and late September. The suggested number of days required to catch reptiles for a reasonable effort to remove the population is described in **Table A1** above.

Capture Site Preparation

The development site must be prepared in order to facilitate the successful removal of reptiles. Sheets of roofing felt and tin will be placed across the site to act as refugia for the reptiles. They will be placed at a high density in suitable habitat. Areas of suitable reptile habitat with a high reptile density may have a tin density of up to 5 refugia per 10m², in line with the guidance in **Table A1**. The placement of a higher number of refugia on site will increase the efficiency of capture and can reduce the number of trapping days required to clear the site of reptiles.

Capture Effort

Table A1 above provides the suggested capture effort for Slow Worms, based on good practice guidance, whereby 60 trapping visits can be required to clear common reptiles from a site such as present, during periods of suitable weather conditions (HGBI, 1998). Reptile translocation can require at least one season (March to October), and sometimes longer, to ensure that all reptiles are removed from the development site.

The purpose of this type of translocation is to make reasonable effort to remove all reptiles from a site prior to a development. Where reptile populations are low or on small sites, Natural England often provide additional guidance that reasonable effort has been made and translocation to be considered complete in any area. The capture rate needs to have declined to zero over at least three consecutive trapping visits in suitable weather conditions.

Habitat Manipulation

The areas of habitat affected by the development will be modified to reduce their suitability for reptiles. This will encourage reptile movement within the site to increase capture in key areas around refugia and may also encourage some dispersal to suitable retained habitats. The grass height will be reduced by cutting to no less than 10cm on the first cut and will be phased in bands and habitat areas across the site. The location and timing of this process will be guided by capture rates in the different areas of the site.

Translocation programme

The development site will be inspected regularly and any reptiles will be captured and moved, using the methods described above to the receptor site. For the translocation to be considered complete in any area, the capture rate needs to have declined to zero over at least three consecutive trapping visits in suitable weather conditions.

The guidance on indicative trapping effort that may be required suggests this may take 60 trapping visits (HGBI, 1998). Close monitoring of the capture rate will allow a judgement to be made of the number of visits considered to be necessary. The site will be walked very slowly in order to search for basking reptiles and by carefully lifting each refugia, an attempt will be made to catch any reptiles basking beneath.

All reptiles will be transported to the receptor site in a secure ventilated container. At the end of each visit all reptiles caught will be released in suitable conditions at the receptor site. Details of all captures and releases will be recorded.

Exclusion Fencing

Reptile fencing will be used where required to prevent reptiles returning to cleared areas, and where populations are considered sufficient to warrant it.

Supervised site clearance

Following the completion of the translocation in any areas of the site, a supervised site clearance will be carried out. This will take place outside of the hibernation season usually between April- early October (November – February is the main hibernation period dependent on weather conditions). The technique is a last method used and requires very careful specialist supervision. Normal destructive search rates are between 0.1 and 1.0 ha per day depending on machine size and habitat type.

The search will begin by dismantling rubble piles and other debris by hand. Reptiles may be found sheltering in these structures. Following this, the vegetation will be stripped using an excavator and bucket. Firstly, the top few centimetres of the ground or first layer of rubble should be removed, to expose reptiles sheltering in crevices just below the surface. At least one experienced reptile handler should be positioned to catch any remaining reptiles as they are disturbed. Following this, larger and deeper excavations can be made, concentrating on areas which afford shelter to reptiles, such as tree stumps and buried rubble. Particular care should be taken when emptying the bucket in case any reptiles are dug up with the spoil. It is not anticipated that many reptiles (if any) are discovered as the reptile populations will have almost completely been moved by this stage.

Prior to starting works, the contractors will be alerted to the presence of protected species on the site and provided with the method statement and plans. The contractors will be shown reptiles, so that they are familiar with their identification, should they come across them during vegetation works.

Monitoring

Following completion of the work, monitoring of the reptile population at the receptor site will be completed by Aluco Ecology during the following two years, in order to determine the success of the translocation project.

Natural England (English Nature, 1998) suggests the following guidance which may determine the ‘success’ of a mitigation strategy:

- Removal of a ‘reasonable proportion’ of animals from a development site or no significant impact from development where in situ conservation is involved;

- Establishment and maintenance of a range of suitable habitats: with the presence of ‘good’ features and absence of ‘negative’ features;
- Breeding and successful recruitment;
- Re-establishment of animals in a range of habitat or spread of the animals throughout a site or to adjacent sites;
- Establishment of an appropriate age structure in the population;
- Survival of a large proportion of the animals that were moved;
- Establishment of:
 - A viable population
 - An expanding population
 - An ‘equivalent’ population to that which previously occurred
 - A population that is fluctuating in size within acceptable limits;
- Persistence of individual animals over a number of years.

References

Herpetofauna Groups of the British Isles (HGBI) Guidelines (1998) “Evaluating Local Mitigation/Translocation Programmes: Maintaining Best Practice and Lawful Standards.” HGBI Advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, c/o Froglife, Halesworth, personal collection.

Froglife, 1999. Froglife Advice Sheet 10. Reptile Survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife, Halesworth, Suffolk.